Public Works (1897) Department.

G.O., No. 143 J

DATED 12. February 697

[Despatch Abstract.]

Lasabandara Irrigation Works; Approving proposal of the chief Engineer for Irrigation to waive percentage charges in the case of allotments for restoration of repairs.

Indexed.

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IRRIGATION.

Government {1897} of Madras.

PUBLIC WORKS.

Recd. } 1897. *Enclosures*

Regd. } *Spare copies*

G.O., No. 143 I., 12th February 1897.

FEBRUARY.

Dasabandam Tank Works

Approving the proposal of the Chief Engineer for Irrigation to waive percentage charges in the case of all —, whether restoration or ordinary repairs.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

To the Secretary to Government, Revenue Department, dated 26th October 1896, No. 346.
From the Secretary to Government, Revenue Department, dated 22nd Dec. 1896, No. 98.

No. 16 I.

Note by the Chief Engineer for Irrigation.

In paragraph 6 of G.O., No. 858 I., dated 24th October 1895, it is stated that, in the case of dasabandam irrigation works, the usual percentage charges for establishment, tools and plant should be waived. This rule has hitherto been applied only to estimates for restoring dasabandam tanks, the cost of which is divided between Government and dasabandamdars. It is laid down in G.O., No. 772 I., dated 10th September 1892, that the percentage charges should be waived in the case of ordinary repairs to dasabandam tanks when Government revenue or the security of other Government tanks is concerned.

2. It is now proposed to waive the charges in the case of all dasabandam tank works whether restoration or ordinary repairs.

(Signed) W. HUGHES,
Chief Engineer for Irrigation.

25th January 1897.

ORDER—No. 143 I., dated 12th February 1897.

The proposal of the Chief Engineer for Irrigation is approved.

(True Extract.)

(Signed) W. HUGHES,
Joint Secy. to Government,
Irrigation Branch.

To all Superintending Engineers.
„ the Chief Engineer for Irrigation.
„ the Chief Engineer for Irrigation, Tank Restoration Scheme.
„ the Examiner, Public Works Accounts.
„ the Revenue Department.

Exd. Md. Pahilvan.

No. 143 Irg 12-2-97.

For Secretary to Governor.

Public Works (1897) Department.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Current No. 1487
Recd. 10.2.97

UNDER date the
Enclos: 2

READ the following

Secretary to Govt. Revenue Dept. (Hge Memorandum No. 346 dated 26 Oct. 1896)
do do (Hge do No. 98 dated 22 Dec. 1896)
by the Chief Engineer for Irrigation - No. 16-I dated 25 Jany 1897

In para 6 of G.O No. 858-I dated 24th October 1895, it is stated that in the case of dasabandam irrigation works, the usual percentage charges for Establishment, Tools and Plant should be waived. This rule has hitherto been applied only to estimates for restoring dasabandam tanks the cost of which is divided between Government and dasabandars. It is laid down in G.O No. 772-I dated 10 September 1892 that the percentage charges should be waived in the case of ordinary repairs to dasabandam tanks when Government revenue or the security of other Government tanks is concerned.

2. It is now proposed to wa
the charges in the case of all das
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Issue

W.H.
"I" 9.2.97

-bandam tank works whether re-
-storation or ordinary repairs.

[signature] 19/1

WH

4 P

Order thereon.

The proposal of the Chief Engineer for Irrigation is approved.

A.S.H 6.2.97

[signature] 19/1 [9]7.

WH 25.1.97

[signature] 9/2/97

To All Superg. Engineers &
The Chief Engineer for Irrigation.
The Chief Engr. for Irrigation, Tank Resto
The Examiner, Public Works Accts.
The Revenue Dept.

E I. Form No 1—1,600—27-11-95.

E. I. Form No. 22—2,000—8-8-96.

1439

Keep-with.

No. , dated 189 .

See I No. IV/49-NA d/ 7-10-96.

Later Case
PWC 357 d/ 11-1-97

Indexed 26/11/96

GOVT. OF MADRAS. } 1896. { P. W. DEPT.

CHIEF ENGINEER FOR IRRIGATION.
Joint Secretary to Govt: P.W.D.Irrigatio

Madras, 26nd October 1896.

Office Note No. 346

Circulation Register.

To	From	Despatch Date.	Receipt Date.
The Secretary to Government Revenue Department	The Joint Secretary to Govt: P.W.D. Irrigation Branch	27.10.96	

In para 6 of G.O.No:858 I dated 24
October 1895 it is stated that in the case
dasabandam irrigation works the usual perc
-age charges for Establishment tools and p
should be waived. This rule has hitherto be
applied to only estimates for restoring Das
-bandam tanks the cost of which is divided
-tween Government and Dasabandamdars.It is
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that the percentage charges should be waive
in the case of ordinary repairs to Dasabhan
-dam tanks when Government revenue or the s
-curity of other Government tanks is concer
-ed.

2. It is now proposed to waive the

charge

...ges in the case of all Dasabhandam ....k whether restoration or ordinary re-...airs. Please let me know if you see any ...jection to this proposal.

For Joint Secretary to Government

P.W.D.Irrigation Branch.

Public Works (1897) Deptt.

REVENUE SECRETARIAT. E.2

Current No. 351

No. 98 1487/97

OFFICE NOTE.

Station ~~Fort St George~~ date ~~22nd Dec~~ 1896.

Recd. 11.1.97

From the Secy to Govt.

Rev. Dept.

To

The Secy to Govt. P W D.

Ref-O.N.No.346 from P.W.D. dated 26.10.96

The undersigned has the honour to state that there is no objection to the usual percentage charges on account of establishment tools and plant being waived in the case of all dasabandam tanks as proposed in para 2 of the office note under reply.

G. Gleston.

Ag: Secy. to Govt.

E.2/1487/97

No. 858 I., 24TH OCTOBER 1895.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

G.O. No. 1300 P.W.D., dated 24th May 1876.
„ „ 311 Revenue, „ 11th March 1880.
„ „ 451 I., P.W.D., „ 3rd „ 1884.

From the Hon'ble Mr. E. GIBSON, Secretary to Government, Revenue Department, to the Chief Engineer for Irrigation, dated Ootacamund, 12th August 1895, No. 45.

With reference to the inquiry made in his office-note, dated 16th July, the undersigned has the honour to inform the Chief Engineer that dasabandam tanks are not Government works handed over to ryots for maintenance, but irrigation works constructed by private individuals, it being the policy of former Governments to encourage by grants of inams the construction, repair and maintenance of such works in dry districts by private agency.

Grants of Inams.—The grants are now of two descriptions—"Khanda dasabandams" where a specified field or fields are enjoyed by the dasabandamdars as inams and "Shamilat dasabandams" where they are remunerated by a fixed share of the revenue derived each year from the work. Dasabandamdars are bound to keep the tanks in a state of efficiency and to execute all ordinary repairs on pain of resumption of the inams.

2. The following extracts will explain the origin and the nature of these dasabandam tanks more fully:—

Paragraph 6 of Sir Thomas Munro's letter to the Board, dated 23rd June 1801, No. 59—

"The sum of 43,265 pagodas in column 74 is the amount of inams granted for the building of tanks, &c., of which near 30,000 pagodas belong to the three districts of Goramcondah. In other districts the inam is usually an eighth or tenth of the Sircar share of the produce; but there it is from one-fourth to one-half. There are three different kinds of this inam—one is when it is a certain field which may be either cultivated or not according to the quantity of water in the tank; a second is when it is a certain proportion of the produce; and a third, and by far the most common is, when it is a fixed and invariable quantity of cultivated land. In this last way it may often greatly exceed the Sircar share, for, suppose the whole land under a tank to be 20 candies and the inams 8 candies, if only 12 or only 8 cultivated, the inamdar still takes his complete inam, and in the one case, leaves only half his own share and in the other nothing to the Sircar. These inams are said to have been first granted in Goramcondah above two centuries ago in order to encourage the construction of tanks of which that district had then very few. If this was really the case the design has met with all the success that could have been expected, for I have seen no country that is better supplied with tanks than Goramcondah now is. It is not so much the amount of those inams as the mode of fixing them that is objectionable, for could Government all secure three-fourths or even a half of the produce of tanks which should cost it nothing, it would no doubt, be a greater gainer in the end than it would be by constructing them at its own expense.

"There is great reason to suspect that many of the tank inams have been created by the karnams, that others have been augmented in value by changing the original tenure for one more favourable, and that numbers of them ought to revert to the Sircar from failure of heirs, but these points can only be ascertained after a long and tedious investigation. A great diminution of almost every description of inams will be the result, yet such is the quantity of waste that I scarcely look for an addition from them of 25,000 pagodas to revenue."

(2) Paragraph 47 of the report on the operations of the Inam Commission—

"The inams of this class usually known as "dasabandams" are confined chiefly to the Ceded District, the western proportions of Guntúr, Nellore, North Arcot and Salem. They were granted as a recompense to private individuals who constructed tanks, wells and river channels by means of which the revenue of the State was augmented. The extent and value of the inam were in proportion to the capital expended on the work and the outturn in revenue. These grants are of two descriptions—"Khanda dasabandams," or inams given in specific localities and "Shamilat dasabandams," or the allowance as inam of a certain proportion of each year's cultivation under the work in question. Inams of the latter description were not brought on the inam registers, as they had no locality. In all ordinary cases dasabandamdars are under the obligation of maintaining the works of irrigation in due repair. In some cases such a condition was either not attached to dasabandam inams or it had not been enforced for a long time. Such inams were treated and enfranchised as personal grants."

(3) Paragraph 3 of Board's Proceedings, dated 29th December 1879, No. 3404—

"The exact nature and origin of the dasabandam tenure is involved in some obscurity, but the Board do not regard Mr. Gribble's view as correct. As pointed out in Board's Proceedings, dated 9th August 1876, No. 2020, it seems clear from a letter from Sir Thomas Munro written in 1801 that the inams were originally granted to encourage the construction of tanks in a district ill-supplied with the means of irrigation, and the Government, repudiating the policy adopted in 1870, held that such works are "doubtless the recognised private and beneficial works of past generations." There may have been considerable encroachments in time past, but the titles cannot now be questioned. It is doubtless within the competence of Government to resume the inams temporarily in case of refusal to execute ordinary repairs in the same way as State grants to private charitable institutions are attached until the buildings have been put in proper repair, and this course has sometimes been resorted to, but no claim to deal with the works themselves as Government property has ever been put forward, and the inamdars are not bound to satisfy modern requirements by the construction of additional works. There is no analogy between the case of service and dasabandam inams, and even if there were, it is observed that the holders of the former were not summarily deprived of their grants, but allowed to enfranchise on favourable terms; nor does the fact that no claim has ever been put forward by dasabandamdars to the beds of the tanks support Mr. Gribble's view; a property in the waterspread was not necessarily conveyed by the permission to construct the tank."

(4) G.O. No. 311, dated 11th March 1880.

No. 178 I.

Note by the Chief Engineer for Irrigation.

During the investigation by the Tank Restoration Scheme of certain minor basins in the North Arcot and Salem districts, a large number of estimates have been received for the repair of dasabandam tanks. Instructions for the repair of these tanks were issued in G.O. No. 451 I., dated 3rd May 1884, but it is not quite clear what policy Government wishes to follow, and the instructions given are not very definite as they only lay down what the dasabandamdars are not expected to do, and do not mention the agency by which the work, which the dasabandamdars are not expected to do, is to be carried out, nor the standard of efficiency to which the works should be brought.

2. The practical question for the decision of Government appears to be whether any considerable expenditure is to be incurred (under 43. Minor Works and Navigation) on dasabandam irrigation works in the shape of special repairs and improvements, or whether the majority of these works are to remain in their present unsatisfactory condition without sluices or proper escapes. Unless Government comes forward with a contribution, the present state of affairs is likely to continue for an indefinite period.

3. From the orders above quoted it appears that dasabandamdars can only be required to maintain their tanks up to the standard which was deemed necessary at the time they were constructed and that improvements, such as adequate escapes, regarding which nothing was known at that time, should not be demanded of them when the construction involves an expenditure bearing more than a fair proportion to the revenue (G.O. No. 1300, dated 24th May 1876) but what an adequate escape or a fair proportion of the revenue is, does not appear to be laid down. Hardly any of these tanks are provided with efficient escapes and it is, in many cases, perfectly easy to evade what appears to be the duty of Government and to make them safe by forcing the dasabandamdars to raise the bund to a height to suit the existing inadequate escapes on pain of resumption of the inams, though the cheaper and more suitable method would be to provide a longer escape with a comparatively low bund. According to the existing custom it would therefore apparently be within the terms of the original agreement to force the inamdars to maintain bunds at an unnecessary height in order to save Government the cost of a contribution towards special repairs. As Government has for years been receiving a portion of the wet assessment with absolutely no expenditure in return, a contribution, when special repairs are required, seems only equitable.

4. In the accompanying draft rules it is provided that ordinary repairs should, as now, be carried out by the dasabandamdars, but that the cost of special repairs should be contributed by Government and the inamdars in proportion to the interests of each. In order not to press too hard on the dasabandamdars, it is proposed that the usual percentage charges for establishment, &c., should be waived and that the inamdars should be permitted to execute the special repairs under the supervision of the Public Works Department or Collector. If this is allowed the contribution will be practically reduced to the supply of labour and materials and no cash need be collected.

5. It is suggested that the draft rules may be referred to the Revenue Department for such modification as may be necessary and that definite answers may be given to the following:—

(*a*) When an estimate is prepared for the restoration of a dasabandam tank is it to provide for bringing the work to the standard of efficiency ordinarily considered necessary in the case of other Government Irrigation Works?

(*b*) How is the cost of restoration to be met?

OOTACAMUND,
21st August 1895.

(Signed) F. W. ASHPITEL,
for Chief Engineer for Irrigation.

Mis. No. 3723, Revenue.

Retransferred to the Public Works Department, with the remark that the proposed rules seem fair and suitable, and in accordance with the tenure of dasabandam inams.

2. Of the two questions asked at paragraph 5 of the note, dated 21st August 1894, the first (relating to the standard of repairs) is answered in the affirmative. The cost of the restoration referred to in the second question should be met as in paragraph 3 of proposed rules, but the inamdars should be first asked to give their consent to the execution of the necessary works. If they refuse to consent, or, having consented, subsequently fail to pay their share of the cost, the inam will be resumed.

OOTACAMUND,
14th September 1895.

(Signed) E. GIBSON,
Secretary to Government.

ORDER—No. 858 I., dated 24th October 1895.

The following rules for the repair and maintenance of dasabandam tanks are approved:—

(1) Inasmuch as dasabandam inams were originally granted to encourage the construction of irrigation works in districts ill-supplied with means of irrigation (and the amounts of the inams were presumably calculated on the assumed capital cost and annual cost of maintenance), the dasabandamdars should be required to maintain the works in a due state of repair.

2. When a dasabandam irrigation work is reported to be in a bad state of repair and the restoration involves the construction or reconstruction of sluices and surplus escapes, the Collector or, in the case of works included in the list of minor works in charge of the Public Works Department the Executive Engineer, shall cause an estimate to be prepared for the thorough repair of the work.

3. The cost of restoration of a dasabandam irrigation work, as provided in rule 2, shall be divided between Government and the dasabandam inamdars in proportion to the interest each has in the work, this interest being determined by the ratio of the value of the inams to the average annual collection of revenue during the previous five years, but the inamdars should be first asked to give their consent to the execution of the necessary works. If they refuse to consent, or, having consented, subsequently fail to pay their share of the cost, the inam will be resumed.

4. When a dasabandam irrigation work is reported to be in need of ordinary repairs, which do not involve the construction of any masonry work, the Collector shall call upon the dasabandam inamdars to execute the repairs necessary to bring the work up to the standard of efficiency ordinarily considered necessary in the case of ordinary Government irrigation works and shall fix a reasonable time within which the repairs shall be carried out, failing which the inam should be fully assessed.

5. The restoration of dasabandam irrigation works, as provided for in rule 2, shall be carried out by the Public Works Department, or by the establishment under Collectors, the actual execution of the work being entrusted to the dasabandam inamdars. If they fail to execute the work in a satisfactory manner, the inam may be fully assessed.

6. In the case of dasabandam irrigation works the usual percentage charges for establishment, tools and plant shall be waived.

(True Extract.)

Under Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ all Superintending Engineers.
„ the Examiner, Public Works Accounts.
„ the Revenue Department.
Editors' Table.

Exd. Shaik Karim.

Spare Copies

IRRIGATION.

Govt. of {1895} Madras.

PUBLIC WORKS.

Dated October, 24th.

Recd. *Encl.*

G.O. No. 858 I., 24th Oct. 1895.

OCTOBER.

Dasabandam Irrigation Works

Certain rules for the repair and maintenance of —, approved.

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Proceedings of the Madras Government, Public Works Department,
24th *May* 1876.

Read the following :—

Irrigation. No. 46 W.

No. 423. MEMORANDUM.

THE following notes of inspection of Irrigation Works in the Cuddapah District are submitted for the information of Government. The District Engineer accompanied me throughout, the tour and the Sub-Collector, Mr. Gribble, was with me for two and a half weeks during the inspection of tanks, &c., in the sub-division.

November 1875.

2. The bund is a strong one and in fair order, but would be the better for a little attention by the villagers to the filling in of cracks and rat holes which should be made good and well tamped with crowbars. The bund appears to have been raised at some period subsequent to the first construction of the tank, as the lower part is very thick, while the upper 5 or 6 feet are of ordinary section. The waste weir is at the north end, and is 170 feet long with a sloping apron, the surface of which is plastered. It was slightly damaged during the flood of 1874, when 5 feet of water passed over it, and repairs were in progress, but the necessity for keeping the plaster damp had not been understood, and the stone used for repacking the tail of the apron is much too small. At the junction with the bund there is a wing wall of insufficient height. At the other end the escape terminates at a large boulder, beyond which is a short bit of bund ; by clearing away the boulder and bund an extension of 30 feet to the weir could be secured. The drainage basin measures on the Atlas sheet 80 square miles. The actual discharge over the weir last year was about 6,400 cubic feet a second, and the maximum may be taken at from 7,500 to 8,000 cubic feet a second, and as with 200 feet of weir the depth passing over would be about $6\frac{1}{4}$ feet the extension is evidently desirable and it can be carried out at a small cost. The wing wall should be 9 feet above F.T.L., or the end of the bund above the present wing should be protected by a substantial revetment with a backing, the face stones being pointed. The maintenance of the surplus weir in repair is provided for by an Inam, said to be of the value of Rupees 500 annually ; the weir is in very fair order, and the cost of its upkeep probably does not average 50 Rupees a-year.

Chinna Tippasamudrum Tank.

3. This tank obtains in ordinary years a very poor supply, there being another tank a short distance above it which intercepts three-fourths of the drainage. It is one of the numerous instances in which two tanks have been constructed where one would have done all that was practicable. To remedy to some extent the insufficiency of the supply, a catch drain was run so as to intercept a part of the supply of a Dasabundum tank to the eastward, and the chief part of the supply obtained is from this source. The road to the Mysore frontier passes over the bund, and widening for the improvement of the road was in progress on a Road Fund estimate. At the west end of the bund, surplus is discharged at a dry stone escape, the junction of which with the bund is in bad order and requires attention.

Cotookottah large Tank.

4. The bund varies much in height and the revetment is much displaced, but still suffices for the protection of the earth work. The rains of 1874 were unusually heavy, and the depth of surplus water discharged over the weir 300 feet long was 3 feet; the water also cut a channel at the east end of the bund. About twelve years ago the crest of the surplus weir was raised 2 feet, and it is now above the level of the ground beyond the end of the bund. Additional means of discharging surplus can be provided at either end of the bund, but at the west end the water would traverse cultivated land. The tank can be made safe and efficient at a moderate outlay, but the reconstruction of the revetment when this becomes necessary, though this, it may be hoped, will be many years hence, will cost a good deal of money.

Rungasamudrum Tank.

5. The surplus is discharged at a weir 450 feet in length at the east end. Left wing is only a revetment. Right wing is of indifferent masonry and $3\frac{3}{4}$ feet above crest. Altogether, therefore, the arrangements for disposal of surplus are not satisfactory, and there was considerable risk in 1874, when 3 feet of water are said to have passed over the weir. The escape could be extended 200 feet at the right end. The drainage basin is about 100 square miles, and to limit M.W.L. to 3 feet above F.T.L. an addition of 92 feet would be necessary, while with 200 feet added to the weir the M.W.L. would be above $2\frac{2}{3}$ feet above F.T.L. The bund should not be less than 4 feet above M.W.L., and the settlement of the proper length of escape will depend upon the bund levels. The surplus channel has a rocky bed; the weir has three distinct sections built at different times; in the middle of the crest wall there is a curious little swami house.

Pedda Tippasamudrum Tank.

$D = 300 \times 100\frac{3}{4} = 9{,}486$ cubic feet a second.

Dams across Surplus Channel.—There are said to be several. The one I saw is a regular anicut and must have cost a good deal of money. It was constructed long ago for the supply of a petty field channel taking off from one flank. Should there be a demand for much expenditure on these dams in the future, it will be necessary to reduce the number to be maintained as far as possible.

6. A scheme was brought forward some years back for cutting a channel from the Kundakoor tank for the supply of the Pedda Tippasamudrum and Rungasamudrum tanks. Mr. Brickwell was employed on the investigations, and estimates were submitted to, and were reviewed in, this office, the opinion formed being unfavorable to the scheme on the information then made available. The proposed line of channel between the Kundakoor tank and Pedda Tippasamudrum was inspected, the result being a confirmation of the opinion formed from the surveys and levels. The country is rough and difficult, and the construction of an efficient channel would inevitably be very costly. Water can be taken from the Kundakoor tank only when that has obtained a sufficient supply, and it is only in favorable years that there is any surplus. The head of the channel was to have been on the east side of the Kundakoor tank, about a mile south of the bund, and to the south of the hill on which the east end of the bund abuts. It may, it is thought, be safely assumed that there is no probability of sanction being given to any scheme for a channel through so difficult a country. Even were there a certainty of water being available annually, it would not be worthwhile to incur the expense.

Supply Channel from Kundakoor Tank.

From District Engineer, No. 650, dated 16th June 1870.
To the ,, ,, ,, 148, ,, 27th June 1870.

The estimate, as submitted, amounted to Rs. 8,31,000, and it did not provide for all that was necessary to the safety of the channel. The correspondence as per margin on the estimate took place.

7. This tank is a very fine one, with a short massive bund well revetted, and is, like the Cumbum tank, in Kurnool (formerly Cuddapah,) one of the best examples of the way in which tanks were constructed under native rule. Some of the waterspread, and nearly all the catchment basin is in Mysore, and it is said that new tanks are being formed or have lately been formed on its feeders in that territory. On this point the District Engineer should make more particular inquiries, as the information available was not definite, and it is possible that what have been referred to as new tanks are really old ones which are being restored to a former state of efficiency, and though doing this may diminish the supply of the Kundakoor tank, it would be a very different thing to the formation of new tanks. It is difficult to say what the effective length of the escapes of this tank is. There is a masonry weir with its crest at varying levels, and $5\frac{1}{2}$ feet of water went over the east end in 1874; the apron is of stone, fitted with considerable care, and it stood very well, but the section, though well adapted to a site such as this, where the surplus channel runs through rock more or less decomposed, would not do so well were the soil liable to be cut away. The right wing is only $2\frac{1}{2}$ feet high with revetment above, and it will be advisable to raise the wing to $7\frac{1}{2}$ feet above crest, or to rebuild the revetment in mortar with a backing. Beyond this main weir there are three detached weirs, with uneven rocky ground in between much of which was submerged in 1874. Very ample means of disposing of surplus can be secured by levelling the ground to F.T.L., or to a little above that level, and in this way the depth passing over the masonry weirs will be reduced and they will be subjected to less wear and tear.

Kundakoor Tank.

Atlas Sheet	78	...	20	square miles.
,, ,,	60	...	171	do.
,, ,,	59	..	112	do.
,, ,,	77	...	42	do.
	Total	...	345	do.

There are two sluices in the bund, and one in the west weir. The boundary of the catchment basin is in parts not well defined on the Atlas sheets, but the area is probably about 345 square miles. The maximum flood discharge may be assumed to be 24,000 cubic feet a second, and the length of escape required if M.W.L. be fixed at 3 feet above F.T.L. will be 1,370 feet, a length which can probably be provided without difficulty or much expense. If not a difference of 4 feet would be admissible, and a length of 890 feet would then suffice.

8. The Sub-Collector suggested the construction of an anicut across the Paupugny for the supply of the Tsuddum tank, which is situated on the right bank, a little way below the crossing of the Muddenpully and Kadiri road. There are several sites available at 1 to $1\frac{1}{2}$ miles above the crossing, and two such sites were specially pointed out by Mr. Gribble where an anicut could be built easily and cheaply on rock.

Proposed Anicut on Paupugny.

The ground on either side of the bed proper is low and marshy for a distance of 50 to 150 feet, it then rises abruptly and is occupied by paddy fields which appear to be rich and valuable. It would be requisite to carry the channel through these fields, and it is doubtful therefore whether it would be advantageous to take up 20 to 25 acres of valuable land for the construction of the channel. However, the requisite survey and levels would occupy but a few days, and a rough estimate of the cost of the scheme can easily be made. The Sub-Collector can then say whether the resulting benefits would probably be sufficient to compensate for the requisite outlay.

Panatula Tank.

9. This is the last but one of a group on that tributary of the Muddoolair (an affluvent of the Chitravati) which runs immediately west of Kadiri. The drainage basin is about 73 square miles and contains a great number of tanks, none of any great size, in subsidiary chains, but there are a dozen or more of these of sufficient importance to render it necessary to see that they are, or are made, safe.

The bund has been formed on very rocky ground, and three leaks were pointed out, one of which, where there is a cleft in the rock immediately behind the bund, will require attention to prevent risk of an accident, though it would seem from the account given by the villagers to be of very long standing. The bund should be opened from the front down to the rock, and in all probability a place will then be found where a cross wall can be constructed, which will effectually stop leakage through the bund itself or at the junction of the bund with the rock, and most likely this wall will not need to be of any great height or length. The bund in front of this wall should be carefully remade so as to be water-tight, and in repacking the revetment a backing of small stone or gravel should be allowed. The next leak to the eastward seems to be unimportant, and it is not worthwhile to open the bund in order to stop it. A little further eastward there is another leak, when the tank water is at a higher level than at present, and the revetment here may be stripped, the bund opened out from the inside slope as far as may be found necessary, and reformed with good soil, well watered and tamped.

The bund varies much in level and section. Some parts are very substantial and of sufficient height, others are low and not in good order. A minimum width at top of 9 feet and rear slope of 2 to 1 should be given where necessary. At the east end of the bund there is a dry stone pavement 105 feet long, which should be repacked as far as may be necessary to make the front row of stones throughout correspond with F.T.L., and to give an equal slope to the apron. In front of the weir crest a small bank of earth should be placed, and the stones forming the crest should be pointed to reduce leakage. The junction with the bund should be pitched to 4 feet above crest level. The principal means of disposing of surplus are at the west end, where for a length of about 400 feet irregular rocky ground has had the comparatively low places packed with dry stone in a rough and irregular fashion, and at the lowest depression a high level sluice has been inserted. What is wanted here is—

1*st.*—A crest wall of concrete or rubble masonry, and probably the last will be the easier to construct, a thickness of 2 feet and an average depth of about 3 feet will be ample. The rear edge should be at F.T.L. and should be 3 inches higher than the front edge; behind this wall dry stone should be packed where necessary, and elsewhere the rock should be cut away so as to be below (say 6 inches) the crest level.

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Taking the area of the basin at 75 square miles, the flood discharge will be 6,370 cubic feet a second, and allowing $2\frac{1}{4}$ to $2\frac{1}{2}$ feet to pass over the weirs, as great a depth as they can well stand, the proper length of weir will be about 500 feet, of which 105 feet will, as at present, be at the east end, and the rest at the west end. By removing obstructions and making the crests throughout exactly at F.T.L., the discharging capacity of the weirs will be much increased.

$$D = 250\ M^{\frac{3}{4}}.$$

Kadiri Devary Tank.

Total basin 116 square miles.

10. This is the terminal tank of the group. It has an independent catchment basin of 41 square miles below the Panatula tank, but the latter intercepts the best part of the water supply, and in ordinary seasons the Kadiri Devary tank does not nearly fill. In 1874, a year of unusually heavy rainfall, only a few inches went to waste over the surplus weir, which is 360 feet long. The weir crest wall is out of repair and should have a strong coping. The bund of the tank is for the most part very massive and much of it is more than sufficiently high, but the height is irregular, and a longitudinal section should be taken, and every part of the bund brought to the minimum level which may be fixed. The tank was at some former time badly breached at the return bund running north to the surplus weir, and it would seem that this return bund, which is not indicated on the Atlas sheet, was not a part of the original arrangement, but that the bund instead of turning northwards was continued westwards towards a low hill, the then escape being on this line. Probably the weir was carried away, and then the present arrangement was adopted. There is room to lengthen the surplus weir about 40 feet, and, as the tank was considered to be in some danger last year owing to leaks, it will be desirable to secure this extra length. At the east end there is a narrow cut in the high ground through which surplus appears at some time to have passed, and a little west of this there is a spot where perhaps 70 or 80 feet of escape could be provided over rocky ground, but the surplus from this end would pass over the cultivation. However, were the eastern escapes made 1 foot above F.T.L., it would be only on occasions of great storms that they would come into play, and then some water passing over the cultivation would do infinitely less harm and damage than a breach. Were 100 feet of such escape provided at the east end at 1 foot above F.T.L., probably with 400 feet of weir at the west end the maximum flood discharge of 8,780 cubic feet a second would be disposed of with M.W.L. at 3 feet above F.T.L. The minimum height of bund would then probably be 7 feet above F.T.L. Trees should be removed as completely as possible from the revetment, through which many are growing. Soil removed when levelling the fields appears to have been added to the bund which is enormously thick in some places.

Moothial Tank.

11. A fine tank, much of the supply of which appears to remain unutilized. An old slip was repaired and made good last year. The bund is generally in good order. The surplus weir is 243 feet in length. Clear information regarding the depth of water discharged last year was not obtainable, but the weir crest was then not all at one level. The quantity of surplus was however considerable. The tank is not marked on the Atlas sheet, so its construction must have been undertaken probably some sixty or seventy years ago at the earliest. The catchment basin is 143 square miles,

but the valley is bunded above by the Wobladaver tank, the basin above which is 75 square miles. The maximum flood discharge from the Moothial tank basin may be taken as 10,337 cubic feet a second, and were a flood to occur when the upper tank was full probably, allowing for the action as moderators which the two large tanks would have, a depth of $4\frac{1}{2}$ feet would have to pass over the present escape of the lower tank to dispose of the water. The weir should therefore be lengthened as much as possible, so as to reduce the M.W.L., and the bund must be as a minimum 4 feet above the M.W.L., which may be determined. The revetment of the tank is good. A cistern has been built at the rear end of the deep sluice, and the Overseer, Mr. Taylor, said that screw gear for regulating the shutters of the three openings in it had been received; the vent openings are not at all adapted for this description of regulation, the stone masonry being very rough. There is a heavy leak in the tunnel between the cistern and the bund, and it is said that there is another leak between the head and the bund. The tank water had better be lowered and the sluice put into proper order, and this is likely to be a favorable year for attending to it. When this is done proper means of regulation should be provided. The revenue of the tank is small, and Mr. Gribble, the Sub-Collector, being desirous of having water conveyed to some waste lands about $1\frac{1}{2}$ miles to the north-west of Kadiri, an inspection of the ground which the channel would probably run along was made, and it was found that from one of the high level sluices there is a high level channel, the upper part of which is in use; but also for several miles beyond a channel was formerly in use, and that a large extent of land was terraced and carefully prepared for irrigation. It had been mentioned that much of the land under the tank was left waste, owing to the soil being unsuitable, also that the tank water was not good, &c. The land seen, however, though perhaps light and poor, showed no signs of soudoo, and bears an excellent crop of fine grass; the water also appeared to be good. The Tahsildar, who was present, on being asked said that the high rate of assessment was the cause of this land being left waste, and that similar reasons led elsewhere in this part of the taluq to the water of the tanks not being made use to the extent it might be. The ryots wish in consequence to take up waste land, the dry assessment of which would be nominal, and for the irrigation of which they would be charged a water rate. The old channel could for a very small amount be put into working order again, and it seems to be desirable that the obstacles to the irrigation of land belonging to the tank ayacut, and capable of being cultivated with facility, should be ascertained and a remedy applied. To take water to more distant and unprepared lands under the circumstances would seem to be a mistake, but as far as could be judged without levels, the channel could be extended across a low ridge to the land which the Sub-Collector says the ryots wish to take up.

12. This is an excellent little tank adjoining, and sometimes submerging a part of, the road to Royachoty. The area of the catchment basin is about $13\frac{3}{4}$ square miles, and surplus escapes by a cut 28 feet wide through rocky soil, even this small width also being much obstructed by boulders. The proper length of escape for a maximum depth of 4 feet of water passing through would be 67 feet, and perhaps by widening the outlet at the north end and supplementing it by an escape at the south end, where something in this way can be done, that total length may be obtained. The bund should then be nowhere less than 7 feet above F.T.L. There

Kadiri Vitalrayen Tank.

is a leak in the bund near the north end, apparently along the face of a mass of rock on which the bund rests. The water escaping was extremely small, but when the tank is full, the leak is stated to be of importance. The bund can be opened in front, and probably the rock will have to have a trench cut in it to make a good junction with the earthwork. A few yards to the south the rear face of the bund has slipped. The tank has a fine sluice with four great stones. There are several tanks in the basin above, all small.

13. This tank is large and deep. It is said never to be empty, and it is a good many years since the head of the deep sluice was seen. The catchment basin measures 56 square miles. There is a small surplus weir 45 feet long to the south of a rocky hill on which the south end of the bund abuts, and at the north end of this weir there is a space left which is used as a high level cut for irrigation, and here the villagers wish a sluice to be constructed, which can very easily be done, as nothing but a regulating wall and vent with a retaining wall on the right side of the channel will be needed. The principal surplus weir is at the north end of the tank, and the arrangements here are specially adapted to the circumstances. About 140 feet of the weir discharge direct into the rocky ravine forming the surplus channel, and the water passing over the remaining 140 feet goes into the sweet water Coontah or small tank close by; the first 165 feet of the right side of the opening leading to the small tank is a continuation of the first part of the weir, with a direction nearly at right angles thereto, and when the small tank is full the surplus weir of both has a length of about 305 feet. The separate catchment basin of the Coontah is very small, so for the 56 square miles there is $305 + 45 = 350$ feet of surplus weir. The maximum flood discharge may be taken to be 5,125 cubic feet a second, and a depth of about 2 feet 8 inches of water over the weirs will dispose of this, so the escapes are ample. The bund is generally of good section, but some little sectioning towards the top to an even width and level is required. Some of the revetment is out of order though still efficient as a protection. Both the deep sluices are difficult to manage, and one of them has in consequence been out of use for a long time. The cultivation under this tank is by no means as good as it ought to be. The transplanting of paddy appears to be unknown in this part of the country, and this may perhaps account for the irregularity and inequality of the crops. The Tahsildar remarked that the ryots incline preferentially to dry cultivation; that they attend therefore to that first and afterwards take up the cultivation under tanks, which is thus often deferred until the best season for it has gone by.

Dunnain Tank.

$$D = 250\sqrt{(56)^3}$$

14. This tank is situated below the Dunnain Cheroo and receives its surplus and the drainage of about 21 square miles besides. The supply is indifferent. In 1874 it filled, but this year it is less than half-full. The ayacut is acres $\begin{cases} \text{Government } 302 \\ \text{Inam } 96 \end{cases}$ $\begin{cases} \text{Rupees } 1{,}561, \\ \text{,, } 636, \end{cases}$ while the average cultivation of the five years prior to 1874 was Rupees $\begin{cases} \text{Government } 356, \\ \text{Inam } 26, \end{cases}$ corresponding to an area of about 75 acres. The revenue of 1874-75 was Rupees 1,300. The surplus weir is about 85 feet in length,

Wunkamaday Tank.

of which 30 feet are rock, and the rest artificial. It would be practicable to lengthen the weir to 190 feet, which would be none too long for the basin drained, and an estimate for such an extension maintaining the present full tank level has been prepared, but Colonel A. S. Moberly, taking into consideration the small quantity of water received in ordinary years, proposes to lower the F.T.L. about 2 feet and then a much smaller sum will suffice, it is believed, for doing all that will be necessary. The tank breached many years ago between the Pagoda hill, on which the main bund abuts, and the surplus weir, and a restoration was made in 1864-65 ; the bund then constructed is not of good section, the revetted slopes being much too steep, and the level much lower than that of the main bund.

Cheyair above the hills.

15. The Cheyair is the name given to the river formed by the Bahoo and Punchee Nuddy which unite 2 or 3 miles to the westward of the hills which divide the Raichoty from the Pullampett taluq. The drainage basin above the gorge through which the river passes has an area of about 1,480 square miles, and from the Atlas Sheet it appeared that the circumstances might not be unfavorable for the formation of a large reservoir. An inspection of the county and gorge has, however, dissipated the idea that the site is one ever likely to be utilized. In the first place the extent of cultivated ground is too large, and secondly, were the head of the gorge dammed by a bund, it would be necessary to pass all surplus under the bund—an arrangement no doubt feasible, but necessarily costly, compared with an escape over a detached rocky saddle, which latter arrangement appears to be almost essential to the construction of large reservoirs with economy. The gorge is bounded by rocky hills on either side, which in parts present vertical cliffs of quartzite chiefly, with trap and shale appearing here and there. The bed of the river is used as a line of communication, and there is a very considerable traffic. Here and there for a short distance the track leaves the river and crosses a low spur of the hills, but for most part of the way there is no alternative but the river bed. The depth of water in the flood of October 1874 was from 15 to 18 feet. The scenery is in several places striking, but it is generally inferior to the Gundikottah gorge through which the Pennair passes.

Regulation of Tank Sluices.

16. A great many of the tanks of the sub-division are deep. The heads of the sluices are at a distance from the bund, and in deep water the adjustment of the plugs, which are used for regulating the discharge, is very difficult, and in some cases impracticable. Where the heads of the sluices have stone columns and a platform at the top, improved arrangements can be introduced without difficulty and at a small cost.

1*st*, the plugs should be well made with a long cone ; a carefully cut shoulder which may be covered with a leather washer ; and a suitable head ; an appended sketch shows a plug suitable for a 9-inch plug hole. 2ndly, on the platform a small windlass should be fixed by means of which and a chain attached to the plug the latter can be raised or lowered as may be necessary. A sketch is appended, and all the parts have been designed so as to be capable of being made by village workmen when furnished with the iron and chain. No very good workmanship is needed. In some districts tank sluices having their heads out in deep water have been provided with new heads at the bund, and in cases in which the old heads have become ruinous or the tunnels unserviceable, it will generally be desirable to bring the heads back to the

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bund ; but as, when the depth of water is great, new heads so placed cost a good deal, when only means of regulation are required to render existing sluices perfectly serviceable, no change of position need be made ; but a platform above F.T.L. should be provided where there is none at present, and upon that the simple gear for working the plugs can be fixed. Stone columns are costly and difficult of erection, but coursed rubble masonry piers in cement can be substituted for columns, and if built 18 inches square at top with outside face batters of 1 in 12, they will answer the intended purpose. In this part of the country beam stones can be laid on the piers to form a platform.

Irrigation in the Taluqs of the Sub-division.

17. The general impression left on my mind from the tour through the sub-division is that there is not much probability of any new schemes of irrigation being found desirable. Dry cultivation appears generally to be more popular than the cultivation of rice, and in many cases where there are fine tanks, the villagers attend to their dry lands first and treat the irrigated cultivation under the tanks as a matter of secondary importance. Though traversed by several good-sized rivers, the circumstances of these rivers are not generally well adapted to irrigation under river channels without the aid of tanks, and the character of the country is not favorable to the construction of tank supply channels at a small cost. On the whole, the larger tanks are substantial works requiring but moderate improvements to render them safe and useful for the irrigation of the lands under them to the full extent of the average supply of water available. Petty tanks are extremely numerous, and are in hundreds of cases so small as to be individually of very little importance. The Dasabundum tanks, moreover, are numerous, and in some parts of the country the group in one catchment basin is composed chiefly of tanks of this class, and this circumstance renders it difficult to deal with the groups effectively. The abundance of stone renders it comparatively easy to provide tanks with adequate escapes, and it is desirable that, as far and as fast as possible, the tanks should be taken up in groups, and all their requirements attended to. It may be noticed that the requisite improvements to Dasabundum tanks will the more readily be secured if it be remembered that the Dasabundumdars should be held liable for the proper maintenance of such tanks up to the standard which was deemed necessary when the tanks were made over to them, and that improvements, such as adequate escapes, regarding which nothing was known at that time, should not be demanded of them when the construction of these involves an expenditure bearing more than a fair proportion to the revenue. The right of Dasabundumdars in other districts to be treated considerately has been recognized, and all that can be demanded of them is the fulfilment of the conditions under which the tanks must be concluded to have been made over to them to be by them maintained. It is true that in numerous instances these conditions have not been properly attended to, but it will facilitate the execution by them of the work which they should be required to do, if that which is now known to be necessary, but which they are under no obligation to carry out at their own cost, be not demanded of them, but rather promptly executed at the cost of Government. It is not anticipated that the cost of the improvements chargeable to Government will be very heavy. These improvements will consist chiefly if not entirely of—*first*, the enlargement of escapes, and the escapes of petty tanks may be of a very simple kind, *viz.*, dry stone pavements with a revetment to form

a wing; *secondly*, the construction of sluices to supersede cuts which are attended with danger.

Though there is apparently no opening of importance for materially increasing the area of irrigation in the sub-divisional taluqs, there is here, as in most parts of the Presidency, opportunity for the careful and intelligent treatment of the existing irrigation works, and for obtaining from them an increase of irrigating duty. By dealing with them, as far as possible, in groups, their real circumstances and requirements will best be ascertained, and it will doubtless be found that there are a good many tanks which are unnecessary, and the lands under which may more successfully and conveniently be irrigated by the better circumstanced tanks of the same group, with or without the enlargement of these.

On many of the rivers and streams there are anicuts which appear to have been multiplied without due consideration of necessity in days when this excessive increase of number was a matter in which the ryots cultivating under the channels and tanks connected with them were alone interested, seeing that their first cost and subsequent maintenance devolved upon them. Now that the circumstances have entirely changed, and that the whole cost of keeping such works efficient falls upon Government, it is necessary to bear constantly in mind that an existing irrigation work may not always afford the best or most economical means of irrigating a given area of land, and that, when this is not the case, the best arrangements should be ascertained and adopted. In this part, then, of the Cuddapah District, there is abundant work, by no means devoid of interest, for an energetic and painstaking Range Officer, who may render good and valuable service by taking care that the funds placed at his disposal are expended only upon works which should be maintained, and in the manner most suitable to the requirements not only of individual works, but also of the whole of the works which are more or less connected, either from forming members of a group, or from drawing their supply from the same sources.

Ootkoor Tank.

18. This tank lies to the east of the railway, and its supply crosses the latter. The north end of the bund is close to the railway, at which end there is a good surplus weir 170 feet long. The other end of this north bund terminates at a surplus weir 150 feet long which abuts upon a rocky hill. This bund is fairly level and is revetted; the stone work has sunk somewhat. The bund at the junction with the weir is revetted in lieu of a masonry wing. The east bund is not very level and is not in good section. Here there is a third weir 150 feet long, the dry stone of which is not well packed; it has a curved drop in rear. The drainage basin is not very well defined throughout on the Atlas Sheet, but its area would seem to be about 70 square miles, consequently with 470 feet of escape, supposing the crests to be all at F.T.L., the difference between F.T.L. and M.W.L. would be about 43 inches. This is rather an excessive depth of discharge, and it would be better to provide an additional 150 feet of escape, if this can be done at a small cost, which would restrict M.W.L. to 36 inches above F.T.L., and the proper level of the top of the bund would then be 6 feet above F.T.L. The tank with its present escapes will, however, if the latter be slightly improved, as for

$D = 450 \sqrt[4]{70^3} = 10{,}890$ C.feet a second.

instance by substituting a wing wall for revetment at the east escape north bund, &c., be safe if the bund level be maintained at $6\frac{1}{2}$ feet above F.T.L.

Polur Tank.

19. This is a large tank and is supplied by the Poolungair. The latter though draining a large extent of country is only just traceable below the head of the tank supply channel near Ootkoor. The bank of the supply channel and the south end of the south bund of the tank are continuous. There is a surplus weir 120 feet long in the channel bank and it was proposed to lengthen it to 170 feet; but it will be as well to make its length 250 feet, as this can be done at a small expense, and it is much better to ensure the bulk of the surplus being got rid of above the tank. The south bund is very crooked, and of irregular level and section; some ramps are required for village tracks. It terminates at a masonry weir 81 feet long which had just been repaired, and this abuts on a rocky hill. The bund to the north of the hill is much more substantial and carries a cart road. The revetment varies, and some of it is a good pitching on a flat slope.

Cheyair Embankments.

South side above Railway.

20. The Cheyair is a narrow well defined river, and runs through a rough hilly country until it reaches a point about 4 miles above the crossing of the railway, and to within 2 miles of the latter its flood waters cannot extend far from the bed proper. On the south side a rocky promontory $1\frac{1}{2}$ miles above the railway on which a pagoda stands, and through which a small shrotriem channel has been cut with much labor, is the eastern limit of the high ground close to the river. Between this point and the railway there are the heads of several irrigation channels which run through ground liable to be submerged in all high floods, and which was submerged for a considerable distance southwards during the flood of October 1874. All the water, however, must return to the river between pagoda point and a hill about 1 mile east of the railway on which there is a railway bungalow. There was formerly an embankment which ran from the railway westwards for a short distance, and then turned southwards until it reached the high ground. This flood bank was of irregular level and of insufficient height, and it was entirely or almost entirely submerged in the flood of 1874; but the part parallel to the river was not much injured, it having been formed of good soil and revetted on the river side. The best arrangement would be to reform at a proper level* the part of this embankment which runs parallel to the river, and to continue it westwards as nearly as circumstances will allow parallel to the axis of the river; *secondly*, to abolish the several independent heads of the river channels, heads which are by no means efficient, and which have to be carried out far into the river, and to substitute one head, with a head sluice, as near to pagoda point as the shrotriem channel will allow; possibly, it will be desirable to carry up the head in the bed of the river by means of a stone corumboo or spur for a short distance. The left bank of the channel would then serve also as a flood bank for the greater part of the distance. If any improvements be decided to be necessary, the above is the direction they should take; but the flood of 1874, which was a very extraordinary one, did but little damage to the lands hereabouts, and none to the railway embankment, and it will depend a good deal upon the cost of restoring

* 4 feet above the flood of 1874.

the channels which were filled up by the flood and upon their general efficiency with their heads as at present circumstanced, as also upon the estimated cost of the improvements whether matters should be left as they are or not. Nothing is required above the Patur tank supply channel.

North side above Railway.

The head of this channel is just below an island, and in heavy freshes the water passing to the north of the island submerges the land between the hills and the head sluice of the channel, and although there was a revetted bund connecting the sluice with the high ground, this being of inadequate height was swept away and much damage was done both to the channel and to the neighbouring lands. The head sluice is simply a straight wall with a vent in it; but with revetments above and below and small water-wings in front to form supports for a shutter platform, it may be rendered efficient at a small cost. The wall and the flood bank to connect it with the high ground to the north should be 4 feet above the flood of 1874.

The next channel situated a short distance further down is the Patur irrigation channel. Between the two channels there are signs of there having been a revetted embankment, as there is a lot of small stone lying along the river margin; but, if so, the bank has been entirely washed away. The right bank of the Patur tank channel may be formed into a flood bank, and then a bank parallel to the river may be carried on to the Patur irrigation channel, it being desirable to prevent flood waters finding an entrance to the cultivated lands in rear. The head sluice of this channel is a wall with a vent, and it has substantial revetments at either end, so it can easily be made to answer its purpose efficiently. Below this point there are four channels:—

The Nagareddypully river channel, which has an old head sluice raised with rubble. It should be carried up to 4 feet above F.L.

The Nundaloor tank supply channel.

The Nagareddypully spring channel, Government.

Do. do. do., Dasabundum.

It is not clear that any embanking is absolutely necessary below the head of the Patur irrigation channel, beyond such exclusion of flood water as may be secured by strengthening the right bank of that channel. The river in floods spreads some distance to the northward, but it cannot go far, and as the water must return to the river to the westward of the hill lying three-quarters of a mile below Nundaloor, there can be but a slight current, and the benefit resulting from a flood bank would probably not compensate for the cost of construction and maintenance. The survey and levels available at the time of my visit were not sufficiently complete to enable a final opinion to be formed, but it appeared probable that if anything in the way of exclusion of flood water from this section were found necessary, it would best be effected by forming banks about at right angles to the river to the high ground, so as to limit the effect of floods to a still water submergence which would do good rather than harm.

The bed of the river may be much improved by regulation of its width by means of nanul plantations. At present it is much wider than is necessary, and, in the interests of the railway bridge, it is desirable that a defined channel of adequate width should be substituted for the present undefined and almost untraceable margins, for in this way the current may be made to approach the bridge almost, if not absolutely,

River above the Railway.

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at a right angle, and some approximation to an equal discharge through the several spans of the bridge may be secured.

It will be desirable also to fix a normal width for the river below the railway bridge, and a good alignment on either side can be readily obtained by means of nanul plantations. A little of this grass is available in this neighbourhood, and the supply can be rapidly increased, if plantations be established in favorable situations in the river bed in the first instance. It is, moreover, necessary to correct the alignment of the river which has been departing gradually during a long period from the proper line. The rocky hill on the north or left bank three-quarters of a mile below Nundaloor has acted as a great groyne, and has caused a set of the river to the south bank, to which cause the great bay at the infall of the Poolungair is probably due. By re-action there has been a considerable erosion on the north bank above Tungatur, and the river for a distance of some 10 miles is very abnormally wide and consequently unmanageable By judicious nanul plantations a great deal of destroyed land may be reclaimed and the efficiency of the river at the same time increased.

River below Railway.

No embankment is required between the railway and the railway bungalow, hill; just below the hill there are the heads of two irrigation channels, and for the protection of these a very irregular wall to act as a flood bank had been recently thrown up, the core being of shale chips and the faces of rubble. Mr. Schoury, the Range Officer, knew nothing about this work, which probably therefore had been carried out by the villagers interested. The work was incomplete, and to be of real service the wall should be 4 feet above flood level.

Right bank below bridge.

No embankment is necessary between the railway and the rocky spur $1\frac{1}{4}$ miles below bridge on this side. Immediately below this hill is the head of the Yellamrazpully channel which has a head sluice wall; a little further down there are the heads of two channels which also are provided with head sluices.

Left bank below bridge.

There appears to have been no spill or none of importance above Tungatur, and the high ground is in this part nowhere far from the river. It will be desirable to improve the existing embankments of this part, and no heavy expenditure will be requisite. Below Tungatur, however, the river found its way in, especially on the line of the Potapee tank channel, and did a good deal of damage, and for the future protection of this section, an efficient embankment appears to be needed. Potapee is about 4 miles below Tungatur, and protective works may have to be carried somewhat further down, but the hills come close to the river again at less than 2 miles below Potapee.

I had the opportunity of discussing the subject of these flood banks with the District Engineer, and the direction in which additional information was needed to enable a reliable opinion to be formed of the requirements was indicated to him.

21. Gauges should be placed at or close to the low level sluice of all important tanks, so that water levels may be observed and recorded whenever the tanks are

Gauges at Tank Sluices.

inspected. Where sluices have stone columns reaching above F.T.L. or to nearly that level, the gauges can be attached to one of the columns. In other cases a pile may be driven and the gauge attached to it. The gauge should be clearly legible from the bund. The maximum water level of each year should always be noted ; and even when the village officers will not take the trouble to keep a weekly or monthly record of water levels, they will, it is hoped, be able to state the maximum. The zero of all such gauges will be the sill of the deep sluice.

Registration of Tank water levels.

22. In connection with this subject it may be mentioned that it seems to be not unreasonable to require the Village Curnam, or other officer whose duty it may be to see to the regulation of the water distribution, to note down the water level each time he visits the tank. In cases in which the tank may be at a considerable distance from the village some small remuneration might be given, also whenever any special and more frequent registration may be required ; but, generally speaking, the task of writing down the reading of the gauges some six or eight times a-year would be too easy to make it necessary to pay for its being done. The data which the gauge readings will hereafter afford will be of considerable value for many purposes connected with the management of tanks.

Flood Discharges from Catchment Basins.

23. Some time since (1874, Circular No. 61) two formulæ for calculating flood discharges were communicated to the members of the department generally, and it was suggested that one of these should at once be used practically in determining the required dimensions of the surplus weirs of tanks. It was necessary, in the absence of sufficient data, to fix roughly on the co-efficients to be used with the formula. An examination, from time to time, of results, led several officers to believe that the formula

$$D = C M^{\frac{2}{3}}.$$

introduced by the late Major Ryves gave too large discharges for small areas, and perhaps too little from areas of 100 square miles and upwards. It was further known that the selection of co-efficients for application to particular localities was dependent upon maximum rainfall in a limited time and upon the character of the basin drained, and that without taking these into account, no formula would give, even approximately, reliable results.

Colonel A. S. Moberly has turned his attention to the subject, and he has for the Cuddapah District collected sufficient data to allow of at any rate a first approximation being arrived at. He has worked out the co-efficients applicable to Colonel Dickens' formula

$$D = C M^{\frac{3}{4}}.$$

for different parts of the district, corresponding to the ascertained maximum rainfall for a period of nine years, and as 1874 was a year of remarkable rainfall, he has had data to work with which could not prior to that year have been so well obtained. The procedure in fixing the co-efficients for practical use has then been as follows :—

Five square miles have been taken as the standard area, and it has been assumed that the maximum probable rainfall may exceed the maximum known rainfall by about one-half, the co-efficient for this larger rainfall has then been ascertained for the standard area, and has been used for other areas similarly circumstanced.

Division of the District by rainfall characteristics.

24. The ranges of hills in the district divide it into tracts of country having somewhat distinct characteristics as regards liability to rainfall. As far therefore as a judgment can be formed from a consideration of the configuration and rain registers jointly, the following grouping of the taluqs has appeared to be reasonable :—

Taluqs.	Maximum recorded Rainfall.	Co-efficients.
Cuddapah	5·70 inches ...	250 flat country.
Prodatur	4·25 „ ...	300 steep „
Jummulonadaga...	6·20 „ ...	350 hill „
Poolavaindla	6·00 „ ...	
Budwail*	5·40 „ ...	
Sidhout	13·45 „ ...	400 to 500.
Pullumpett	10·45 „ ...	
Royachoty	8·41 „ ...	
Voilpad	5·50 „ ...	300 to 400.
Maddenpully	7·60 „ ...	
Kadiri	3·50 „ ...	200 to 300.

* Though the rainfall in this taluq was comparatively small, it is probable that in some other year it will equal that o the taluqs with which it is grouped.

The co-efficient used with Colonel Dickens' formula in some parts of Upper India is 825 ; so it will be seen that even where the rainfall in Cuddapah is heaviest, only about five-eighths of the maximum discharge considered possible in Upper India is anticipated.

It is to Colonel A. S. Moberly's credit that he has been the first District Engineer so far as is known to this office, who has endeavoured to give practical effect to the instructions issued with a view to the determination on adequate data of questions connected with rainfall and of the requirements of Irrigation Works in connection therewith.

OOTACAMUND,
20*th April* 1876.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 423-A. Minute by the Hon. Sir W. ROBINSON, K.C.S.I.
(Here enter, dated 23rd May 1876.)

No. 424. ORDER THEREON, 24th May 1876, No. 1,300.

IRRIGATION, No. 43.

THESE careful and interesting notes of an inspection tour made in the Cuddapah District in November last by the Chief Engineer for Irrigation, contained in the foregoing memorandum, will be communicated to the District Engineer for information and guidance.

2. The proposed channel from the Kundakoor tank for the supply of the Pedda Tippasamudrum and Rungasamudrum tanks, through a rough and difficult country, will be given up.

3. The attention of the Collector will be drawn to the remarks in paragraph 11 of the notes on the non-utilization of much of the water stored by the Moothial tank and the supposed causes; in paragraph 13, on the indifferent cultivation under the Dunnain tank, and also in paragraph 20 on the irrigation channels from the Cheyair; in regard to these latter the fiscal bearing of any changes that may be proposed should be carefully sifted.

4. With regard to the remarks in paragraph 17, on Dasabundum tanks, it is not clear that the Chief Engineer for Irrigation has rightly understood the circumstances and position of Dasabundumdars, but the Government agree with him in thinking that the owners of such tanks cannot be required to carry out special improvements at their own cost.

5. It is noticed that the Chief Engineer for Irrigation, while considering that the taluqs of the sub-division do not present a field for the material extension of the area of Irrigation by new projects, is of opinion that there is much valuable and interesting work for the Range Officer to do in the improvement and more effective management of existing irrigation works, and it is hoped that, under the general or particular instructions of the District Engineer, steady progress in this direction will be secured.

6. His Grace the Governor in Council notices with satisfaction Colonel A. S. Moberly's successful endeavours to obtain more reliable data for the proper treatment of irrigation works in connection with the extent and character of the rainfall in different parts of the district. The result will be the more accurate determination of the real requirements of such works, and the restriction of expenditure on escapes and other surplus works to that really necessary for safety.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

To the District Engineer, Cuddapah.
„ Chief Engineer for Irrigation.
„ Revenue Department.
„ „ Board.
„ Collector of Cuddapah.
To other District Engineers, for information.

Exd. A. Grubert.

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Govt. of {1876} Mad.

PUBLIC WORKS.

To

THE DISTRICT ENGINEER,
CUDDAPAH,
&c., &c., &c.

Dated May 24th.

Issued

Recd. *Encl.*

G. O., 24th May 1876, No. 1,300.

MAY.

Nos. 423-424.

Irrigation Works, Cuddapah District.—Passing orders on Memorandum by the Chief Engineer for Irrigation containing notes of an inspection tour made in the Cuddapah District in November last.

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REVENUE DEPARTMENT.
Enclosure No. 1
Current No. 5129

No. 3,404.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 29th December 1879.

Read the following letter from J. D. B. GRIBBLE, Esq., Acting Collector of Cuddapah, to C. A. GALTON, Esq., Acting Secretary to the Board of Revenue, dated 3rd September 1879, No. 339:—

I HAVE the honor to enclose printed copies of the memoranda laid before the Committee appointed under Board's Proceedings, No. 1,895, dated 24th July 1876.

2. All the members of the Committee were not able to be present at the last meeting, and as the papers were very voluminous and it would have taken much time to write separate copies I have had them printed.

3. The Committee were agreed regarding the first of the two questions raised by the Board in their Proceedings, No. 1,252, dated 13th May 1879, viz., "that action *was* necessary." The proof that action is required will be found in my analysis of the figures of the groups collected by Colonel Hunter and Mr. Atkinson. Regarding the second question, as to whether action could be taken under the existing state of the law there was some difference of opinion. As regards Government tanks the Committee were of opinion that we have a remedy under the existing law and that the Government are at liberty to repair them, to make what improvements they like and even to relinquish and breach them should it be found desirable. As regards Shrotriem, Inam and Jaghire tanks the Committee were unanimous that under the existing state of the law we could not touch them, and that it is desirable that we should have that power. The number of these tanks, however, is so small, that they do not seriously affect the question at issue. As regards the Dasbandham tanks the Committee were divided. Mr. Cox and Mr. Atkinson held that the Dasbandhamdars had a vested right in the tank; that we could not breach such tanks without giving the Dasbandhamdars compensation; that we could not compel them to execute new works, such as weirs and sluices, and that all we could do would be to compel them to repair works existing or which have existed. Colonel Hunter together with myself adopted another view, and the reasons of each are recorded in separate memoranda. As regards private tanks there can be no doubt that in the case of all tanks constructed or given over since the promulgation of the Board's Standing Order, No. 9, of the new series we can call upon the proprietors to execute all works such as weirs and sluices, and I am inclined to think that, as the Standing Order is only an embodiment of previously existing rules and practice we have the same power with regard to private tanks previously constructed. Mr. Atkinson differs from me as regards this point; Colonel Hunter and Mr. Cox express no opinion.

4. There was very great doubt regarding the nature of the Dasbandham tenure. There are no sunnuds to be found and no documents on record showing the precise rights and duties of the Dasbandhamdars. Many years ago Sir Thomas Munro was of opinion that many of these Inams had been improperly taken possession of and there can be no doubt that since his time they have increased, not only as regards the number of tanks but also as regards the proportion of Inam enjoyed under them. The latter point I have proved in my memorandum, and as regards the former I beg to refer the Board to a letter from Mr. Lacon, Collector of Cuddapah, dated 21st November 1834. In that letter he enumerates the different number of Dasbandham tanks in each taluk of the district. The District was then different in size and the then taluks differed greatly from the present ones both in size and name. I cannot therefore compare the district as it then was with the district as it at present is. There are, however, three taluks which are nearly the same now as they then were, and where it so happens the most Dasbandham tanks are to be found. They are Gurramkonda, Madanapalle and Ráyachóti, corresponding to the taluks of Váyalpád, Madanapalle, Ráyachóti and a portion of Kadiri of the present day. In 1834 in these three taluks there are reported to be 2,361 Dasbandham tanks as per margin, of which 248 are reported as being out of order and have in all probability been long ago resumed.

Gurramkonda...	1,169
Madanapalle	483
Ráyachóti	709
Total ...	2,361

Since that time a large number of tanks have been resumed owing to the conditions having been unfulfilled, but in the Cuddapah Manual published in 1875 it is stated that there are in these three taluks Dasbandham tanks as under :—

Váyalpád	1,684	Pages 68, 76 and 79 of the Manual.
Madanapalle	819	
Ráyachóti	515	
Total ...	3,018	

5. It is also clear that there was no certainty of tenure, for in one of Munro's letters* he speaks of the advisability of changing the Khundam† Dasbandham tenure to a Shamilat tenure (*i.e.*, remitting a proportion of the actual extent cultivated instead of giving specified grants of land), and in a takid issued by the Collector of Bellary in Fasli 1250 (copy and translation annexed), I find that the Tahsildars have been ordered to substitute the Shamilat for the Khundam tenure. Again in a letter to the Board of Revenue, dated 13th May 1805, paragraph 17, he alludes to the "rapacity of former Governments in appropriating such Inams," and in another of his letters he speaks of the custom of former Governments to resume such Inams at will. In a report, dated 15th August 1807, the same officer says, "The only assessed land that is not annually at the disposal of Government is that which pays a quit-rent, and is either Inams that were formerly free or ground belonging to tanks and wells constructed at the expense of individuals, who are on that account allowed a remission from one-fifth to one-half the rent. Even in this case, however, private property in land has always been viewed with so much jealousy that instead of a permanent quit-rent it has been much more usual to allow the person who digs the tank or well to hold the land rent free until he is reimbursed for all his expenses and his labor, and then to regard it as Government land."

* 20th June 1806, paragraph 3, clause 4.

† Dasbandhams are of two kinds—
Shamilat and Khundam. The former is almost universal in the sub-division. In the main division Khundams are more frequent but here the Dasbandham system is far less in vogue.
Shamilat means a per certage of the actual cultivation, *i. e.*, if 10 acres are cultivated this year under a tank, full remission is given for one, or two, or for five acres as the case may be. Munro says this remission varied from one-quarter to one-half. I have shown in my memorandum that the average now is far higher.
Khundams are a specific grant of land rent free irrespective of the cultivation.

6. Again in Mr. Pelly's scheme for the revision of village establishments submitted in April 1859 he speaks of three kinds of remissions which must still remain in force, viz., remission on lands for payment of village Peons and Police ; remission for Kuttugutta Inams, *and remission for Dasbandhams*. Now as regards the first of these remissions the service has been abolished, and the Inams enfranchised. What the Government had a right to do as regards one class of remission they have, I maintain, a right to do as regards another ; when the Government no longer required the services of Village Police they introduced a new system and abolished the old. Now that it is proved that the Dasbandham system does not answer, and that supervision by a regular establishment would be preferable, Government have the right to interfere and abolish the present system, introducing another in its place.

The whole system of land tenure in the Ceded Districts is, in my opinion, based on the idea that the cultivator has no proprietary right whatever his privileges may be If he is allowed a privilege it is almost always in the shape of "remission," not of an actual grant. The old Poligars were remunerated by a "remission," and they were abolished as soon as Munro found that they were of harm to the country. Similarly we have in later days abolished the village Police who were paid in the same way. The service of keeping tanks, wells and channels in repair was always paid for by a "remission" and not by a grant. We even find the "remission" system in the matter of topes ; and I remember one instance where a man put forward a claim to this same "remission" in the case of a quarry of granite. It is this remission which in course of time has got to be called *Dasbandham*, though this was a tenure which in its origin was probably far different.

7. I wish, however, here to remark that I do not advocate the sudden abolition of the Dasbandham system. What I wish is that the right of the Government to interfere, *where interference is necessary*, should be recognized, and that it should be in our power to say, make the tank safe by building a weir and a sluice so as to put it into an efficient state of repair or else *we* will interfere and either execute the necessary works ourselves or else relinquish the tank and render it harmless. This is indeed the real point at issue. As long as the upper tanks of a group are unprovided with safety valves in the shape of waste weirs, and we cannot compel the Dasbandhamdars to execute these works, it is of no good to repair the lower tanks. If the Dasbandhamdars will consent to execute these necessary works I would not interfere with their Inams, if they refuse the Government should exercise the power which I maintain they are entitled to, of carrying out the works themselves and resuming the Inams, or else if the return would not compensate for the outlay of utilising the water so as to benefit the country generally instead of a few individuals.

8. The spirit of the extracts I have given go, I think, to show that the Dasbandhamdar has no proprietary right, (the last letter of Munro's from which I have quoted is written expressly against the notion of proprietary right) ; all that he is entitled to is his "remission" and to that only as long as the tank is kept in repair. A strong argument against the notion that the Dasbandhamdar has a proprietary right in the tank itself is to be found in the fact that not a single instance can be produced in which, when a Dasbandham tank has been breached, even from circumstances beyond the Dasbandhamdar's control, has he ever put forward a claim to the tank bed. Now if the Dasbandhamdar has a proprietary right in the tank he must, *a fortiori*, have a claim to the bed. This, however, is a claim it has never occurred to him to make, because he knows he has no right to do so.

9. In 1876 the Dasbandham system in Mysore was abolished, the Inams were enfranchised and the tanks were placed under Public Works Department Supervision. The new system has not been found to work well, even though the Dasbandham tanks are in Mysore fewer compared with the extent of country than in the Sub-Division of Cuddapah. A clean sweep of this kind, however, is not what I advocate. It would never pay Government to repair these petty tanks, but it would pay if the Government officials had the power of breaching these tanks or of ensuring them being rendered safe, so that in the one case the water would come to a tank where it could be utilised and in the other could be rendered powerless for harm. I mention the case of Mysore simply to show that our own British Government (acting for the Maharajah) has considered itself to have the right to abolish the Dasbandham system with a stroke of the pen. All the more must it have the right in the case of British territory to say that special or individual cases shall be summarily treated when good cause can be shown for such treatment.

10. As regards Bagara ayacut tanks, of which there are so large a number, the Committee was unanimous that the Government were at liberty to retain, breach, or repair them as they thought fit.

ENCLOSURE No. 1.

Questions to be settled by the Committee.

1. Is action requisite ?
2. What remedy is possible as the law stands at present ?

As regards the first question there can I think be no doubt from the evidence furnished by the ten groups I have analysed that some action is necessary. The analysis forms the subject of a separate memorandum, but may be summarised as follows :—

(*a.*) That strings of small tanks *are* a source of danger to the lower tanks and that there are many instances in which the lower tank has breached in consequence.

(*b.*) That the upper tanks obstruct water in far greater proportion than they furnish means of irrigation, and that in every group less land is irrigated than according to the accepted scale the drainage should suffice for, although in every group there is more ayacut land available than is irrigated.

(*c.*) That as regards Bagara ayacut tanks there is no information to show who they were constructed by, or whether they were constructed with or without permission. In theory they are supposed to belong to Government, and if any land is irrigated from them a water-rate is paid; but in fact the cultivation under them is, or is rather entered as infinitesimal and they only pay when the Curnam chooses to bring them to account, or when the Revenue officials by chance discover that their water has been used.

(*d.*) That the Bagara ayacut, and for the most part the Dasbandham tanks are in bad repair, that the former have rarely any sluices or escapes, and that the latter have for the most part either no weirs or deficient weirs and sluices out of order.

(*e.*) That there can be no doubt that owing to the immense number of tanks clustered together opportunities occur for fraud by the cultivation under them not being brought to account. In every large group now examined instances are found of tanks which are not mentioned in the accounts, though from the plans it is clear that these tanks exist, that they have been inspected and measured by the Public Works Department and that in some cases their capacity has been found to be considerable.

(*f.*) That in the absence of weirs and sluices the system of making a cut in the bunds of Dasbandham and Bagara ayacut tanks and afterwards of filling up these cuts is of great danger to the lower tanks and that their danger increases in an enormous degree, the lower the tank may be situated in a series, and the greater the number of tanks there may be above it.

II. As regards the remedy possible under the law as it stands at present, it appears to me that the only difficulty is as regards Inam and Shrotriem tanks. These, however, are comparatively few in number. Out of the 747 tanks in the ten groups we have examined there are only four Shrotriem and two Inam tanks. That an alteration in the law is urgently required in order to enable us to deal with these tanks is undoubted. This same question was raised three years ago as regards the Jillellamadaka tank in the Pullampet Taluk which endangered the Railway. The view I then held and still hold was identical with that of the Government Pleader, recorded in Board's Proceedings, No. 831, dated 31st March 1879, although at the time I was urged by the Board of Revenue to take action under the Procedure Code. If in each case of an Inam and Shrotriem tank it is necessary to apply to a Civil Court for an injunction to repair the tank the procedure will not only be very tedious, but it is exceedingly probable that in many cases the damage will be done before the injunction can be obtained. Therefore as regards these tanks I think that a special legislative enactment is absolutely necessary.

As regards all other tanks, however, whether Government, Dasbandham, Bagara ayacut or private, I consider that we have a remedy even under the existing state of the law. The following are my reasons for this opinion :—

(*a.*) *Ordinary Government Tanks.*—As regards these tanks Government are of course at liberty to adopt any measures they may deem necessary to secure their being put in a proper state of repair. It is open to Government to repair them, relinquish them, or if the safety of other tanks requires it to breach them. I presume this right cannot be questioned, and I will not therefore stop to argue it.

(*b.*)—*Dasbandham Tanks.*—These tanks are in reality Government tanks. The Dasbandhamdars have no proprietary right in the tank or in the water of the tank. All that they have a claim to is the enjoyment of a certain portion of land rent free under the condition of keeping the tank in repair. This is clear not only from immemorial practice, but also from repeated rulings of the Board of Revenue. It is the immemorial practice that when the tank is allowed to fall into disrepair or when a breach occurs and is not repaired after due warning, that the rent free land should be assessed, that is to say the Dasbandhamdar loses all the privilege which has been granted him. But he only loses the right of holding land rent free, he loses nothing else. If he owned any other privilege in connection with the grant he would lose that also. But he loses nothing else, therefore I maintain it is clear that *he has no other privilege or title to lose.* That the tank is a Government tank has been frequently maintained by the Board of Revenue, and perhaps the most direct assertion of this is contained in the Proceedings noted in the margin,* in which it was held that if water from a Dasbandham tank is taken to land beyond the ayacut, the water-rate is to be paid not to the Dasbandhamdar but to Government. These tanks therefore being Government tanks the Government have a right to deal with them as they would with ordinary Government tanks, to decide when repairs are needed and what repairs are required. The only difference between these tanks and Government tanks is that instead of the necessary repairs being carried out by the Public Works

* Proceedings, 4th June 1874, No. 1,343
G.O., 29th June 1869, No. 1,836.

Department they have to be carried out by the Dasbandhamdars. The Dasbandham system is in reality a kind of Public Works establishment organised when the Government had no regular establishment available, the subordinates of which are paid not in daily or monthly wages but in a remission of rent. In the same way that a Public Works Department subordinate can be fined, suspended or removed if he fails to do his work, so is a Dasbandhamdar liable to have the cost of repairs deducted from the amount of his Inam; his Inam can be placed under suspension until the necessary repairs are carried out; or if he proves disobedient it can be resumed and his services dispensed with. Hitherto it has been customary for the Revenue authorities to decide when, and what repairs are required; it is, however, clear that the persons most competent to do this are professional men, officers of the Public Works Department. It has been too much the custom hitherto for the Public Works Department officers, directly they hear that a tank is a Dasbandham one, to think that it is no concern of theirs, and that they have no more right to interfere with it than they have with a Shrotriem or an Inam tank. This is an idea that the Dasbandhamdars themselves are only too glad to encourage, but it is clear that if one class of Government officials have a right to give any orders regarding the repair of these tanks it is competent to the Government, if they find it in their interests to do so, to direct that another class of officials better qualified for the duty should undertake it.

The number of Dasbandham tanks in the groups we have examined amounts to 242 and of these 130 are reported now to be out of repair. The total number of Dasbandham tanks in the Sub-Division is reported in the Cuddapah Manual to be 3,160.* It will not be unreasonable to assume that the same proportion, viz., 1,691, are out of repair. It is clear therefore that the system hitherto has not worked properly.

* Váyalpád ...	...	1,684	*vide* page	76	of the Manual.
Madanapalle	...	819	,,	79	,,
Rávachóti ...	...	515	,,	68	,,
Kadiri about	..	142	,,	72	,,
		3,160			

When, however, it is once borne in mind that the absolute proprietary right in Dasbandham tanks vests in Government, and that they are nothing more or less than Government tanks, the Government have clearly the same right of dealing with them as they have of dealing with ordinary Government tanks, to order the necessary repairs or to relinquish them if they are found to be a source of danger or obstruction. Regarding the particular mode of dealing with petty Dasbandham and Bagara ayacut tanks I shall speak further on, but would only mention here that a hard and fast rule regarding what tanks are to be relinquished cannot well be laid down; the case of each tank should be decided more or less upon its merits and with reference to the requirements of the group in which it is situated.

It is sometimes urged that long occupancy has given these ryots a claim not only to the land but to the water of the tank under which the land is situated. I maintain that, however long the occupancy, it cannot give them a right to more than they were entitled to when the conditional grant was made, *i.e.*, to the enjoyment of a remission of rent under certain conditions. If they were entitled to the permanent enjoyment of *irrigated* land they would be entitled to sue Government now for compensation whenever such lands have become unirrigable from act of God or losses beyond their control. There is, however, every reason for supposing that the rights and privileges now enjoyed by Dasbandhamdars are greatly in excess of what they are legally entitled to. The very name Das—bandham (an agreement of a tenth) implies that the grant was of a tenth. Early in this century, however, Sir Thomas Munro said that "there is great reason to suspect that many of the tank Inams have been created by the Curnams, that others have been augmented in value by changing the original tenure for one more favorable." The tenure in Sir Thomas Munro's time seems to have been that quarter to half was granted free; now from a statement at page 235 of the Cuddapah Manual it would appear that the Dasbandham Inam amounts to about three-fifths of the total revenue from these tanks, whilst there is a total decrease of nearly 18,000 acres in the cultivation of the land for the upkeep of which this Inam was granted.

(*c.*) *Bagara Ayacut Tanks.*—As the name implies these are tanks without (Bagara or Béga) an ayacut or irrigable land. There is absolutely nothing to show, when, by whom, or by whose permission they have been constructed. They are mostly very small, but they are sometimes large, and there is one instance in the groups we have examined of a Bagara ayacut tank with a capacity to irrigate 55 acres. It is universally admitted that these tanks are Government property, and that if their water is used a charge can be imposed. As a matter of fact, however, they almost always appear in the accounts as having no cultivation beneath them; either these accounts are correct or incorrect; if the former the Government can deal with them as they think proper and as I shall suggest hereafter; if however the accounts are incorrect there must be a considerable amount of unauthorized cultivation going on. A long continued fraud, however, can give the offenders no

title, and the Government have therefore clearly a right to improve these tanks, to charge the lands cultivated from them with assessment, or if the safety of other tanks requires it to breach them or render them harmless. As a rule these tanks have no weirs, escapes, or sluices, and when one breaches the rest go like a house of cards. They are often termed by the ryots feeders to the tanks below, but this is clearly a misnomer. In a hilly country where the rain is partial and apt to come down in heavy bursts, and where, owing to the lie of the country, it is impossible to build the main tank large enough, I can understand that a system of smaller tanks above the main one, which would catch and store water, and then let it down to the main tank would be very useful as "feeders," but as these are simply obstructing banks of earth with no appliances such as sluices or escapes, to get rid of the water they hold, it is absurd to call them feeders. They simply store the water until it evaporates and is wasted. As drinking places for cattle they are useless, because when full there is water everywhere, and when during the hot season water for drinking is wanted they are always dry. They should, in my opinion, be treated in a very summary manner.

(*d.*) *Private Tanks.*—These are tanks which from time to time have been constructed by private individuals with permission of the Revenue authorities and sometimes without. In the groups we have examined there are 103 of these tanks. They are all so situated that they command other tanks, and of the above number 86 are reported as being wanting in repairs. It may be urged that being private tanks Government have no more right to interfere with them than they have with Shrotriem, Inam or Jaghire tanks. This, however, is an error. Shrotriem, Inam or Jaghire tanks have been made over bodily to grantees, either rent free or on payment of a small quit-rent. On turning to the rules, however, under which private tanks have been allowed to be constructed, and which rules are simply the embodiment of the universal and immemorial practice, I find on page 11 (Maclean's Edition of Board's Standing Order), paragraph 6, the following rule:—"All private tanks must after completion be inspected by an officer of the Public Works Department, and if such officer after inspection shall declare that any tank requires to be strengthened in its bund, or to have a new or larger calingula, or *otherwise* to be made more secure, the improvements so pronounced necessary for its safety must be executed by its owner or owners. For this purpose a suitable time is to be allowed by the Collector. If the tank is not put in a safe state within that period, the exemption of the land under it from water-rate will be withdrawn; if necessary also, *the tank will be repaired by Government and taken under their control.*" These are the conditions, and these conditions must necessarily last as long as the tank lasts. If Government have a right to order the tank to be made safe at one time, they have also the right to make a similar order if at any subsequent time the tank is allowed to fall into disrepair. Here we have a clear remedy, and if only a similar remedy were given in the case of Shrotriem, Jaghire or Inam tanks by a short enactment, the whole difficulty would be at an end.

From the foregoing I think it is clear that in the case of ordinary Government tank, Dasbandham Government tanks, Bagara ayacut and private tanks, the Government have a right to interfere and take steps to render them and the other tanks which they command secure. This right of inspection and direction should I think be made over entirely to the Public Works Department, with the proviso that in the case of Dasbandham tanks, the Revenue authorities should be informed of the repairs required, that they should serve a notice to repair on the Dasbandhamdars and if this notice is not obeyed within a certain time to the satisfaction of the Public Works Department, the tank should be made over to the Engineer Officers to be dealt with as they may consider necessary.

Regarding the way that these petty tanks should be repaired or rendered harmless, the Engineering Department will be the best fitted to lay down rules. The examination of the figures of these groups has, however, given me some experience of the matter, and I would therefore take this opportunity of giving to the Committee an extract from a demi-official letter from Colonel Mullins, the Chief Secretary for Irrigation. "All that I can suggest is that the quotation from my Circular, No. 63, by the Board of Revenue may be worked so as to make the petty tanks not liable to breach and not likely to hold much water. Let the temporary expedient be a cut at one or each end of the bund of ample width to discharge surplus. These cuts will gradually work down unless attended to year by year, which I take to be improbable, and then these tanks will be quite safe and will stop little or no water. I would not spend any money beyond the trifle needed for the above expedient on any tanks which are not intended to be permanently maintained as irrigation works, and I would retain only those which can be the most easily made efficient as reservoirs and irrigators* * *. I should say that when the total capacity of all the

upper tanks does not exceed an eighth or a tenth of that of a lower tank, the effect of the upper tanks on the safety of the lower tanks may be neglected, also that when the former is not more than one-fourth of the latter the requisite additional length of surplus weir might be provided without much expense." From the figures of the groups we have examined it will be seen that there is no instance of the capacity of the upper tanks being merely one eighth or a tenth of the lowest tank; that it is only in a few sub-groups that it is as low as one-fourth and that generally speaking the capacity of the upper tanks is about equal to that of the lowest ones in the group and in some cases greatly in excess, thus greatly increasing the danger. With Colonel Mullin's suggestion regarding the treatment of these petty tanks I cordially agree; it seems to me a cheap and easy solution of the whole difficulty.

(Signed) J. D. B. GRIBBLE,
Acting Collector.

MEMORANDUM.

I HAVE it on the authority of the professional officers that the upper links in the chains of tanks are dangerous to the last tanks in the groups. I therefore admit that action is required.

2. I see no authority under which the Government can interfere to compel the owners of Shrotriem or Jaghire tanks to touch their property. As regards Dasbandhams I am unable to agree with the President. I do not consider that the Government can break their side of the contract made with the Inamdars as long as the Inamdars perform their side of it, and are unwilling to release. I do not think that the Inamdars can be compelled to do more than they agreed to do at the time of their agreements with the Sirkar. All that I see they can be compelled to do is to keep the works in the state in which they undertook to keep them when the Inams were given, that is, to keep them in the same state of repair as they were when they had their Inams granted. The Inamdars, in my opinion, cannot be compelled, for instance, to make weirs and sluices now which were never contemplated at the time of the grant; nor do I think that their rights can be taken away on their failure to do so, such being no part of the original agreement. As regards private tanks I am of opinion that no interference can be had under the Standing Orders in the cases of such tanks as were constructed prior to those orders. As regards Government and Bagara ayacut tanks that have no owners the Government can do what they think fit.

3. An enactment of law, or a private agreement, or compensation seem to me therefore necessary in the case of all Shrotriem and Jaghire tanks, in the case of all Dasbandham tanks where the original agreement has been fulfilled and in the case of all private tanks built previous to the issue of the Standing Orders.

MADANAPALLE,
30th July 1879.

(Signed) A. J. B. ATKINSON,
Acting Sub-Collector.

MEMORANDUM.

1. (*a.*) THAT the large number of indifferently kept tanks and kuntas are a source of danger to the lower works must no doubt be admitted and so I think some action is requisite.

(*b.*) As the figures worked out by Mr. Gribble and the Engineer officers in the groups that have been taken go to show that by allowing the water now caught by the upper tanks to pass on to the larger ones below the area that would then be irrigable will be greater than the present scattered patches of wet ayacut, I see that the doubts I entertained as to whether the same amount of water would altogether be saved by breaching the smaller tanks are groundless. In carrying out these changes I do not know whether it would be possible, as a special case, to guarantee to the holders of the lands now to lose their water supply, a certain portion of the *waste* lands which will receive the extra quantity of water in the lower tank, for, in a tract of country where wet lands are particularly valuable, the loss of the water to those who have so long enjoyed it will be much felt.

(*c.*) The difficulty about the Bagara ayacut tanks will be remedied in the settlement for wherever these sources are retained the land under them will be registered as wet and charged accordingly so that there will be no further opportunity for evading the water-rate.

(*d.*) Any tanks not now entered in the Revenue accounts will be dealt with in the new settlement.

2. The only thing that seems to call for and remark from me under this head is that relating to Dasbandham tanks (*b*) in which I cannot agree with Mr. Gribble inasmuch as I believe that the Dasbandhamdars can only be called upon to keep the works in the state in which they were originally made over to them. Unless therefore it can be proved that they have failed to do this and still refuse to fulfil the conditions of the contract made with them after being served with the usual notice I do not think they can be said to have forfeited their right to the tank and the Inam grant attached to it.

While holding the above opinion I must confess that I think it will be very desirable that this system of Dasbandham grants should, if possible, be done away with, for it is not only a very unsatisfactory one, but causes no end of complications in the accounts at least in the matter of Shamilat Dasbhandams.

(Signed) J. H. M. COX,
Dy. Director of Rev. Sett.

VAYALPAD,
5th August 1879.

No. 521.

MEMORANDUM.

1. That action is requisite seems to be conceded on all points.

2. That Government can do as they please with Government and Bagara Ayacut Tanks appears also to be beyond question.

3. That as the case now stands they can do nothing to Jaghire or Shrotriem tanks is admitted, and the evil resulting from having these tanks lying above the more important Government tanks lower down the chain must be endured and remedied by enlarging the escapes sufficiently to make the lower tanks safe, even if these private tanks should breach, but the number will be comparatively small if the Government, Bagara Ayacut, and Dasbandham tanks be eliminated from each chain.

4. The real question then is what can be done with the Dasbandham tanks? and what is a Dasbandham? As far as I can understand it is an agreement between the Government and a ryot or Dasbandhamdar, under which the Government binds itself to let the ryot have certain lands free of rent, and the ryot binds himself in consideration of this advantage to keep the tank in repair; in other words, he pays his rent in labor or value instead of money. It is a contract which is, or ought to be binding on both parties; the Government are bound to give the land and charge no rent; the ryot is bound to keep the tank in repair.

But as the agreement is understood by the holders, the contract is binding on the Government only, not on the tenant. As long as a tank wants no repair, or only very trifling repairs, the Dasbandhamdar goes on enjoying his land and paying no rent. Should any accident occur to the tank, and repairs more or less expensive be required, he almost invariably throws up his land and agrees that his Dasbandham shall be escheated rather than carry out his share of the contract, and as there is no claim for arrears he does wisely, for he has realised a clear gain during the many years when he got his land rent free, and gave no consideration.

The question arises then. If the tenant can terminate the contract at will, cannot the Government do so too?

As soon as the tenant sees a probability of the agreement being no longer profitable he throws it up, and it would seem that this would give the other party to the agreement a similar right, and that it is open to Government to say "Our bargain is at an end we resume our land and take upon ourselves the expense of keeping the tank in repair which formerly devolved on you in consideration of holding this land rent free."

I am inclined to think that the Government have this right and to agree with the President that a Dasbandham tank is a Government tank, and can be dealt with in the same way.

(Signed) J. N. HUNTER, Lieut.-Col., R.E.,
Executive Engineer.

CHEEKATIMANIPULLY,
12th August 1879.

ENCLOSURE 1 IN No. 2.

ANALYSIS OF THE GROUPS.

Statistics relating to ten groups have been furnished. These groups consist of 747 tanks of the following descriptions:—

Ordinary Government tanks		181
Dasbandham	do.	242
Bagara Ayacut	do.	200
Inam	do.	2
Shrotriem	do.	4
Private	do.	103
Miscellaneous	do.	15

The drainage basins of the groups contain altogether 243·75 square miles, and the total ayacut average cultivation, highest cultivation, and capacity of the several tanks is as follows:—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
7,950·49	4,001·03	5,879·75	11,724·57

The statistics consist of sketches of each group, calculation of cubical capacity of each tank in each group in cubical feet, memoranda of the present state of each tank, accounts submitted by the Tahsildars regarding the cultivation under each tank.

In the calculations which follow I have assumed that 5,000 cubic yards or 135,000 cubical feet are required for the irrigation of one acre, and that a drainage basin of 10 square miles should catch sufficient rain water to irrigate 300 acres.

I shall first take each tank in detail.

Veerabally group—Ikáyachóti Taluk.

This group has a drainage area of 35 square miles or sufficient to irrigate 1,050 acres; it contains 48 tanks, viz., 35 Government, 4 Dasbandham, 2 Bagara ayacut, and 7 breached tanks. The total capacities of the several tanks are as follow:—

35 Government	864·37
4 Dasbhandam	80·27
2 Bagara ayacut	5·25
	949·89, or for about

100 acres less than the drainage basin is calculated to supply. The ayacut under the various tanks amounts to 982·05, or only slightly in excess of the cubical capacity, and if one or two of the tanks in the group get more than one supply of water, there should be ample water for the whole ayacut.

The average cultivation, however, is only 348·71 acres and the highest cultivation has never exceeded 744·46 acres. Therefore, although the different tanks are large enough to contain sufficient water to irrigate all their ayacut; generally speaking there are in this group 633·34 acres lying waste, for which under the rules remission will be claimed and given, and which will not even be cultivated with dry crops although the soil is probably favorable.

In this group there are eight sub-groups as follows in round numbers:—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
531·	173·	403·	399·

N.B.—The capacities all through have been calculated from the cubical measurement, and the figures represent the number of acres the tank, if full, is capable of supplying with water.

Here therefore there are 40 small tanks (I have excluded the breached tanks) with an average capacity for less than 10 acres and an average ayacut of about 13 acres. The result is that they cultivate on an average only 4¼ acres or ⅓rd of their ayacut. That in good years these tanks receive several supplies is shown by the fact that the highest cultivation amounts to nearly four-fifths. In the lowest tank of the whole series the effect, however, is even more marked. That tank is as follows :—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
451·	175·	341·	573·

Although its cubical capacity is considerably in excess of its ayacut, it cultivates, on an average, little more than one-third and in the best years scarcely more than three-fourths.

Were there no tanks above the main tank it may be safely said that the main tank would always receive a full supply, and, as a full supply would be more than sufficient to enable it to cultivate the whole ayacut, the average cultivation of this group would then stand at 451 acres instead of now at 348, or a clear gain of 100 acres besides 531 acres (ayacut land of the upper tanks), which would be available for dry cultivation.

There are only two Bagara ayacut tanks in this group and it cannot therefore be taken as an example of the influence of these tanks; there are, however, several Dusbandham tanks which might with advantage be relinquished.

This group contains several striking examples of what I have asserted, that the supply of water in wells is not influenced, or very little so, by the tanks under which they are situated, *e.g.*—

Tank No. 13 is entered as having a capacity for, say, 3 acres, but the wells under it irrigate 69 acres. It is clear that a tank which can only contain enough water for 3 acres cannot supply water to wells by percolation sufficient for 69. Again, No. 37, with a capacity for 38·74 acres, irrigates an average ayacut of 43 acres (highest 87), and in addition there are 39 acres irrigated from wells. Again, a small tank with a capacity for 0·74 acres has wells under it which irrigate 6 acres. This tank, No. 37, is also a good example of what a tank can do which has not many tanks above. It is only commanded by 4 tanks, but has a drainage basin of nearly 10 square miles; one of the largest of the 4 tanks commanding it is breached and harmless and the result is that No. 37, the lowest, though its capacity (38·74) is sufficient for less than half its ayacut (94 acres) yet in average years it cultivates 43 acres and in best year 87.

The details of the tanks in this group are as follow:—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	451	175	341	573·48
2	Not entered in the village accounts.		...	5·20
3	8	8	12	23·70
4	4	3	4	10·74
5	8	3	8	24·40
6	5·35	2·25	5·25	3·92
7	Breached ...	...	...	...
8	13	4	10	2·59
9	30·47	23·47	30·47	23·85
10	11	2·10	5	1·77
11	Breached ...	...	...	...
12	17·70	5·50	13·70	7·70
13	72·00	56·00	69·00	3·40
14	Not in the village accounts.		...	0·44
15	Breached tank. Not in the village accounts.			...
16	Breached 9	...	...	...
17	29·10	2·02	5·10	34·81

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
18	6	3·60	6	9·62
19	5·72	3·14	9·72	7·77
20	Not in the village accounts.		...	1·11
21	19·09	2·01	8·08	5·18
22	7·64	1·13	6	4·44
23	Not in the village accounts.		...	1·48
24	Do.		...	1·33
25	6·60	1·25	5	1·48
26	Silted ... 1	·20	1	...
27	39	14	36	21·40
28	Breached ...	...	...	...
29	4	·60	2	·74
30	Breached 16	3·60	6	...
31	29	5·40	25	24·66
32	9·02	2·02	9·12	6·29
33	5	1	5	21·03
34	1	·20	1	2·22
35, 36	Breached ...	...	...	...
37	94	43	87	38·74
38	54	16	44	47·77
39	48	4	13	5·40
40	8	1·25	3	...
41	31	8	26	24·66
42	Breached ...	...	...	...
43	35	18	34	21 33
44	...	...	...	2·44
45	16	7	15	10·88
46	1	1	1	1·85
47	...	...	...	3·40
48	Breached ...	...	...	...

Davalcheroovoo Group—Madanapalle Taluk.

This is a very large group. It has a drainage area of 83 square miles and contains 193 tanks, as under:—

——	Ayacut.		Average Cultivation.	Highest Cultivation.	Capacity in Acres.
Government tanks	43	2,251	1,170	1,650	4,376·43
Dusbandham „	97	1,263	564	830	1,478·81
Bagara ayacut „	39	...	...	...	129·36
Private „	14	...	...	...	49·58
	193	3,514	1,734	2,480	6,034·18

The size of the drainage basin should be ample to irrigate the available ayacut, and the capacity of the tanks is more than sufficient for their ayacuts. The group is favorably situated at the foot of high hills, and probably gets more rain than many other groups less favorably situated, yet in spite of all this less than one-half of the available ayacut is irrigated and in best years only a little more than two-thirds.

Perhaps the sub-group, of which tank 130 is the lowest, illustrates better than any other the effect of these numerous tanks. No. 130 is as follows:—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
641	284	388	492·00

It is commanded by 33 tanks with a collective capacity for 312·14 acres. Of these tanks 14 are Dusbandham, 15 are Bagara ayacut, 1 is private, and 3 are Government. Of all these tanks, only 4 (134, 135, 136, and 153) are entered as having any cultivation under them, viz. :—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
256	99	165	85·77

Deduct the capacity of these 4 tanks from the total of the remaining 33 and we find that there are 29 tanks which store water sufficient for 103 acres but which is not made use of for irrigation in any way whatsoever. There are, however, on an average, 316 acres lying waste under tank No. 130 because there is not sufficient water to irrigate them. The ayacut here affected is considerable and it is therefore worth while to work out the financial effect of the present system. The total amount of ayacut under No. 130 and the tanks commanded by it is 897 acres, which is classed as wet. Out of this 524 acres on an average lie waste and get remission. They are not even cultivated with dry crops. They are not thrown up by ryots because the ryots know that in ordinary years they will get their remission and in good years they will be able to cultivate a portion and get remission on the rest. Let us assume the average assessment on this land to be Rs. 7 per acre (considerably below the average assessment of wet land in the sub-division), and it will be seen that one year with another there is an annual loss to Government of 3,668 rupees. If, instead of the ayacut being scattered among 34 different tanks and remission being given whenever—as will be always—there is a deficiency of water in any one or in all of the tanks, the ayacut were to be concentrated in one place, viz., under the tank best fitted to irrigate it, we should have an ayacut of 641 acres under tank No. 130. As, however, this tank has only a capacity for 492 acres, the ayacut should be limited to that amount and the balance classed as dry. This would give 119 acres more irrigated land than is at present the average; the balance of the ayacut under No. 130 would be available for dry cultivation, viz., 149 acres, *plus* all the land made available for dry cultivation by the relinquishment of the upper tanks. This would give 256 acres more ayacut land of the very best description and at least 150 acres of relinquished tank-beds available for cultivation, or a total of 550 acres, which could pay a dry rate of Rs. 2 per acre = Rs. 1,100; this added to Rs. 833, being the assessment of 119 acres of excess average cultivation, would give in this small group alone an increased revenue of nearly 2,000 rupees, in addition to which there would be 669 more acres adding to the grain-producing power of this small portion of the country alone. It is this system of being able to claim remission when there is a deficient supply of water that tells so badly upon the prosperity of the country, especially in this part of the country, where there are so many petty tanks, each interfering with the other so that none can cultivate the whole of its ayacut, and remission has to be given under all. The ryots will not give up their lands because they cost, as a rule, nothing and now and then they can cultivate them; concentrate the ayacuts; make the ayacuts retained dependent on the capacity of the tank under which they are situated; give remissions only as an exceptional case in extraordinary years; and class all the rest as dry, so that as long as they are held in the putta they will have (except in extraordinary years of scarcity) to pay a dry assessment; and the effect must be that the wet lands retained will get a better supply of water and there will be a vast increased area of the very best land which will be annually brought under dry cultivation—an increase to the prosperity not only of Government, but also of the ryots themselves and the country generally.

The details of the ayacut of each tank in this group are as follow :—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	200·00	128·00	153·00	240·51
2	47·00	34·00	37·00	44·00
3	1·00	1·00	1·00	3·70
4	190·00	102·00	180·00	782·37
5	133·00	78·00	118·00	592·37
6	4·00	4·00	4·00	5·55
7	Not in the accounts.		...	7·40
8				7·85
9				3·40
10				1·48
11	48·00	23·00	34·00	24·66
12	20·00	10·00	17·00	14·59
13	Not in the accounts.		...	6·07
14	10·00	2·00	9·00	2·14
15	2·00	2·00	2·00	8·07
16	4·00	3·00	4·00	0·14
17	27·00	15·00	19·00	50·14
18	19·00	8·00	12·00	3·25
19	31·00	17·00	29·00	66·00
20	34·00	8·00	13·00	...
21	Breached ...	...	...	2·37
22	2·00	2·00	2·00	4·88
23	113·00	43·00	69·00	102·88
24	Not in the village accounts.		...	...
25	...	...	...	...
26	...	...	...	...
27	Not in the village accounts.		...	·81
28				25·18
29	2·00	...	...	6·96
30	4·00	2·00	2·00	0·51
31	31·00	13·00	30·00	42·05
32	...	...	...	0·81
33	Not in the village accounts.		...	4·96
34				3·03
35				2·44
36				18·29
37				4·81
38				...
39	...	...	...	4·37
40	Not in the village accounts.		...	44·81
41				47·03
42				36·00
43				31·25
44	...	...	...	...
45	Not in the village accounts.		...	16·66
46				...
47				...
48	...	...	...	16·96
49	13·00	7·00	13·00	4·37
50	Not in the accounts.		...	4·44
51	4·00	2·00	2·00	6·00
52	35·00	14·00	34·00	32·44
53	2·00	1·00	1·00	10·96
54	6·00	3·00	3·00	9·55
55	8·00	5·00	8·00	10·74
56	23·00	10·00	15·00	16·44
57	Not in the village accounts.		...	...
58	32·00	20·00	30·00	54·00
59	Not in the village accounts.		...	4·44
60				2·14
61	19·00	10·00	15·00	12·66

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
62	5·00	4·00	5·00	5·92
63	4·00	3·00	4·00	3·48
64	13·00	7·00	11·00	13·25
65	2·00	2·00	2·00	9·85
66	4·00	2·00	2·00	1·11
67	8·00	5·00	6·00	4·07
68	Breached ...	...	...	...
69	30·00	7·00	7·00	10·74
70	7·00	4·00	4·00	23·62
71	...	...	...	1·25
72	Not in the accounts.		...	37·77
73	...	...	...	...
74	17·00	3·00	4·00	5·33
75	22·00	12·00	15·00	23·33
76	3·00	1·00	1·00	2·37
77	Not in the village accounts.		...	5·55
78	26·00	13·00	32·00	46·74
79	3·00	2·00	2·00	3·03
80	Not in the accounts.		...	3·33
81	1·00	1·00	1·00	4·66
82	148·00	27·00	115·00	243·55
83	14·00	7·00	9·00	...
84	24·00	7·00	9·00	13·18
85	134·00	109·00	137·00	364·07
86	49·00	33·00	43·00	63·33
87	98·00	72·00	97·00	146·96
88	31·00	16·00	27·00	28·07
89	18·00	8·00	8·00	13·03
90	3·00	...	...	4·51
91	15·00	4·00	9·00	13·70
92	12·00	6·00	9·00	...
93	8·00	3·00	4·00	4·96
94	21·00	18·00	20·00	146·59
95	27·00	10·00	14·00	37·03
96	32·00	13·00	17·00	17·62
97	5·00	1·00	1·00	45·85
98	...	...	...	2·44
99	...	...	...	0 81
100	10·00	3·00	4·00	31·18
101	108·00	84·00	96·00	158·37
102	6·00	...	...	4·00
103	24·00	1·00	5·00	2·51
104	4·00	3·00	4·00	9·55
105	11·00	7·00	10·00	10·44
106	36·00	15·00	24·00	10·74
107	164·00	112·00	143·00	823·18
108				14·14
109	Not in the village accounts.		...	1·77
110				1·03
111				9·03
112	19·00	17 00	19·00	5·25
113				6·74
114				7·18
115				1·40
116				2·29
117				1·92
118	Not in the village accounts.		...	1·48
119				4·00
120				2·22
121				3·85
122				3·11

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
123	83·00	38·00	52·00	43·85
124	5·00	2·00	2·00	31·77
125	46·00	23·00	29·00	11·77
126	...	...	...	1·85
127	...	...	...	1·18
128	69·00	34·00	50·00	...
129	...	...	...	...
130	641·00	284·00	388·00	492·00
131	...	...	...	1·62
132	...	...	...	1·70
133	...	...	...	2·20
134	13·00	10·00	11·00	15·85
135	129·00	51 00	73·00	6·96
136	29·00	18·00	29·00	15·11
137	...	...	...	9·11
138	...	...	...	1·92
139	...	...	...	3·92
140	...	...	...	14·74
141	35·00	...	...	2·59
142				18·00
143				9·70
144				0·66
145				2·44
146				0·29
147	No particulars given.			3·33
148				11·33
149				0·59
150				7·85
151				0·44
152				0·37
153	85·00	29·00	52·00	61·48
154				43·18
155				6·37
156	...	...	...	7·25
157				0·22
158				1·62
159				0·59
160	...	...	...	2·37
161	...	...	...	0·81
162	...	...	...	5·03
163	...	...	...	2·59
164	...	...	...	1·25
165	...	...	...	26·37
166	...	...	...	26·37
167	...	...	...	1·11
168	...	...	...	1·55
169	20·00	13·00	19·00	5·03
170	...	...	...	0·74
171	...	...	...	3·11
172	...	...	...	0 51
173	...	...	...	12 82
174	...	...	...	22·74
175	...	...	...	21·11
176	...	...	...	39·55
177	20·00	10·00	15·00	43·77
178	12·00	5·00	6·00	14 96
179	51·00	16·00	23·00	18·00
180	48·00	11·00	17·00	19·18
181	...	...	...	0·22
182				5·33

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
183				3·77
184				2·14
185				...
186				...
187				...
188	...	...	...	4·44
189				11·40
190				5·18
191				3·40
192				4·74
193				4·00

Koswaripalle Tank Group—(Madanapalle Taluk).

This group consists of 89 tanks in a drainage area of 17 square miles—

—	Ayacut.		Average Cultivation.	Highest Cultivation.	Capacity in Acres.
Government tanks	16	381	258	336	523·71
Dusbandham	28	270	132	203	199·55
Bagara ayacut (of above 18 breached)	45	...	...	...	123·48
	89	659	390	539	846·74

The drainage area should suffice for 510 acres; there are actually 659 acres of ayacut available, and the total capacity of the tanks is sufficient for 854·10 acres. The average cultivation, however, is only 390 acres (highest 539).

The lowest tank is breached, and the capacity, ayacut, &c., is not given, but judging from the sketch map it is somewhat larger than tank No. 6, which has a capacity for 233·40 acres. The lowest tank (breached) is directly influenced by 15 smaller tanks irrespective of the remaining tanks in the group, and there can be no doubt that the breach occurred in the lower tank at the same time when the 18 tanks breached above it.

It would be useless to repair this lower tank until steps have been taken to make the others above it safe. Of these the Bagara ayacut tanks, under which it is reported that there is no cultivation whatsoever, obstruct water sufficient for 123·48 acres.

In this group we have an example of two kinds—first, the danger to the lower tank, which has resulted in this case in a breach; and second, the loss by the obstruction of water.

The details of this group are as follow:—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	14·00	11·00	14·00	...
2	1·00	1·00	1·00	0·66
3	Not in the accounts.		...	...
4	...	...	...	...
5	...	...	...	...
6	136·00	111·00	127·00	233·40
7	...	...	...	1·42
8	...	...	...	...
9	135·00	88·00	121·00	169·25
10	Not in the accounts.		...	0·37
11	...	...	...	0·14
12	...	...	...	0·59

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
13	2·00	2·00	2·00	6·44
14	...	...	...	2·66
15	...	...	...	1·62
16	...	...	...	2·88
17	...	...	...	...
18	13·00	7·00	10·00	4·00
19	26·00	6·00	9·00	3·92
20	Not in the accounts.			...
21				
22	...	...	...	5·03
23	...	...	...	0·51
24	...	...	...	...
25	31·00	17·00	30·00	92·96
26	...	...	...	16·74
27	29·00	12·00	13·00	7·33
28	...	...	...	...
29	...	...	...	2·07
30	...	...	...	0·22
31	...	...	...	5·55
32	...	...	...	0·96
33	...	...	...	0·22
34	53·00	22·00	48·00	55·77
35	Not in the accounts.			6·66
36	Do.			5·25
37	...	...	...	...
38				
39	...	...	...	0·22
40	...	...	...	9·11
41	...	...	...	...
42				
43	24·00	14·00	21·00	22·59
44	2·00	2·00	2·00	1·07
45	...	...	...	51·55
46	...	...	...	9·48
47	...	...	...	0·29
48	...	...	...	2·00
49	...	...	...	...
50	Not in the accounts.			1·52
51	Do.			1·48
52	Do.			0·74
53	4·00	2·00	2·00	1·48
54	Not in the accounts.			13·18
55				...
56	13·00	9·00	9·00	16·14
57	2·00	1·00	2·00	...
58	...	...	...	1·33
59	9·00	4·00	5·00	0·88
60	...	...	...	0·14
61	...	...	...	2·74
62	4·00	3·00	4·00	2·96
63	...	...	...	1·33
64	18·00	6·00	9·00	3·18
65	5·00	5·00	5·00	2·51
66	Not in the accounts.			...
67	17·00	7·00	13·00	4·88
68	5·00	3·00	5·00	4·81
69	...	...	...	1·62
70	22·00	16·00	22·00	8·74
71	...	...	...	1·55
72	...	...	...	2·59
73	...	...	...	6·51

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
74	...	...	...	2·51
75	...	...	...	4·51
76	...	...	...	0·81
77	12·00	9·00	9·00	6·29
78	...	...	...	0·74
79	5·00	4·00	7·00	7·77
80	16·00	11·00	15·00	11·18
81	3·00	3·00	3·00	1·11
82	...	...	...	1·92
83	3·00	2·00	2·00	0·88
84	...	...	...	0·37
85	16·00	6·00	13·00	...
86	...	...	...	0·96
87	...	...	...	0·07
88	2·00	2·00	2·00	3·77
89	17·00	9·00	16·00	0·51

—

Kottapalle Tank Group—Madanapalle Taluk.

This group consists of 67 tanks in a drainage area of 15 square miles—

—	—	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
Government tanks	24	408	154	226	519·97
Dusbandham	6	101	29	44	39·77
Private 12 (breached)	20	...	...	...	66·25
Bagara ayacut	17	...	...	...	85·27
	67	509	183	270	710·86

The drainage area should catch enough water to supply 450 acres with irrigation. The capacity of the tanks is more than sufficient for this amount and the available ayacut is 509 acres. The average cultivation, however, is only 183 (highest 270). The cultivation under the private tanks is not given, but supposing it to be in the same proportion to their collective capacity, as the Government and Dusbandham tanks are to theirs, it would be an average of 70 acres and the highest would not be more than 85. I am glad this group has been selected. It was not one that I asked for, as it is comparatively a small one, but it happens to be the very group which first attracted my attention to this subject.

The group is situated near Madanapalle, which town is commanded by the lowest tank of the series, a large tank with a capacity for 211·33 acres. This tank was some years ago repaired at a great expense and was supplied with a very fine calingulah. In spite of its large capacity, however, there is only an average cultivation of 2 acres. This is doubtless in some degree owing to a deficiency of land which can be commanded by the tank, but this is not the only reason, there is more land that could be brought under irrigation, but the tank has a very precarious supply, owing to the large number of petty tanks which block up its supply-channel. In August or September 1873 there was a very sudden and heavy fall of rain in the Madanapalle valley, the tanks all suddenly filled, several of the small tanks high up the catchment basin breached, then No. 14 and lastly No. 2, and all the water came down upon No. 1. The rush was very great; there were four feet of water over the calingulah, which, big as it is, could not discharge quickly enough; the water rose rapidly and in several parts was nearly topping the bund. I turned out every male inhabitant I could get hold of, and by digging a long cut at one end of the bund and by employing other coolies to raise the bund where it had sunk was just in time to save the tank and probably a large portion of the town also. I am thoroughly acquainted with almost every tank in this group and have frequently walked all over the area it covers. The details of the tanks are as follow:—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	4·00	2·00	3·00	211·33
2	29·00	19·00	25·00	122·37
3	14·00	7·00	12·00	27·33
4	Not in the accounts.			...
5				0·14
6				43·62
7				1·62
8	...	...	...	0·51
9	Not in the accounts.			7·85
10				4·74
11				...
12				1·48
13	...	...	...	...
14	12·00	7·00	10·00	...
15	Not in the accounts.			1·85
16	18·00	8·00	11·00	14·81
17	23·00	9·00	7·00	3·70
18	Not in account.	...	...	6·88
19	8·00	6·00	7·00	12·59
20	Not in accounts.	...	...	2·22
21	2·00	2·00	2·00	4·07
22	48·00	31·00	36·00	40·22
23	48·00	4·00	7·00	...
24	20·00	9·00	9·00	...
25	Not in accounts.	...	...	...
26	45·00	10·00	20·00	8·37
27	Not in accounts.	...	...	1·33
28	Do.	...	...	...
29	24·00	4·00	4·00	0·96
30	...	...	...	1·92
31	...	...	...	1·92
32	...	...	...	...
33	4·00	1·00	1·00	...
34	205·00	59·00	77·00	...
35	Not in accounts.	...	...	...
36	Do.	...	...	0·14
37	Do.	...	...	...
38	...	...	...	...
39	Not in accounts.	...	...	2·14
40	Do.	...	...	...
41	Do.	...	...	...
42	30·00	20·00	29·00	...
43	Not in accounts.	...	...	8·59
44				...
45	57·00	29·00	45·00	...
46	...	...	...	1·18
47	52·00	4·00	6·00	1·77
48	Not in accounts.	...	...	0·88
49	26·00	9·00	13·00	3·55
50	...	...	...	1·62
51	Not in accounts.	...	...	2·37
52	24·00	2·00	4·00	...
53	...	...	...	2·81
54	...	...	...	7·85
55	9·00	2·00	2·00	1·62
56	Not in accounts.	...	...	1·03
57	...	...	...	1·03
58	...	...	...	4·44
59	...	...	...	1·85
60	...	...	...	...
61	Not in accounts.	...	...	8·07
62				...

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
63	...	...	...	0·74
64	...	...	...	...
65	...	...	...	57·55
66	...	...	...	1·25
67	Not in accounts.	...	...	

Tumbulpully Group—Madanapalle Taluk.

This group has a drainage area of 36 square miles and contains 185 tanks as follows :—

—	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
Government Tanks 22 ...	717	330	534	579·17
Dusbandhum ,, 79 ...	602	375	494	742·18
Bagara Ayacut ,, 54 ...	...	...	...	119·58
Private ,, 25 ...	...	...	...	126·87
Miscellaneous ,, 5 ...	...	...	...	3·85
185 ...	1,319	705	1,028	1570·85

Here we have nearly as many tanks as in the Davalcheroovoo group in an area of less than half the size.

The drainage area ought to suffice for 1,050 acres, the cubical capacity of the tanks is sufficient for 1570·85, and the actual ayacut available is 1,319 acres. The average cultivation however is only 705 acres, or little more than half the available ayacut. The evil effects of the grouping system are shown here in even a more marked manner than in the Davalcheroovoo group.

The tanks above the Government tanks are nearly double the capacity of the tanks they command. It is therefore no wonder that the lowest tank (the Rayani Cheruvu) was for many years breached and useless. It was repaired by myself during the famine as a relief-work. The most important tanks in this group are 1, 8, 29, 35, 65, and 66 ; the collective ayacut, cultivation and capacity of which are as follow :—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
890	467	696	547·82

It is possible that after a professional examination a few more tanks might be found worth keeping and enlarging, since the drainage area of the group suffices for even more ayacut than these would furnish.

The Bagara ayacut and private tanks alone have a collective capacity of 246·45, or a capacity greatly in excess of the lowest tank which they all command, and nearly half the capacity of all the Circar tanks in the group. They alone must therefore be a source of annual danger to the tanks below them, and as I have pointed out before it is no wonder that the two lowest tanks breached. Yet it is stated that there is no cultivation under these tanks. This I doubt, though I can easily believe that it is not brought to account. Indeed I have been greatly struck in the examination of this group at finding that a very large number of tanks, which have been inspected, sketched, and measured by the Department Public Works, are not to be found in the village accounts. Other tanks surrounding them were duly brought to account, thus showing that there could have been no mistake in the village to which the Department Public Works have assigned them.

I found that many Bagara ayacut tanks, some Dusbandhum and even one Government tank were in this way omitted.

The details of the tanks in this group are :—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	275·00	135·00	208·00	198·29
2	Not in the village accounts.		...	1·48
3	...	...	...	...
4	Not in the accounts.		...	7·92
5	...	...	...	10·37
6	...	...	...	3·70
7	Not in the village accounts.		...	...
8	162·00	119·00	154·00	100·07
9	...	...	...	...
10	10·00	9 00	10·00	7·92
11	...	...	...	...
12	...	...	...	...
13	...	...	...	...
14	Not in the accounts.		...	19·85
15				7·40
16	...	...	...	...
17	29·00	19·00	25·00	70·59
18	..	...	...	...
19	...	...	...	0·89
20	Not in the accounts.		...	61·40
21				29·26
22				2·00
23	...	...	...	...
24	...	...	...	7·55
25	Not in the accounts.		...	0·59
26	Do.		...	...
27	Do.		...	...
28				...
29	95·00	56·00	71·00	53·62
30	Not in the accounts.		...	...
31	Do.		...	...
32	...	...	...	...
33	6·00	2·00	3·00	14·29
34	...	...	...	1·92
35	126·00	68·00	87·00	22·22
36	Breached.	...	...	...
37	Not in the accounts.		...	...
38	5·00	4·00	4·00	6·29
39	...	...	...	...
40	...	...	...	...
41	1·00	1·00	1·00	13·92
42	Not in the accounts.		...	...
43				3·03
44	Not in the village accounts.		...	...
45	56·00	17·00	30·00	...
46	5·00	3·00	4·00	23·77
47	Not in the accounts.		...	..
48	...	...	...	...
49	5·00	3·00	5·00	...
50	Not in the accounts.		...	54·29
51	3·00	2·00	3·00	15·33
52	7·00	4·00	4·00	1·62
53	13·00	6·00	10·00	3 48
54	Not in the accounts.		...	5·48
55				6·22
56	...	...	...	4·96
57	3·00	2·00	2·00	7·48
58	Not in the accounts.		...	9·77
59	4·00	2·00	4·00	2·51
60	Not in the accounts.		...	0·88

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
61	Breached.	...	...	...
62	...	...	...	3·40
63	Not in the accounts.		...	...
64				...
65	88·00	39·00	60·00	86·66
66	144·00	53 00	116·00	86·96
67	12·00	7·00	10·00	22·00
68	2·00	2·00	2·00	10·51
69	Not in the accounts.		...	23·55
70	5·00	3·00	5·00	6·00
71	Breached. Not in the accounts.		...	...
72	4·00	3·00	3·00	30·88
73	18·00	8·00	15·00	42·37
74	13·00	8·00	13·00	9·03
75	10·00	5·00	8·00	38·22
76	8·00	8·00	8·00	17·55
77	Not in the accounts.		...	25·40
78	10·00	5·00	10·00	21·25
79	Not in the accounts.		...	4·44
80	...	...	...	...
81	Not in the accounts.		...	4·14
82	Do.		...	0·51
83	...	...	...	12·14
84	14·00	7·00	12 00	23·62
85	7·00	2·00	4·00	5·18
86	17·00	6·00	7·00	25·85
87	...	...	...	...
88				...
89	Not in the accounts.			...
90				4·07
91				2·88
92			...	...
93	Do.			0·14
94				1·33
95				2·00
96				2·29
97	...	...	...	7·18
98	Not in the accounts.		...	0·14
99	...	...	...	0·07
100	...	...	...	13·77
101	...	...	...	...
102	65·00	39·00	50·00	7·77
103	Not in the accounts.		...	0·22
104	3·00	3·00	3·00	7·77
105	...	...	...	...
106	...	...	...	1·55
107	13·00	3·00	8·00	17·55
108	Not in the village accounts.		...	6·07
109	Do.		...	0·66
110	Do.		...	1·18
111	Do.		...	...
112	...	...	...	1·33
113	Not in the village accounts.		...	...
114	...	..	...	2·44
115	Not in the village accounts.		...	...
116	Do.		...	...
117				...
118	Breached.	...	...	...
119	Not in the accounts.		...	1·85
120	Do.		...	...
121	Do.		...	...
122	Do.		...	7·92

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
123	8·00	5·00	6·00	2·22
124	3·00	2·00	2·00	...
125	4·00	2·00	2·00	11·18
126	Not in the accounts.		...	0·44
127	Do.		...	14·44
128	...	...	...	2·37
129	...	...	...	4·66
130	Not in the accounts.		...	12·44
131	...	...	...	...
132	Not in the accounts.		...	3·40
133	Do.		...	...
134	...	...	...	1·70
135	...	...	...	2·59
136	11·00	8·00	10·00	1·62
137	Not in the accounts.		...	...
138	Do.		...	1·33
139	...	...	...	2·88
140	Not in the accounts.		..	2·00
141	...	...	...	8·59
142	...	...	...	1·85
143	9·00	4·00	8·00	5·85
144	...	...	...	...
145	...	...	...	1·85
146	Not in the village accounts.		...	3·33
147	...	...	...	...
148	...	...	...	...
149	Not in the village accounts.		...	...
150	Do.		...	...
151	12·00	6·00	10·00	9·77
152	...	...	...	...
153	Not in the village accounts.		...	2·74
154	3·00	2·00	2·00	4·74
155	...	...	...	1·48
156	...	...	...	...
157	...	..	...	10·07
158	...	...	..	8·93
159	...	...	...	1·77
160	...	...	...	...
161	...	...	...	1·77
162	...	...	...	2·44
163	4·00	2·00	4·00	1·77
164	6·00	4·00	6·00	11·55
165	12·00	6·00	9·00	8·66
166	...	...	...	...
167	...	...	...	20·74
168	...	...	...	1·62
169	...	...	...	0·59
170	...	...	...	14·07
171	4·00	3·00	4·00	13·92
172	Not in the village accounts.		...	3·92
173	Do.		...	...
174	Do.		...	2·44
175	...	...	...	...
176	...	...	...	1·92
177	...	...	...	0·11
178	2·00	2·00	2·00	0·28
179	...	...	...	1·92
180	...	...	...	...
181	Not in the village accounts.		...	...
182	3·00	2·00	2·00	1·18
183	Not in the village accounts.		...	...
184	...	...	...	...
185	Not in the village accounts.		...	...

Nadimakandrika Group—(*Vayalpad Taluk*).

In this group there are 52 tanks in a drainage basin of 18 square miles.

			Capacity in Acres.
Government tanks	(1 breached) ...	16	504·97
Dusbandhum ,,	... ...	10	105·18
Inam ,,	... ...	2	1·84
Shrotriem ,,	(2 breached) ...	3	21·24
Private ,,	(breached) ...	1	1·18
Bagara ayacut ,,	(4 breached) ...	14	209·44
		52	843·85

The drainage basin should suffice for about 540 acres. As it is, the actual ayacut available is only 305·89 and the average cultivation is only 181·38, (the highest being 291·93). In this group the Bagara ayacut tanks, under which there is reported to be no cultivation, obstruct water sufficient for 209·44 acres. It is probable, therefore, that were these relinquished, there would be enough water for the whole of the available ayacut. In this group the lowest tank is the greatest sufferer.

The details of this group are as follows :—

Number.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	109·61	46·40	90·77	261·25
2 Breached	...	...	...	22·88
3 Do.	...	...	...	6·07
4	2·83	2·19	2·98	0·59
5	...	...	...	2·37
6	4·63	4·63	4·52	13·40
7	3·90	2·76	3·82	9·77
8	3·82	2·76	3·90	10·29
9	...	...	...	76·66
10	4·00	3·01	4·00	11·48
11 Breached	...	...	...	20·96
12 Do.	...	...	...	6·44
13 Do.	...	...	...	1·92
14	...	...	...	12·88
15	...	...	...	1·18
16	7·87	7·87	7·87	1·03
17	15·09	15·09	15·09	2·07
18 Breached	...	...	...	30·22
19 Do.	...	...	...	3·11
20	1·00	1·00	1·00	100·81
21	...	...	...	1·55
22, 23	...	...	...	12·44, 2·22, 2·96
24	17·85	8·90	11·25	3·77
25	4·32	4·32	4·32	4·59
26	39·91	23·43	35·65	3·77
27	...	...	...	1·18
28	4·24	3·55	4·24	1·40
29	12·75	6·25	12·17	1·33
30	6·00	2·20	6·00	33·71
31	1·00	0·62	1·12	1·48
32	31·62	18·18	31·60	2·44
33	21·04	12·07	18·87	5·55
34	2·97	2·80	2·98	1·33
35	1·10	0·32	0·34	17·25
36	3·03	1·64	2·70	6·00
37	3·34	2·22	3·34	5·40
38	6·53	5·73	5·73	30·74
39	...	...	...	1·33
40	1·50	0·74	1·50	1·77
41	...	...	...	3·48
42	0·60	0·60	0·60	3·48
43	1·71	1·19	1·70	7·11
44	1·97	1·33	1·97	3·77
45	2·22	1·19	2·22	54·00
46	...	...	...	21·33
47	...	...	...	3·85
48	...	...	...	1·85
49	2·80	0·70	1·90	5·18
50	1·30	1·52	2·30	2·44
51	...	...	...	1·25
52	...	...	...	2·00

Devalpally Gollalcheroovoo Group—(*Vayalpad Taluk*).

This group has a drainage area of 6 square miles and contains 16 tanks as under :—

		Capacity in Acres.
Government tanks	1	65·85
Dusbandhum ,,	7	40·71
Shrotriem ,,	1	144·00
Bagara ayacut ,,	7	11·07
	16	261·63

The drainage area should give enough water for 180 acres, so that the capacity of the tanks is more than sufficient. The lowest tank in the group is the Shrotriem tank which is also the largest.

There is only one Government tank in the group which is commanded by nine small tanks. There is no information regarding the amount of cultivation under the Shrotriem tank, but, supposing it to irrigate as much of its ayacut in proportion to its capacity as the remaining tanks, the total amount of average cultivation in the whole group will not be more than 45 acres, out of an ayacut of 134 acres. The tanks above the Government tank are as follows :—

	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
37	16	26	40·08	

They cultivate therefore 31 acres less than their capacity (best years 21 less). If however the Circar tank commanded by them got a sufficient supply of water, it would cultivate 36 acres more than it does now, that being the amount of its ayacut usually lying waste. Deducting from this the wet land cultivated under the tanks above the Government tank, there would still be an increase of wet cultivation of 20 acres *plus* 16 made available for dry cultivation.

The totals of the various descriptions of tanks are as follows :—

——		Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
Government	1	45	9·92	19·45	65·85
Dusbandhum	7	41·62	19·38	28·36	40·05
Shrotriem	1	No information.		...	144·00
Bagara ayacut	7	...	...	...	14·83

Under one of the Bagara ayacut tanks there is reported to be an ayacut of (1·50 acres).

In this group the Government tank is again the biggest sufferer.

The details are as under :—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	50·46	...	...	144·00
2	45·00	9·92	18·73	65·85
3	...	1·20	2·00	5·18
4	12·81	8·83	15·48	16·07
5	1 50	1·50	1·50	1·77
6	...	...	...	0·59
7	10·51	3·38	5·38	18·22
8	..	...	...	..
9	4·05	4·05	4·05	0·88
10	...	.	...	4·88
11	...	...	..	4·88
12	...	...	...	1·85
13	...	0·60	2·00	0·14
14	...	4·33	4·33	0 29
15}	3·92	7·43	3·87	{0·29 / 0·66
16}				

Sanipoy Group—(*Rayachoti Taluk*).

This group has a drainage area of 4·75 square miles, or sufficient for, say 142 acres. It contains 20 tanks as under :—

		Capacity in Acres.
Circar tanks	14	104·61
Dusbandhum tanks.	2	9·10
Bagara ayacut do.	2	0·07
Breached tanks ...	2	...
	20	113·78

Here there is capacity for storage of water for less land than the drainage basin is calculated to supply.

The ayacut under the various tanks amounts to 169·15, or considerably more than the cubical capacity.

The average cultivation is 76·88, and the highest cultivation has never exceeded 146·12.

This group falls into two sub-groups, the first containing ten tanks and the second nine tanks. The first discharges direct into the lowest tank No. 1 and the second falls first of all into No. 2. The principal tanks in the group are Nos. 1, 2, 13, and 14. These indeed are the only ones worth preserving.

The first sub-group is as follows :—

No. of Tanks.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
10	70·01	30·31	59·30	33·08

Out of these ten tanks, two (Nos. 13 and 14) cultivate the greater part; they are as follows :—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
42 92	19·77	40·99	22·73

Tank No. 1, the lowest in the group, is as follows :—

Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
27·47	10·22	21·83	29·11

Under these three tanks (1, 13, and 14) there are therefore on an average say 40 acres waste out of 70 ayacut, whereas the petty tanks (7 excluding 1 breached) above have an average of cultivation of 27 acres out of an ayacut of 87. The drainage area of this sub-group is 2½ square miles, or sufficient to catch water for 75 acres. By breaching the seven small tanks therefore, there would be water available for the whole ayacut of the three good tanks, viz., 70½ acres, or say an excess cultivation on the present average of 10 acres.

The second sub-group is as follows :—

No. of Tanks.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
8	44·98	15·63	30·56	12·19
No. 1 itself is	32·05	21·13	30·24	38·8

The drainage area is 2·75 square miles, or enough for 125 acres. There should therefore be ample for the lower tank, but this has on an average 11 acres waste, and the upper tanks have 20 acres waste. Perhaps no alteration in this sub-group is required as two of the tanks are breached, and the capacity of the lower tank would serve to irrigate more land than would be lost by breaching the others.

The details of this group are :—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	27·47	10·22	21·83	29·11
2	32·05	21·13	30·24	38·81
3	14·43	8·91	13·51	4·29
4	Breached.	...	...	...
5	3·18	0·15	...	...
6}	11·60	3·41	7·53	{1·92 / 1·70}
7}				
8	2·75	1·20	2·50	1·33
9}	13·02	1·98	7·02	{1·03 / 1·92}
10}				
11	4·24	1·57	4·23	·59
12	8·25	2·65	5·07	2·22
13	21·12	8·55	18·67	15·77
14	21·77	11·22	22·32	6·96
15	7·47	3·69	7·37	4·81
16}	11·40	4·20	5·77	{0·22 / 3·03}
17}				
18	Breached.	Not in the village accounts.		·03
19	...	...	...	·04
20	...	...	...	

Vithalarayany Group—(*Kadiri Taluk*).

This group contains 48 tanks in a drainage basin of 15 square miles. The different descriptions of tanks and their total capacities are as follows :—

		Capacity in Acres.
Government tanks (1 breached)	4	89·87
Dusbandhum tanks	1	24·25
Bagara ayacut „	2	13·74
Private tanks	41	32·40
	48	160·26

The drainage basin should catch water sufficient for at least 450 acres; the capacity for storage is therefore little more than one-fourth of what falls, owing to the greater number of tanks in this group being private tanks, there is no information regarding the cultivation. Of the four Government tanks, one is breached and the remaining three are as follows:—

——	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	58·37	44·80	52·89	77·50
11	2·12	0·92	0·92	1·93
21	8·87	6·95	7·89	10·44

In this group the lower tank does not suffer so much as is generally the case, and, as its capacity is greatly in excess of its ayacut, it receives enough supply from the discharge of other tanks above it to cultivate nearly the whole of its ayacut. Two things however are worthy of notice in this group. Government tank No. 20 commanded by 27 other small tanks has breached, although it is a large tank compared with the rest of the group. Also the two Bagara ayacut tanks are entered in the revenue accounts as having no cultivation, but from the Public Works Department measurement it is clear that they have a capacity for 13·74 acres. Either so much water is wasted, or else it is used and not brought to account. The latter, I think, is most likely.

As the details of cultivation under the private tanks are wanting I am unable to give them.

Kootagoola Royanicheruvu Group.

This group contains 29 tanks in a drainage area of 14 square miles.

The different descriptions of tanks and their details are as follow in round numbers:—

——	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
6 Circar	126	86	114	187
2 Dusbandhum ...	17	11	14	...
2 Private	...	...	...	8
18 Bagara ayacut ...	...	...	...	36
28	143	97	128	231

The main tank in this group breached, and there is at present no information available regarding the amount of ayacut under it before it breached.

The drainage area should suffice for about 420 acres, and, judging from the sketch map, the capacity* of the Dusbandhum tanks added to that of the others would give a total capacity of about 350 acres. The ayacut even including that of the lowest tank (which only has a capacity for 30 acres) cannot amount to more than 180 acres. The average cultivation is only 97 acres. The breach in the lowest tank is doubtless owing to the fact that its capacity is about one-eighth of the tanks by which it is commanded; what seems to be required in this group is that the capacity of the lower tank should be increased and the tank itself repaired. There would however be no good in doing this until a number of the small tanks above are rendered harmless. At present there would seem to be a great waste of water in this group.

* Omitted from the Public Works Department statement though both tanks are reported to be in good condition.

The details are—

No.	Ayacut.	Average Cultivation.	Highest Cultivation.	Capacity in Acres.
1	9·47	4·02	4·01	30·60
2 }	...	...	...	29·62
3 }				1·88
4	...	...	...	0·12
5	...	...	...	22·18
6	...	...	...	...
7	...	...	...	...
8	21·87	15·77	20·25	25·81
9 }				
10 }	...	...	...	...
11 }				
12	...	...	...	1·20
13	...	...	...	...
14	6·42	5·12	6·42	...
15	55·45	42·63	53·72	73·63
16 }				
17 }	...	...	...	...
18	29·85	16·74	26·60	13·14
19 }				
20 }	...	...	...	...
21	...	...	...	1·53
22	...	...	...	...
23	...	1·50	3·00	8·30
24	...	...	...	1·54
25	...	...	...	0·12
26	9·15	7·42	9·15	21·61
27	10·95	5·52	7·85	...
28	...	...	...	...
29	Not in the accounts.			...

ENCLOSURE No. 2.

EXTRACT from the Jamabandi general orders issued in the Bellary District in Fasli 1250.

23. *Shamilayet Dusbandhum.*—As the system of granting Khanda Dusbandhum to applicants, who make their applications either after laying foundation for new tanks or after executing repairs to old ones, is no longer in force, the following rules should be observed in granting remissions for Shamilayet Dusbandhum:—

(1.) When ryots construct new tanks or channels, the portion of the dry land converted into wet under them should be assessed at the discretion of the officer, and for their labor one-fourth of the assessment should be deducted as Shamilayet Dusbandhum. In the case of other ryots remission should be given every year in accordance with the existing rules.

(1.) If ryots execute repairs to old ruined tanks, the ayacut under which has either been transferred to dry or else left waste for a long time one-sixth or one-eighth of the assessment should, at the discretion of the officer, be given as remission in consideration of the ryots' labor.

In cases in which such remissions are allowed, applications should, in the first instance, be obtained from those who have executed repairs on the permission of the Collector.

EXTRACT from paragraph 26 of the Jamabandi general orders issued in the Bellery District in Fasli 1250.

Granting one-fourth remission for Khanda Dusbandhum Wells.—As the ryots, who are Dusbandhumdars or not and who cultivate lands either under Khanda Dusbandhum or Shamilayet Dusbandhum wells with stone revetments, are responsible for the upkeep of those wells; they should be allowed one-third and not one-fourth remission of the assessment.

(True Translation.)

(Signed) J. D. B. GRIBBLE,
Acting Collector.

In 1875 the Collector of Cuddapah brought to notice the case of certain Government tanks in the sub-division which were endangered by the existence of Dasabandham and Inam tanks situated above them and unprovided with proper waste weirs and sluices for letting off the water in the rainy season; he proposed to issue a notice requiring all Dasabandhamdars to construct weirs and sluices. The Board admitted that the question was one of grave importance, but considered that such a general notice as was proposed could not be issued, inasmuch as the duty of the Inamdar extends only to keeping the tank in the condition in which it was made over to him, and that he cannot be required, by virtue of his tenure, to construct additional works, such as weirs or sluices, intended to make the tank more secure or efficient. The view then taken was that these tanks were not private but public tanks, the repair and maintenance of which have been provided for by the grant of an Inam, and that it was probably open to Government to abandon the tanks altogether, resuming or enfranchising the Inams, but that the Inamdar's liability was confined to maintenance of the works. The Collector was requested to report fully on the subject, and in the following year it was proposed that, as the number of Dasabandham tanks in the sub-division was so large, and so many interests were affected, the whole subject should be referred to a Committee. This proposal was approved, and the Committee, consisting of Mr. Gribble, Acting Collector, Mr. Wilson, Director of Revenue Settlement, Mr. Atkinson, the Sub-Collector, Colonel Hunter, the Executive Officer, Public Works Department, and Mr. Cox, Deputy Director of Revenue Settlement, met at the end of 1878 and submitted a preliminary report asking for instructions on a point incidental to the inquiry. The Board pointed out that the two main questions for the Committee to consider are whether action is requisite, and if so, what remedy is possible as the law stands at present.

Board's Proceedings, dated 28th July 1875, No. 2,112.

Board's Proceedings, dated 24th July 1876, No. 1,895.

Board's Proceedings, dated 13th May 1879, No. 1,252.

2. The Collector now submits copies of the opinions recorded by the members of the Committee. They are unanimously of opinion that action is necessary, this opinion being based on statistics relating to certain groups of tanks showing the effect of numerous small tanks in an indifferent state of repair in diminishing the capacity for irrigation of more important tanks situated below them. It is argued that by breaching the upper tanks a source of danger will be removed, so that it will be worthwhile to render the lower tanks efficient, whilst the supply to the latter will be increased to such an extent that the breadth of cultivation on the whole will not be diminished.

On the question whether action can be taken in the existing state of the law, the Committee are unanimous in considering that Shrotriem Inam and Jaghire tanks cannot be interfered with, but think it desirable that power should be taken. As regards Dasabandham tanks, Mr. Cox and Mr. Atkinson contend that the Dasabandhamdars have a vested right in them, that such tanks cannot be breached without grant of compensation, and the Inamdars cannot be compelled to execute new works, such as sluices and weirs. Mr. Gribble and Colonel Hunter, on the other hand, contend that Dasabandham tanks are Government not private works, and that Government can deal with them as such, resuming the Inam whenever they see fit to dispense with the service for which the Inam was granted, and either breaching the tank or putting it in order as they deem best. In respect of tanks constructed by private enterprise under the rules, Mr. Gribble considers that the proprietors can be called upon to carry out additional works both as regards those constructed before the promulgation of the Standing Order on the subject and those constructed afterwards; Mr. Atkinson considers that this power can only be exercised in the case of tanks constructed after notification of the rules.

3. The exact nature and origin of the Dasabandham tenure is involved in some obscurity, but the Board do not regard Mr. Gribble's view as correct. As pointed out in Board's Proceedings, dated 9th August 1876, No. 2,020, it seems clear from a letter from Sir Thomas Munro written in 1801 that the Inams were originally

granted to encourage the construction of tanks in a district ill supplied with the means of irrigation, and the Government, repudiating the policy adopted in 1870, held that such works are "doubtless the recognised private and beneficial works of past gene ations." There may have been considerable encroachments in time past, but the titles cannot now be questioned. It is doubtless within the competence of Government to resume the Inams temporarily in case of refusal to execute ordinary repairs in the same way as State grants to private charitable institutions are attached until the buildings have been put in proper repair, and this course has sometimes been resorted to, but no claim to deal with the works themselves as Government property has ever been put forward, and the Inamdars are not bound to satisfy modern requirements by the construction of additional works. There is no analogy between the case of Service and Dasabandham Inams, and, even if there were, it is observed that the holders of the former were not summarily deprived of their grants, but allowed to enfranchise on favorable terms; nor does the fact that no claim has ever been put forward by Dasabandhamdars to the beds of the tanks support Mr. Gribble's view; a property in the waterspread was not necessarily conveyed by the permission to construct the tank.

4. As regards the private tanks, the Board do not consider that the owners can be called upon to do more than restore them to the state of efficiency which was considered sufficient when they were inspected and passed by the professional advisers of Government; they cannot now be required to carry out improvements which were not deemed necessary when the works were inspected on completion. Private tanks constructed without permission are probably of very old standing and cannot reasonably be interfered with now. The Government tanks, including the Baggar ayacut tanks, which appear not to be private property, can of course be dealt with as the Public Works Department may advise.

5. The position then is this, that Dasabandhamdars can only be compelled by temporary attachment or resumption of their Inams to execute ordinary repairs, and that Government have no means of compelling owners of Shrotriem Jaghire and private tanks to do anything; they are of course responsible for any damage resulting from neglect on their part to maintain their works of irrigation in a proper state of repair, but nothing short of buying up these private rights will enable Government to obtain the control which Mr. Gribble considers necessary; the compensation would amount to a very large sum, and the proposal that these numerous small tanks should be breached is out of the question. But apart from the objection on the score of expense, the Board are not convinced of the expediency of the measure. The First Member of the Board has recently visited the sub-division of Cuddapah, inspected some Dasabandham sources of supply, and conferred with the local officers on the subject. Mr. Puckle found that these tanks were in many cases very strongly embanked, but usually unprovided with escape weirs and often destitute of sluices. In many localities, however, the high ground adjoining the bank is naturally rocky and gravelly, and surplus weirs might be constructed with material found in the immediate neighbourhood for little more than the cost of the labor needed to carry and fix the rough stones. The water-supply of the tanks is, as a rule, supplemented by wells in the ayacut, and the breadth of cultivation is considerable even under very small tanks. It is very problematical whether extension of cultivation lower down the chain would compensate for the loss of revenue resulting from the restriction of irrigation higher up, as Mr. Gribble contends, whilst it is certain that the breaching of these numerous small tanks, which are of the greatest value to the occupants of what would otherwise be a very poor tract of country, would be ruinous to a large number of cultivators. It seems doubtful, moreover, whether in all cases the ayacuts of the upper tanks could be cultivated with dry crops instead of wet. The proper course appears to be to provide calingulas where they are considered essential to the safety of any particular works, and this might be done by arrangement with the Dasabandhandars, who could possibly be induced to furnish labor in the non-cultivating season if the Government provided supervision and the materials required. The substitution of masonry sluices for the usual cut in the bank is of minor importance if the tanks are provided with waste weirs. The Collector will report, in communication with the Executive Engineer, what can be done in this direction.

6. A copy of these Proceedings will be submitted for the information of Government.

(A true Extract.)

(Signed) C. A. GALTON,
Acting Secretary.

To the Collector of Cuddapah.

Copy to the Secretary to Government, Revenue Department,
with copies of Board's Proceedings, 28th July 1875, No. 2,112;
24th July 1876, No. 1,895; and 13th May 1879, No. 1,252.

To the Member, Board of Revenue, in charge of Settlement Department.

Exd. J. Tulloch, A. S. Rodgers and A. Grul ert.

6
P.W. Ens 5
7664/95
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1879.

Board of Revenue, MADRAS.

To

THE COLLECTOR OF CUDDAPAH.
&c., &c., &c.

Dated December 29th.

Printed January 21st 1880.

Received

PROCEEDINGS, 29TH DECEMBER 1879, No. 3,404.

DECEMBER.
No. 3,404.

Dasabandham Tanks — in Cuddapah District. Recording observations on letter from Collector on the subject of requiring Dasabandhamdars to construct weirs and sluices to—.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

11th March 1880, No. 311.

No. 148. READ THE FOLLOWING PAPER:—

Proceedings of the Board of Revenue, dated 29th December 1879, No. 3,404.

ABSTRACT.—Recording observations on letter from Collector on the subject of requiring Dasabandhamdars to construct weirs and sluices to Dasabandham tanks in Cuddapah District.

No. 149. ORDER THEREON, 11th March 1880, No. 311.

Irrigation, No. 6.

THE Board's views as expressed in their Proceedings are approved by Government.

2. The submission of the report called for from the Collector in paragraph 5 of those Proceedings is awaited.

(True Extract.)

(Signed) J. H. GARSTIN,
Acting Secretary to Government.

To the Board of Revenue.

Exd. W. H. French.

40 Copies.

Govt. of {1880} Madras.

REVENUE.

To

THE BOARD OF REVENUE.

Dated March 11*th.*

Printed 16*th.*

Read.

Encl.

G.O., 11th March 1880, *No.* 311.

MARCH.

Nos. 148-149.

Dasabandham Tanks—in Cuddapah District.—Approving the views expressed in Revenue Board's Proceedings on the subject of requiring Dasabandhamdars to construct weirs and sluices to —, and awaiting the Collector's report.

P.W. Enc 4/5
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3RD MAY 1884, No. 451 I., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following letter from Lieut.-Colonel H. M. VIBART, R.E., Officiating Superintending Engineer, III Circle, to the Chief Engineer for Irrigation, dated Bellary, 27th March 1884, No. 3430 :—

I have the honor to request you will be so good as to let me know whether it is the duty of the officers of this department to bring to the notice of the officers of the Revenue Department the insecure or neglected condition of dasabandam tanks irrigating more than 200 acres.

2. This question has arisen with regard to a dasabandam tank, irrigating lands aggregating 290 acres in Pansulamarri and Errasanipalli, in the Madanapalle taluk. The Executive Engineer informed the Sub-Collector that it is not an Imperial work ; but the Collector and Sub-Collector are of opinion that the same principle should hold good in regard to the supervision of such tanks as holds in the case of repair of tanks which are not dasabandam, and the Collector has asked me to have the question decided.

3. It appears to me that, as tanks of this description are not included in the list of Imperial irrigation works, they should be left in charge of the Revenue Department.

" Dasabandam " means an inam of land (generally one-fourth of that irrigated) given by native rulers to any individual who constructed a tank, on condition of his keeping the tank in proper state of repair.

ORDER—dated 3rd May 1884, No. 451 I., Public Works.

The Government are of opinion that while, as ruled in G.O., No. 1300, dated 24th May 1876, Dasabandamdars cannot be required to carry out " special improvements " to their tanks at their own expense, they should be held liable to maintain them in a proper state of repair.

2. The duty of enforcing this obligation will of course devolve upon the Collector of the district, and it will be the duty of the Public Works Department to move that officer to enforce the obligation in the case of any dasabandam tank irrigating more than 200 acres that requires repair the nature of which should be specified.

3. Orders will issue in the Revenue Department that on the receipt of such an application from the Public Works Department, in respect of a dasabandam tank under their charge, the Collector shall proceed to enforce the obligation by fixing a reasonable time within which the repairs specified should be carried out, failing which the inam should be fully assessed.

4. As dasabandam tanks are not in any sense private works, all those irrigating 200 acres and upwards should be included in the lists of Imperial works referred to in G.O., No. 284 I., dated 5th May 1880.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P W.D.,
Irrigation Branch.

To Superintending Engineers.
To the Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

Exd. E. Fernandez.
Spare Copies

IRRIGATION.

Govt. of {1884} Madras.

PUBLIC WORKS.

Dated May, 3rd.

Recd. *Encl.*

G.O., 3rd May 1884, No. 451 I.

MAY.

Dasabandam Tanks

Issuing instructions as regards the repair and maintenance of — and the classification of such of them as irrigate 200 acres and upwards.

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For Counter-initials

Files connected with
P.W. 3097/84 cir: on 17/4/84

Counterinitialed

I

D.G.I.

Can you say whether Dasabandam Tanks have been considered as private Tanks in classifying Imperial & Minor works?

Jon
9/4/84

S.S

Yes. I think in all cases Dasabandam tanks have been considered as private tanks, and have been excluded from the Imperial lists. A reference to the S.E's would settle the point. I can only say that no Dasabandam tanks are shewn in the Imperial lists.

A S R
10.4.84

3097

S.S.

Letter No 3430 dated 27th March from S.E IIIrd Circle.

Draft submitted for approval.

2. I can find no papers on this subject except G.O No 1300 of 24 May, 1876. In the G.O. it was remarked that Dasabandamdars were not required to execute "special improvements", and therefore - though not expressly ruled - by inference they are required to do ordinary repairs

A S R
4.4.84

attended to

Fair copy draft at once. So that it can be sent for Cantur [?] instead of Res: Lr. on Monday -

Mr. Stokes leaves Madras on Tuesday.

Jon
5/4/84

To SAW.

[illegible] 7/4

HC – Please see
to this at once
Ca
7/4

RK
Kindly register soon

HC Registered S.P. 8/p
7/4

Form No. 22.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following:—

Print — Letters from the Supg. Engr. 3rd Circle } No. 3430 dated 27th Mch/74

The Government are of opinion that while, as noted in G.O. No. 1300 dated 24th May, 1876, Dasabund-andars cannot be required to carry out "special improvements" to their tanks at their own expense, they should be held liable to maintain them in a proper state of repair.

2. The duty of enforcing this obligation will of course devolve upon the

the Collector of the District, and it will be the duty of the P. W. Department to bring to that officer's notice the case of any Dasabandam tank irrespective of the extent of Irrigation under it that requires repair the nature of which should be specified

3. Orders will issue in the Revenue Dept that on the receipt of such an application from the P. W. in respect of a Dasabandam Tank under their charge, the Collector shall proceed to enforce the obligation by fixing a reasonable

? move that officer to enforce the obligation in
H.C.S

? irrigating more than
200 acres.
H.C.S

4. As Dasabandam Tanks cannot be are not in any sense private works, all those irrigating 200 acres & upwards should be included in the List of Imperial Works referred to in G.O 2541 I. —
dated? ? —

Supg Engineers
C.E. for Irrigation
& P. W. Sects
Revenue Dept
H.C.S

time within which the repairs specified should be carried out, failing which the ryam should be fully assessed.

Jou
5/4/84

I submit that the D.P.W. should class Dasabandam tanks irrigating more than 200 acres as Imperial works, & include them in their lists. The tanks are not in any sense private works. The Dasabandam Inamdars have no property in the tanks, even in the case of the Shanbhat Dasabandams.

H.C.S
8/4/84.

wd

The Hon'ble H. E. Sullivan

Rec'd Letter & Enclosures.

459

Copy Draft as altered in pencil & circulated.

Jos.
16/4/84.

SUPERINTENDING ENGINEER'S OFFICE,

~~MADRAS~~,

No. 3430. Bellary ~~Chepauk~~, 27 March 1884.

From Lt.-Col. A. M. Vibart R.E.
Offg. ~~THE~~ SUPERINTENDING ENGINEER,
3rd ~~1ST~~ CIRCLE,

To
THE Chief Engineer
for Irrigation
Madras

SIR,

Enclosures.

I have the honor to request you will be so good as to let me know whether it is the duty of the Officers of this Department to bring to the notice of the Officers of the Revenue Department the insecure or neglected condition of Dasvandum Tanks irrigating more than 200 acres.

2. This question has arisen with regard to a Dasvandam Tank, irrigating lands aggregating 290 acres in

Pamulamarri and Erracanipalli in the Madhanapalli Taluq. The Executive Engineer informed the Sub Collector that it is not an Imperial Work; but the Collector and Sub Collector are of opinion that the same principle should hold good in regard to the supervision of such tanks, as holds in the case of repair of tanks which are not Dasvandum and the Collector has asked me to have the question decided.

His not clear what is meant by this.

3. It appears to me that as tanks of this description are not included in the list of Imperial Irrigation Works, they should be left in charge of the Revenue Department.

I have the honor to be
Sir
Your most obedt servant
Henry Nisbet Lt Col R.E
Offg Superintending Engineer
3d Circle

"Dasvandum" means an Inam of land (generally 1/4th of that irrigated) given by native rulers to any individual who constructed a tank, on condition of his keeping the tank in proper state of repair.

H.N.S

284 I 5.5.80
425 I 31.5.82

From

The Superintending Engineer,

3rd ~~1st~~ Circle,

P.W. Cir. 3097

CHIEF ENGINEER 25 MAR 1884 FOR IRRIGATION

Recd

To

The Chief Engineer

for Irrigation

Madras

Dated 27th } March 1884.
Recd. 7th } April 1884.

Enclosures.

No. 451 I of 3rd May/84

No. 3430

Dasvandum Tanks irrigating more than 200 acres.

Requesting to be informed whether this Deptt. should bring to the notice of Rev. Deptt. the neglected condition of and suggesting that the Rev. Deptt. should be entrusted with the same.

Cir. 28/4 Retd 30/4.
O.L.S. 47/4.

Form No. 22.

No. 451 I

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 3rd May 1884

Read the following:—

Letter Prm from Supg. Engr. Third Circle { C.E. No. 3430. d/ 27th March/84

The Government are of opinion that while, as ruled in G. O. No. 1300, dated 24th May, 1876, Dasabundamdars cannot be required to carry out "Special improvements" to their tanks at their own expense, they should be held liable to maintain them in a proper state of repair.

2. The duty of enforcing this obligation will of

2
4 course devolve upon the Collector of the District and it will be the duty of the P. W. Dept. to move that officer to enforce the obligation in the case of any Dasabandam tank irrigating more than 200 acres that requires repair the nature of which should be specified.

3. Orders will issue in the Revenue Department that on the receipt of such an application from the D. P. W. in respect of a Dasabandam tank under their charge, the Collector shall proceed to enforce the obligation by fixing a reasonable time within which the repairs specified should be carried out, failing which the inam should be fully assessed.

4. As Dasabandam Tanks are not in any sense private works, all those irrigating 200 acres and upwards should be included in the Lists of Imperial works referred to in G.O. No. 284. I., dated 5th May 1880.

Joh
16/4/84.

HL

Supg Engrs.
Ch. for I.
Ex. P.W.A.
Rev Dept.

Dd. 18/5

~~The Hon. H. S. Sullivan~~

~~Rev: Cat:~~

~~Jn Carter initials~~

HCI

2-7-75

3097

Govt. of (1884) Madras

PUBLIC WORKS.

Dated 3/5

Recd. Encl.

G.O., 3 May 1884, No. 451 I

Dasabandam tanks

Issuing instructions as regards the rep & maintenance of & the classificati of such of them as irrigate 200 ac & upwards.

100
10.

3/5

Entd in Regr

Revenue Secretariate

Office note, No. 45.

Station. Ootacamund, date. 12 August 1895
From The secretary to Govt. R. D
To The chief engineer for Irrigation.

With reference to the inquiry made in his office note d 16 July the undersigned has the hon to inform the Chief Engineer that Dasabhandam tanks are not Gover-ment works handed over to ryots for maintenance, but irrigation wor constructed by private individua it being the policy of former Govern to encourage by grants of inams constraction, repair and maint of such works in dry district private agency.

Grants of inams. -
Grants are now of two descr "Khanda Dasabhandams" a specified field or fields a by the Dasabhandamdars a and shamlat Dasabhan They are remunerated by of the revenue deriv year from the work -dars are bound to kee

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- The allowance
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latter description
as they had
handamdars
are

a state of efficiency and to
secure all ordinary repairs on
in of resumption of the inams.

The following extracts
will explain the origin and the
nature of these Dasabhandam tanks
more fully

(1). Para 6 of Sir Thomas Munro's letter to the Board dated 23-6-1801. No 59:—

The sum of 43,265 Pagodas in col: 74 is the amount of Inams granted for the building of Tanks etc of which near 30,000 Pagodas belongs to the three districts of ~~Gorumcondah~~ Gorámcondah. In other District the Inam is usually an eighth or tenth of the Sirkar share of the Produce but there it is from one fourth to one half. There are three different kinds of this Inam, one is when it is a certain field which may be either cultivated or not according to the quantity of water in the Tank; a second is when it is a certain proportion of the produce and a third and by far the most common is when it is a fixed and invariable quantity of cultivated land. In this last way it may often greatly exceed the Sirkar share, for suppose the whole land under a Tank to be 20 Candies and the Inams 8 Candies. If only 12 or only 8 cultivated, the Inamthar still takes his complete Inam, and in the one case, leaves only half his own share and in the other nothing to the Sirkar. These Inams are said to have been first granted in Gorumcondah above two centuries ago in order to encourage the construction of Tanks of which that District had then very few. If this was really the case the design has met with all the success that could have been expected for I have seen no country that is better supplied with Tanks than Gorumcondah now is. It is not so much the amount of those Inams as the mode of fixing than that is objectionable for could Government all secure three fourths or even a half of the produce of Tanks which should cost it nothing it would no doubt be a greater gainer in the end than it would be by constructing them at its own expense.

There is great reason to suspect that many of the Tank Inams have been created by the Curnams that others have been augmented in value by changing the original tenure for one more favourable and that numbers of them ought to revert to the Sirkar from failure of heirs but these points can only be ascertained after a long and tedious investigation. A great diminution of almost every description of Inams will be the result, yet such is the quantity of waste that I scarcely look for an addition from them of twenty five thousand Pagodas to Revenue.

(2). Para 47 of the report on the operations of the Inam Commission:—

The Inams of this class usually known as "Dasabhandams" are confined chiefly to the Ceded Districts, the Western portions of Guntoor, Nellore, North Arcot and Salem. They were granted as a recompense to private individuals who constructed tanks, wells and river channels by means of which the revenue of the State was augmented. The extent and value of the Inam were in proportion to the capital expended on the work and the outturn in revenue. These grants are of two descriptions, "Khanda Dasabhandams" or Inams given in specific localities, and "Shamilat Dasabhandams" or the allowance as Inam of a certain proportion of each year's cultivation under the work in question. Inams of the latter description were not brought on the Inam Registers as they had no locality. In all ordinary cases Dasabhandamdars are

are under the obligation of maintaining the works of irrigation in due repair. In some cases such a condition was either not attached to Dasabhandam Inams or it had not been enforced for a long time. Such Inams were treated and enfranchised as personal grants.

(3) Para 3 of B. P. dated 29-12-79 No. 3404:-

The exact nature and origin of the Dasabhandam tenure is involved in some obscurity, but the Board do not regard Mr. Gribbles views as correct. As pointed out in Board Proceedings, dated 9th August 1876 No. 2020 it seems clear from a letter from Sir Thomas Munro written in 1801 that the Inams were originally granted to encourage the construction of tanks in a district ill supplied with the means of irrigation, and the Government, repudiating the policy adopted in 1870, held that such works are doubtless the recognised private and beneficial works of past generations." There may have been considerable encroachments in time past, but the titles cannot now be questioned. It is doubtless within the competence of Government to resume the Inams temporarily in case of refusal to execute ordinary repairs in the same way as State grants to private Charitable institutions are attached until the buildings have been put in proper repair, and this course has sometimes been resorted to, but no claim to deal with the works themselves as Government property has ever been put forward, and the Inamdars are not bound to satisfy modern requirements by the construction of additional works. There is no analogy between the case of Service and Dasabhandam Inams, and, even if there were, it is observed that the holders of the former were not summarily deprived of their grants

grants, but allowed to enfranchise on favourable terms; nor does the fact that no claim has ever been put forward by Dasabandhamdars to the beds of the tanks support Mr. Gribbles view; a property in the waterspread was not necessarily conveyed by the permission to construct the tank.

(4). G. O. dated 11-3-1880 No. 311.

L. Gibson

Secretary to Government

1895
REVENUE DEPARTMENT.
Enclosure No. 5
Current No. 6197

P.W. Enc 3/4
7864/95
7865

Note by the Chief Engineer for Irrigation.

NO: 178. I.

During the investigation by the Tank Restoration Scheme of certain Minor Basins in the North Arcot and Salem Districts a large number of estimates have been received for the repair of Da-sabandam Tanks. Instructions for the repair of these tanks were issued in G.O. dated 3rd May 1884, NO: 451. I. but it is not quite clear what policy Government wishes to follow and the instructions given are not very definite as they only lay down what the Dasaban-damdars are not expected to do and do not mention the agency by which the work, which the Dasabandamdars are not expected to do, is to be carried out nor the standard of efficiency to which the works should be brought.

2. The practical question for the decision of Government appears to be whether any considerable expenditure is to be incurred, (under 43 Minor Works and Navigation) on dasabandam irrigation works in the share of srecial repairs and imrrovements or whether the ma-jority of these works are to remain in their present unsatisfac-tory condition without sluices or prorer escapes. Unless Govern-ment comes forward with a contribution the present state of af-fairs is likely to continue for an indefinite period.

3. From the orders above quoted it appears that dasabandamdars can only be required to maintain their tanks ~~in a proper state of repair~~ up to the standard which was deemed necessary at the time they were constructed and that improvements, such as adequate escapes, regarding which nothing was known at that time, should not be demanded of them when the construction involves an expenditure bearing more than a fair prorortion to the revenue, (G.O. dated 24th May 1876, NO: 1300) but what an adequate escape or a fair prorortion of the reve-nue is, does not arrear to be laid down. Hardly any of these tanks are provided with efficient escapes and it is, in many cases, per-fectly easy to evade what arrears to be the duty of Government and to make them safe by forcing the dasabandamdars to raise the bund to a height to suit the existing inadequate escapes on pain of

resumption of the inams though the cheaper and more suitable method would be to provide a longer escape with a comparatively low bund. According to the existing custom it would therefore apparently be within the terms of the original agreement to force the inamdars to maintain bunds at an unnecessary height in order to save Government the cost of a contribution towards special repairs. As Government has for years been receiving a portion of the wet assessment with absolutely no expenditure in return a contribution, when special repairs are required, seems only equitable.

4. In the accompanying draft rules it is provided that ordinary repairs should, as now, be carried out by the dasabandamdars but that the cost of special repairs should be contributed by Government and the inamdars in proportion to the interests of each. In order not to press too hard on the Dasabandamdars, it is proposed that the usual percentage charges for establishment &c should be waived and that the inamdars should be permitted to execute the special repairs under the supervision of the D.P.W. or Collector. If this is allowed the contribution will be practically reduced to the supply of labour and materials and no cash need be collected.

5. It is suggested that the draft rules may be referred to the Revenue Department for such modification as may be necessary and that definite answers may be given to the following:-

(a) When an estimate is prepared for the restoration of a Dasabandam Tank is it to provide for bringing the work to the standard of efficiency ordinarily considered necessary in the case of other Government Irrigation Works?

(b) How is the cost of restoration to be met?

Ootacamund.
21st August 1895.

Wh 2-79

Wheatley Colonel R.E.
Chief Engineer for Irrigation.

To

The Joint Secretary to Government,
Public Works Department,
Irrigation Branch.

P. W. CURRENT No. 76

Recd: 8.10.95

Enc: 6

No. 1300 I, d. 24-5-76
" 284 I, d. 5-5-80.
" 425 I, d. 31-5-82
" 451 W, d. 3-5-84
" 772 I, d. 10-9-92

Rules for

Instructions regarding the repair and maintenance of Dasabandam Tanks

(1) Inasmuch as Dasabandam inams were originally granted to encourage the construction of irrigation works in districts ill supplied with means of irrigation (and the amounts of the inams were calculated on the assumed capital cost and annual cost of maintenance) the Dasabandamdars should be required to maintain the works in a due state of repair.

^ presumably - LG ?

(2) When a Dasabandam irrigation work is reported to be in a bad state of repair and the restoration involves the construction or reconstruction of sluices or surplus escapes, the Collector or, in the case of works included in the list of Minor [illegible] in charge of the DPW, the Executive Engineer, shall cause an estimate to be prepared for the thorough repair of the work.

Borne on the Imperial lists? (Vide G.O. $\frac{451 I}{3-5-84}$ para 4). They are in charge of the Inamdars.

(3) The cost of restoration of a Dasabandam irrigation work, as provided in rule 2, shall be

OIS 429

divided between Government and the Dasabandam inamdars in proportion to the interest each has in the work, this interest being determined by the ratio of the value of the inams to the average annual collection of revenue during the previous five years, but the

Inamdars etc.

(4) When a Dasabandam irrigation work is reported to be in need of ordinary repairs which do not involve the construction of any masonry work, the Collector shall call upon the Dasabandam Inamdars to execute the repairs necessary to bring the work up to the standard laid down and shall fix a reasonable time within which the repairs shall be carried out, failing which the inam should be fully assessed.

(5) The restoration of Dasabandam Irrigation works as provided

of efficiency ~~adhered to be~~ ordinarily considered necessary in the case of other Government Irrigation works.

The word "other" may be omitted as Dasabandam tanks are not Govt works

for in rule 2, shall be carried out by the DPW or by the establishment under Collectors, the actual execution of the work being entrusted to the Dasabandam inamdars. If they fail to execute the work in a satisfactory manner the inam may be fully assessed.

(6) In the case of Dasabandam irrigation works the usual percentage charges for Establishment, tools & plant shall be waived.

Wh
20/8

[illegible]
21/8

Read

Quote { G.O. 24th May 1876 No. 1300 (ORW)
G.O. 11th March 1880 No. 311 (Rev)
G.O. 3rd March 1884 No. 451 I (ORW)
detail 12 Anicuts

Point { Office note No. 45 from the Secretary to Govt. Rev. Dept.

Point { For orders.

During the investigation by the TRS of certain Minor Basins in the North Arcot and Salem districts a large number of estimates have been received for the repair of Dasabandam Tanks. Instructions for the repair of these tanks were issued in G.O. 3rd May 1884 No. 451 I but it is not quite clear what policy Government wishes to follow and the instructions given are not very definite as they only lay down what the Dasabandamdars are not expected to do and do not mention the agency by which the work, which the Dasabandamdars are not expected to do, is to be carried out nor the standard of efficiency to which the works should be brought.

(2) The practical question for the

1005
REVENUE DEPARTMENT.
Enclosure No. 1
Current No. 6197

P.W. 3 Encl. 7664/15 1665

decision of Government appears
to be whether any considerable
expenditure is to be incurred,
(under 43 Minor Works &
Navigation) on dasabandam
irrigation works in the shape
of special repairs and improve-
ments or whether the majority of these works
are to remain in their present
unsatisfactory condition without
sluices or proper escapes.
Unless Government comes forward
with a contribution the present
state of affairs is likely to
continue for an indefinite period.
(3) From the orders above quoted
it appears that dasabandam-
dars can only be required to
maintain their tanks up to the
standard which was deemed
necessary at the time when the tanks were made
constructed ~~over to them~~ and that improvements,
such as adequate escapes, regarding
which nothing was known at that
time, should not be demanded
of them when the construction
involves an expenditure bearing
more than a fair proportion to
the revenue, (G.O. 24th May 1876 No 1300)
but that an adequate escape
or a fair proportion of the

in a proper state of repair

They are not Govt. works made
over for maintenance

the revenue is, does not appear
to be laid down. Hardly any of these
tanks are provided with efficient
escapes and it is, in many cases,
perfectly easy to evade what appears
to be the duty of Government i.e. to
make them safe by forcing the
dasabandamdars to raise the
bund to ~~a sufficient~~ a height to
suit the existing inadequate escapes on
pain of resumption of the inams
though the cheaper & more suitable
method would be to provide a
proper escape with a comparatively
low bund. According to the
existing ~~rules~~ custom it would then, therefore,
apparently be within the terms
of the original agreement to force
the inamdars to maintain bunds
at an unnecessary height in order
to save Government the cost of
a contribution towards special
repairs. As Government has for
years ~~being~~ been receiving a
portion of the wet assessment
with absolutely no expenditure
in return a contribution, when
special repairs are required, seems
only equitable.
(4) In the accompanying draft rules
it is provided that ordinary
repairs should, as now, be
carried out by the dasabandam-

dars but that the cost of special repairs should be contributed by Government and the mandars in proportion to the interests of each. In order not to press too hard on the basabandandars, it is proposed that the usual percentage charges on establishment etc should be waived & that the mandars should be permitted to execute the special repairs under the supervision of the DPW or Collector. If this is allowed the contribution will be practically reduced to the supply of labour and materials & no cash need be collected.

(5) It is suggested that the draft rules may be referred to the Revenue Department for such modification as may be necessary and that definite answers may be given to the following.

(a) When an estimate is prepared for the restoration of a basabandam Tank is it to provide for bringing the work to the standard of efficiency ordinarily considered necessary in the case of other Government Irrigation works?

(b) How is the cost of restoration to be met?

H.E.

Basabandam Irrigation Works.

To the Secretary to Govt. to Rev. Dept.

Govt
2/8

Yes - the Revenue Dept: should certainly be referred to for their opinion, before orders are passed in the D.P.W.

W
22 Aug

OS 308

Govt 2/8

Revenue 2/8

Dasabantam Spring works

GOVERNMENT OF MADRAS
26 AUG 95
REVENUE DEPARTMENT

No. 847 24 August 1895

Referred to the Secy to Government Rev. Dept for favor of opinion with reference to S.E.'s remarks of 22-8-95

Rmeds
23/8
I

858 I

P.W. Ext 2
7664/95
7665

To the Secy: to Govt. Rev: Deptt with papers in original (to be returned)

O/18 10,000—25-3-95.

(1895.)

REVENUE DEPARTMENT.

Current Number. 6197.

Endorsement of
From
The Public Works Department

Dated 24-8-95

Received 26-8-95

Enclosures 6

No. 847 D

SUBJECT.

Referring to the Revenue department for favor of opinion Note for orders on Dasabandam Irrigation works.

P. T. O.

P. W. CURRENT No. 7664

Recd: 8.10.95 7664/95

Enc: 5

ABSTRACT.

Endorsement No 3723 Mis

Retransferred to the Public Works Department with the remark that the proposed rules seem fair and suitable, and in accordance with the tenure of Dasabhandam inams

2. Of the two questions asked at para 5 of the note dated 21st August 1895 the first (relating to the standard of repairs) is answered in the affirmative. The cost of the restoration referred to in the second question should be met as in para 3 of proposed rules, but the Inamdars should be first asked to give their consent to the execution of the necessary works. If they refuse to consent or, having consented, subsequently fail to pay their share of the cost the inam will be resumed.

R. Gibson
Secretary to Government

Ootacamund
14th September 1895

To
The Public Works Department
with papers returned

S 377

Note

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

No. 8589. dated 24th october 1895

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

Proceedings of the Madras Government--(H.E.NO:1300(DPW)dated 24th May 1876)
--- DO ---------- DO ----------(-DO-NO:311, Revenue, dated 11-3-1880)
--- DO ---------- DO ----------(-DO-NO:451.I(DPW)dated 3rd March/84)
Office Note from the Secretary to Govt:
Revenue Department------ (-DO-NO:45, dated 12th August 1895)
Note by the Chief Engr:for Irrigation--(-DO-NO: 178 .I., dated 21-8-1895)
Endorsement from the Revenue Department(-DO-NO: 3723 Mis dated 14-Septr/1895)

Printing quoted
Print

The following rules for the repair and maintenance of Dasabandam tanks are approved

(1) In as much as Dasabandam inams were originally granted to encourage the construction of irrigation works in districts ill supplied with means of irrigation (and the amounts of the inams were presumably calculated on the assumed capital cost and annual cost of maintenance) the Dasabandamdars should be required to maintain the works in a due state of repair.

2. When a Dasabandam irrigation work is reported to be in a bad state of repair and the restoration involves the construction or reconstruction of sluices and surplus escapes, the Collector or, in the case of works included in the list of Minor Works in charge

W
20 Oct

of the D.P.W, the Executive Engineer, shall cause an estimate to be pre - pared for the thorough repair of the work.

3. The cost of restoration of a Dasa -bandam irrigation work, as provided in rule 2, shall be divided between Government and the Dasabandam inamdars in proportion to the interest each has in the work, this interest being determined by the ratio of the value of the inams to the average annual collection of revenue during the previous five years, but the inamdars should be first asked to give their consent to the execution of the necessary works. If they refuse to consent or, having consented, subsequently fail to pay their share of the cost the inam will be re- -sumed.

4. When a Dasabandam irrigation work is reported to be in need of ordinary repairs which do not involve the construction of any masonry work, the Col- -lector shall call upon the Dasaban- -dam Inamdars to execute the repairs necssary to bring the work up to the standard of efficiency ordinarily con- -sidered necessary in the case of other ordinary Government Irrigation works and shall fix a reasonable time within which the repairs shall be carried out, fail- -ing which the inam should be fully

assessed -

assessed.

5. The restoration of Dasabandam Irrigation works as provided for in rule 2, shall be carried out by the D.P W. or by the establishment under Col- lectors, the actual execution of the work being entrusted to the Dasabandam inamdars. If they fail to execute the work in a satisfactory manner the inam may be fully assessed.

6. In the case of Dasabandam irri- -gation works the usual per centage charges for Establishment, Tools and Plant shall be waived.

Wok 2579 Revd 4/10

S.W

DEPARTMENT

The Chief Engineer for Irrigation.

All Superintending Engineers.

The Examiner of P.W. Accounts.

" Revenue Department.

Editors Table

~~H.E.~~

Dasabandam Irrigation Works.

To
W for favour
consider initials

Issue 8/7
[illegible]
22/10

H.C./O

12

0427

1665.

Govt. of (1895) Madras.

PUBLIC WORKS.

Dated

Recd. Recd.

G.O. 24/10/1895, No. 858 I.

Kasabandam Irrigation Works.

Certain rules for the repair and maintenance of —, approved.

INDEXED

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