M.R.O. 1—39,000—16-10-29.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No.	1975	Press ~~Mis.~~
306-7 Dated	15-7-	19 1868

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
15th July 1868.

No. 306. Read the following Proceedings of the Madras Government in the Public Works Department :—

Passing orders on a letter from the Chief Engineer for Irrigation, bringing to notice the imperfect manner in which the Registers of Irrigation Works are kept up in the several districts. (Here enter 13th July 1868, No. 2,234.)

No. 307. ORDER THEREON, 15th July 1868, No. 1,975.

Irrigation No. 9.

Communicated to the Board of Revenue, who are requested to issue the necessary instructions to Collectors, and to see that these instructions are carried out. It would appear from the report of the Chief Engineer for Irrigation, that very little attention has been paid to the Board's Standing Orders Nos. 67 and $\frac{67}{1}$.

(True Extract.)

(Signed) H. SEWELL,
Acting Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 2,234.

Exd. S. T. Augustin.

Proceedings of the Madras Government, Public Works Department,
13th July 1868.

No. 306. Read the following letter from the Chief Engineer for Irrigation, to the Secretary to Government, Public Works Department, dated Fort St. George, 19th June 1868, No. 50:—

1. Shortly after joining my present office I called upon Superintending Engineers to report to what extent the instructions contained in Chapter V, Public Works Code, paragraphs 38, 45, and 49 were acted up to in each of the districts comprised in their Divisions, and whether copies of the Registers of Irrigation Works in each Range were in possession of the Range Officers. This report was called for, as I was under the impression that, while in some districts the Superintending Engineers as well as the Range Officers had very complete information regarding the expenditure and revenue in the different irrigation works in their charge, in others, information regarding the revenue derived from the tanks and other irrigation works was very defective, if not altogether wanting. It further appeared to me that a practice, which I had reason to think was not uncommon, of Range Officers simply preparing estimates for the repairs of irrigation works, as they appeared to be necessary, or as they were called for by the Collectors, and of their sending them on for approval, and for the entry of particulars of revenue by the latter officer, was objectionable; as I considered that the revenue dependant upon the works should have been carefully considered in connection with past expenditure in the first instance, and that the estimates should have been drawn up not entirely with reference to the absolute requirements of the works, but rather relatively to their value to Government and to the people.

2. There was a further object in making the above reference to Superintending Engineers. There have been constant complaints that the sum allotted annually for irrigation repairs is insufficient for their proper maintenance, and it is commonly supposed that their condition is deteriorating rather than improving under the present management, if only from the inadequate sum allowed for expenditure upon them. There can be no doubt that the deterioration of tanks throughout the Presidency is a fact. They must all have deteriorated more or less from the loss of capacity caused by the natural process of the raising of the beds, a process which cannot be counteracted by expenditure in *repairing* the embankments. Many tanks must have deteriorated in this way to such an extent as to be rendered nearly useless; and indeed many had been abandoned for this reason, before the country came under our rule. There are others, which may now have arrived at such a stage of deterioration as to render them fit subjects for examination and enquiry as to what had best be done with them.

3. There are, it is to be feared, numerous instances in which the Government money has been laid out unprofitably; in which a large expenditure (relatively to the revenue) on repairs may have failed to sustain the revenue, even when the rain-fall may not have been deficient. Such cases would evidently suggest the question "what is the object of retaining such tanks in the hands of Government?" There may be good reasons, in some instances, for keeping them up as public works, in others it might be more expedient to hand them over to the ryots on a reduced assessment.

4. What I would respectfully insist on, in dealing with tanks, is the necessity of arriving at a knowledge of them individually, before attempting to generalize

on their condition. How can it be proved in a word that the tanks in the Presidency are kept in bad or good repair? By whom have the many hundreds of important tanks been examined and reported on, in such a way as to allow of any sound opinion being formed as to their actual condition of serviceableness or otherwise? Considering their enormous importance, it is surprising how little information about them is available. Even such works as the Cumbum tank and scores of others, but little inferior to it in size or importance, who knows anything about them, except the officers in immediate charge? And even they rarely or ever know how much water such tanks are capable of containing. The officers of the Department have indeed so much miscellaneous work to attend to, that they would rarely have it in their power to institute the preparation of surveys and plans, which might appear to them to have no further object than the collection of interesting facts, but, without attaching undue importance to merely interesting information, I do think that the numerous grand old works of native predecessors are of sufficient importance to justify some outlay in the preparation of surveys of them, and in the compilation of a tolerably complete record of their constructive peculiarities.

5. As regards the smaller class of tanks, and the numerous old irrigation channels, which abound in this Presidency, little or nothing is known of them, except by the officers in their immediate charge. In Tanjore even any real knowledge of the working of the channels has to be acquired by a long residence in the district, and by a laborious enquiry into the condition of the water-supply to different interests. An intimate acquaintance with a complicated system of irrigation, and an understanding of the best mode of managing it, can only, it is true, be acquired by local experience; but it must stand to reason, that if an officer new to a district was placed in possession of surveys and of a complete series of levels of channels he had to deal with, a short local experience, instead of a long one, as is at present necessary, would suffice to enable him to manage the works properly.

6. The Government have been alive to the necessity of keeping up Registers of Irrigaton Works, and in the Rules prescribing the duties of District Engineers and other Officers, it was directed that, "The District Engineers and Collectors shall keep counterpart Register books of all works of irrigation in their districts, with the revenue for a series of years; and every year the Collectors shall add for each work the extent of cultivation and the amount of revenue for the Fusly, and the District Engineers shall add the amount of expenditure, if any, for the official year; and these items of information shall be reciprocally communicated by the officers in question, so that their books may exactly correspond." Further, that "The Registers of Revenue shall be the basis of the District Engineer's proceedings in the repair of works, and he shall be strictly responsible for the correct use of the information before him, according to the rules of the department."

G. O., No. 1,685, 21st July 1855.

Grant's Circular Orders, page 585.

7. These instructions were repeated in the Public Works Code, Chapter V.

8. The following is the substance of the replies from the Superintending Engineers, informing me of the extent to which the above orders have been carried out in the districts comprised within their Divisions.

1ST DIVISION.—No reply received.

2ND DIVISION.—The Superintending Engineer reports as follows: "I have received the Registers of both the Kistna and Nellore Districts for the five years terminating in 1865-66, and that I lately directed the 7th Range Officer of the Kistna to depute one of his Clerks to copy the portion connected with his works; this has, I believe, now been done, and each Range Officer will be similarly directed to possess himself of the requisite information."

"Excepting by a review of the revenue and expenditure on tanks for a much longer series of years than this Office possesses, it is not possible to judge of the effect of the repairs on rain-fed tanks, or on those fed by small streams. The amount of rain-fall and of the floods is so uncertain, that I notice in several instances, for two or three years after a large expenditure has been incurred, the revenue has materially diminished. If tanks are merely kept in repair no increase of revenue is likely of course to arise. By improvements of supply or capacity, superior returns will alone be realized."

9. The Superintending Engineer, 3rd Division, states, that the Irrigation Registers of the Bellary and Cuddapah Districts have been received up to Fusly 1273 (1863-64), that they have been sent every five years to save writing; but that he had suggested to the Collector of Bellary to have printed forms drawn up, with a view to their being filled up every year. The Registers for Kurnool were not forthcoming in the Superintending Engineer's Office.

10. The practice in the 4th Division is as follows: "Estimates for the repairs and improvements of irrigation works are framed by the Range Officer, sometimes on his seeing the dilapidated state of a tank as he marches along, sometimes at the direct request of the ryots, sometimes on the requisition of the Collector or the Tahsildar, and at other times in answer to petitions written to me, and forwarded by me to the Range Officer for report, and estimate if *the latter is considered necessary*." On whatever application, however, the estimate is made, the practice referred to in paragraph 3 of your Memorandum is that which is followed in this Division; the estimate after being received in this Office and being examined, is forwarded to the Collector for approval and countersignature and "to be returned with an Ayacut statement, a sample of which is forwarded for your inspection." There is no doubt that this is a very wrong system, and is like putting the cart before the horse. In former days it was easy for an Engineer Officer, or even a subordinate officer, to obtain revenue information on the spot from the village officials, but now it is difficult for him to do so, and the plan above stated is followed.

"No Registers, such as are referred to in paragraph 45 of Chapter V have, I believe, been ever kept up, and this is probably attributable to Form 20 never having been, to my memory, embodied in the Code, or circulated for guidance."

11. The Superintending Engineer has since learnt from the Collector of North Arcot, that the Register of Irrigation Works has not been kept up in his Office since 1854, "A revised form of Register was received, and orders appear to have been despatched to the Tahsildars in 1866 to prepare and furnish Registers accordingly, but none have yet been received. I have called upon them to report at once

what progress has been made, and you may rely upon my taking effectual measures to furnish you with complete Registers as soon as possible."

12. The Superintending Engineer, 5th Division, reports that complete Registers of Irrigation Works in the South Arcot and Salem districts are in his Office from 1261 to 1265 (1851-52 to 1855-56).

13. The Registers for Salem from 1266 to 1270 (1856-57 to 1860-61) have been nearly completed, and those for subsequent years will be made out as soon as possible.

14. The Registers for South Arcot have been prepared in the Collector's Office for Fuslies 1266 to 1270, and those from 1271 to 1275 (1861-62 to 1865-66) have been called for.

15. Colonel Foord further reports: "The Range Officers have no copies of the Registers, as in fact none have been prepared by the Revenue Department from Fusly 1266 (1856-57), and the old Registers in my Office having been rendered of little use by the revision of the talooks in 1860. These Officers are now in the habit of obtaining the requisite revenue statement from the talook or village authorities when they prepare estimates for irrigation works."

"It is highly desirable that each Range Officer should be in possession of complete Registers of Irrigation Works in his Range, containing particulars of revenue of each work during a series of years. The present form is intended only for five Fuslies, and does not admit of entries being made for several years in succession."

"On receipt of the Registers from Collectors, I will adopt measures for furnishing the Range Officers with copies."

16. 6TH DIVISION.—The Superintending Engineer states that the Registers of Irrigation Works have been prepared from Fuslies 1261 to 1270 (1851-52 to 1860-61), and that he is in communication with the Collectors of Trichinopoly and Tanjore relative to their preparation for subsequent Fuslies.

17. 7TH DIVISION.—The only irrigation works in this Division are in the Coimbatore District. The Superintending Engineer states, that in the Caroor Range, he is informed that Registers of Irrigation Works have been duly kept up. Mr. Wiffin, the Sub-Engineer, who has had charge of that Range for the last four years, being a very able and hard working Irrigation officer, and taking much interest in such works. In the Coimbatore and Collegal Ranges, which have continually changed hands, no Registers appear to have been kept. In the late district, and present Superintending Engineer's Offices, no Registers have been kept since Fusly 1269 (1859-60), up to which the necessary information was supplied by the Collector.

18. IN THE 8TH DIVISION.—A Register of Irrigation Works in the Madura District has been made up to Fusly 1275 (1865-66). In the Tinnevelly District the practice of keeping up the Registers in the Public Works Department has not been followed, but the Collector had been requested to supply it. It is the custom in this Division, however, for Range Officers to obtain particulars of revenue from the Tahsildars before submitting an estimate, and in three Ranges the Officer keeps a copy of a Register, which he has originally obtained from the Tahsildars, and enters each year the figures of revenue and cultivation.

Proceedings of the Madras Government, Public Works Department, 13th July 1868.

19. It appears from the above that the orders of Government for the preparation of Irrigation Registers have not been strictly adhered to, in some of the districts in the Presidency, and in several, they have been lost sight of altogether by the officers of the Public Works Department, and nowhere are they brought up so closely to date as to allow of their being used in the manner designed by Government, viz., "as the basis of the District Engineer's proceedings in the repair of works."

New Code, Chapter V, paragraph 49.

20. I attribute this partly to the form of Register communicated for guidance, which necessitates the compilation of a huge volume for each district, encumbered with a mass of petty entries, by which any officer, not skilled in revenue matters, might well become confused. It was, moreover, complicated by the entry of the shares which different villages had in tanks and by there being no limitation to the size of the works. However necessary such an arrangement might be for the guidance of the Revenue Officers, it appears to me desirable that the information supplied to the Public Works Officers should be limited to a statement of the name, ayacut, full assessment, actual cultivation, and assessment of each particular tank. There are cases in which the Public Works Officers might require to know the proportion of the area cultivated by each village under a tank, but such cases would be quite exceptional, and the required information could be obtained from the Revenue authorities. It would, moreover, appear desirable that tanks irrigating ten cawnies and under should be struck out of the Register supplied to the Public Works Department, or rather that the amount of revenue under these small works should be lumped together, so that the Register should furnish information of the whole net irrigation and assessment due to it in any particular talook. Further, I think that the Registers should be something more than a dry list of names and figures, and I am glad to be able to refer to an example of what has been done in the way of improvement in one of the Districts of the Presidency. Mr. Dykes, late Collector of Nellore, drew up an alphabetical list* of all the tanks in the district, separately for each talook. He furnished all the information required in the Register as prescribed, and also interpolated pages giving a description of each work, its condition, sufficiency of escapes and sluices, nature of soil, drainage area, source of supply, &c. These lists were printed and published as supplements to the District Gazette, and the only point in which they failed in being a most useful guide to the Range Officers, was, as the Superintending Engineer, 2nd Division, remarks, in their furnishing only the average revenue and expenditure for two periods of five years preceding the year for which they were drawn up, instead of the revenue and expenditure for each of the ten years.

Grant's Circular Orders, pages 145—158.

Paragraph 47, Chapter V, P. W. Code.

* Specimen annexed.

21. I believe that Registers of a similar kind to that above described would be most useful to the officers of the Public Works Department throughout the Irrigation districts. The object of the Registers besides simply recording parti-

culars of revenue and expenditure should, I conceive, be to furnish: I.—A description of each tank, with its sluices, calingulahs, &c., its efficiency, or the nature of the works that are required to render it efficient, or to improve it. This record would of course have to be carefully made, but if such information only were entered as could be accurately determined the first year for which a new form of Register should be drawn up it could be supplemented by further particulars in subsequent years. II.—The Register for any particular year should also contain a review of the operations of the season, which may be drawn up conjointly by the Revenue authorities and officers of the Public Works, for example the beneficial results which may have been due to outlay on any particular tank, or the cause if the outlay has not produced any good effect, failure by breaches, want of rain, &c. The Registers might then be printed and attached as supplements to the District Gazette, and with these documents before them both Collectors and Superintending Engineers would certainly be better able than they are at present to judge of the fitness of estimates for repairs or improvements submitted to them for approval. Further, I would recommend that a review of the operations on irrigation works in each talook should be drawn up annually, the per-centage of revenue which the expenditure amounts to compared with that of former years, and the general result of the expenditure described. It would then be a simple matter for the Superintending Engineer to draw up a report for each district of his Division, and Government would then have it in their power to compare the results accomplished in the different districts, and in short to have some evidence before them, as to the extent to which the public money had been laid out beneficially.

Form attached.

22. Should the Government be pleased to approve of the above recommendation being carried out, I have no doubt but that some very anomalous results will be brought to light. It will be found that the per-centage of expenditure compared with revenue varies to an extraordinary amount, that where the repairs of one tank cost five per cent. of the revenue, another will cost fifty per cent. Many cases will also appear in which the expenditure has not proved remunerative at all, where, so far as the revenue is concerned, it would have been more profitable for Government to have given up the tanks and their beds, at dry assessment rates, than to have retained them as irrigation works without attempting to affirm that it would be expedient to adopt that course in all cases of the kind, I would still venture to maintain that when a tank becomes unremunerative, it is high time for a special enquiry to be made into the causes which have led to this result. The circumstances of this Presidency have changed considerably in the course of the last ten or twenty years. Means of communication have been greatly improved, and a district is not so dependent as it used to be on its own resources. Irrigation has been vastly extended in the Deltas of the northern districts, which formerly used to import rice for the consumption of their population, but which now export it in large quantities. The irrigation there is, moreover, as certain as the supply of the south-west monsoon, and it can be carried out less expensively than in any other part of the Presidency. The tanks in the other districts cost us nothing, and consequently so long as they continue in a really serviceable condition, the cultivation under them may not be of an expensive kind. But once tanks deteriorate to such an extent as to require renovation, more or less complete,

Proceedings of the Madras Government, Public Works Department,
13th July 1868.

it then becomes a question of some importance to determine if the advantage to be gained will be commensurate with the expense. It is sometimes stated that the value of irrigation works is not fairly represented by the returns to Government; this may be true in districts far from the coast, and where drinking water is scarce, but I do not see why Government should be called upon to prop up an inferior class of tanks, for example in the Madras district, by a lavish expenditure, when if they belonged entirely to a private individual, he would probably find that he could buy paddy cheaper from the Godavery or Kistna than he could raise it himself.

23. It is impossible to tell, from any record of the expenditure which at present exists, whether what may be termed unremunerative outlay on certain tanks is due to exceptional causes, such as injuries from floods, or to a vain attempt to keep up the revenue, when the tank may be a radically defective one. There is a total absence of any records explanatory of any such abnormal outlay. I look to complete Registers, such as I have described above, as the only means of solving these and other difficulties, and I trust that Government will see the necessity of having them established.

Statement showing area of Cultivation, Revenue, and Expenditure on the Irrigation Works in _____ Talook _____ District for Fusly _____ 18 .

Name of work.	Ayacut.	Full assessment.	Actual cultivation.	Assessment.	Expenditure.		Repairs per-centage of assessment (5).	Description of the nature and condition of works.	Remarks for the season.
					New works.	Repairs.			
1	2	3	4	5	6	7	8	9	10
	Acres.	Rs.	Acres.	Rs.	Rs.	Rs.			
Tank...	.....	.....	Fractions of Rupees to be omitted.			.....	.....	Bank in good or bad order. Bank revetted or not revetted, and condition of revetment. Source of supply (local drainage or otherwise), catchment basin area of —— number and length of calingulahs and sluices.	
Tanks under ten cawnies and Miscellaneous sources	.....	.....	.....	.....	.....	.....	.....		
Total for Talook.	.....	.....	.....	.....	.....	.....	.....	.....	.....

No. 307. ORDER THEREON, 13th July 1868, No. 2,234.

IRRIGATION, No. 18.

1. The Chief Engineer for Irrigation brings to notice the imperfect manner in which the Registers of Irrigation Works are kept up in the several districts. He points out that though these Registers, under the orders of Government and by the rules of the Public Works Department, are required to be prepared jointly by the Revenue and Public Works Officers, they have been very irregularly kept, and, in some districts, are

several years in arrears. They are thus of no avail as a means of readily showing the special circumstances or the relative value of any irrigation work as a guide to determining the nature and extent of the outlay that it may be advisable to incur in its repair or restoration, and the Officers of the Public Works Department are left to obtain the information they may require by a special reference to the Collector.

2. The want of these Registers makes it impossible to judge with any degree of correctness of the sufficiency or otherwise of the sums that are annually set aside for the maintenance of the irrigational works of this Presidency, and which are commonly supposed to be inadequate, and it prevents the practicability of any reliable conclusion being formed of the extent to which the ancient system of irrigation from tanks has really deteriorated, either by the neglect of timely repairs, or by the gradual process of silting to which storage reservoirs are all liable. There is, indeed, too much reason to fear, as Colonel Anderson believes, that money is largely expended unprofitably in the endeavour to sustain a class of tanks which, under natural laws, have ceased to be in a condition to admit of their being maintained as effective sources of irrigation under any reasonable outlay, and His Excellency in Council has no doubt that, if a thorough knowledge of the character and condition of the tanks individually were accessible, a far more judicious distribution of the yearly collective outlay upon them would be ensured than is possible under the very limited acquaintance with them severally which is now possessed.

3. In Colonel Anderson's opinion the main cause of the Irrigation Registers having been allowed to fall into arrears is the very voluminous nature of the information which they are required to record of each and every tank without limitation of size, and the mass of petty entries with which their preparation is complicated. He thinks that such details as the respective shares which different villages may possess in a tank, though useful to the Revenue Officers, are not necessary for the Public Works Department, and he believes that the entries may be confined without disadvantage to a statement of the name, ayacut, full assessment, actual cultivation, and assessment of each particular work. It is rare that Public Works Officers need information on any other heads than these, and when they do, it may be obtained by a special reference. Colonel Anderson would also limit entries in detail to tanks irrigating ten cawnies and upwards, and would show the revenue under all of a smaller size in a lump sum, merely to make the Registers complete as a record of the whole extent of irrigation and of the assessment due upon it in each talook. Instead, however, of confining the Registers to a mere list of names and figures, Colonel Anderson would have them to give a description of each work with its condition, its sufficiency of escapes and sluices, nature of soil, drainage area, and sources of supply. He forwards an example of the Register he would recommend, basing it on a form of Register of Irrigation works in Nellore compiled by Mr. Dykes and published as a supplement to the Nellore Gazette. If prepared in this form further particulars might from year to year be added, with a review of the preceding season's operations, showing the expenditure and the results in each case, whether favorable or otherwise. This would facilitate the preparation of a report in each talook, and enable Superintending

Proceedings of the Madras Government, Public Works Department,
13*th July* 1868.

Engineers to furnish a general report for each district, from which Government might not only obtain a correct knowledge of the condition of the works on which the revenue so much depends, but have it in their power to observe the effect upon them of any outlay that may have taken place.

4. The Government entirely concur in these views. It seems to them that, so long as the Registers of Irrigation Works contain all the information that is required as the basis of the action of the Department of Public Works in providing for the due maintenance and repair of those works, and serve as the record of the results of the outlay upon them either in the way of repair or improvement, those Registers will be sufficiently complete. The form proposed by the Chief Engineer for Irrigation for adoption appears to be as full as is necessary, and the Government are of opinion that Registers should be prepared in that form without loss of time in each district.

5. These papers will accordingly be communicated to the Revenue Department with a view to measures being ordered for the preparation of the Registers by the Revenue Officers of the several districts in concert with the Officers of the Public Works Department. The Registers when completed will be printed and published in the several District Gazettes, and will then form a clear and accessible record.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To the Revenue Department.
" Chief Engineer for Irrigation.
" Superintending Engineers.
" Controller of Public Works Accounts.

Ex. J. S. T. Augustin.

Rec'd 1868 Sept 11
Pro. of Genl Sec Lelly "
No " 2393.

Pro:, F.W. Depart "

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Rd " 14 th " } July 1868
No " 2284-

No 1975. 15 July
With order
Passing orders on a
letter from the
Chief Engineer for
Brig" " bringing to
notice, the imperfect
manner in which
the Registers of Irregularities
are kept up in the

A 306 & 307
306 — 307