M.R.O. 14—18,000—27-9-24.

# MADRAS RECORD OFFICE.

---

## Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 2678 Press ~~Mis.~~

214. 215

Dated 13 — 11 — ~~19~~ 1867

***Not to be folded or roughly handled***

*Proceedings of the Madras Government, Revenue Department, 13th November 1867.*

No. 214. Read the following Proceedings of the Madras Government in the Public Works Department :—

Before submitting to the Supreme Government papers relative to the construction of reservoirs in the Nagpore territory, requesting the Superintending Engineer, 1st Division, to report the approximate supply of water available for the Godavery canals during the dry months, with other particulars. (Here enter 8th November 1867, No. 3,468.)

No. 215. ORDER THEREON, 13th November 1867, No. 2,678.

Irrigation, No. 5.

Ordered to be recorded.

(True Extract.)

(Signed) F. H. WILKINSON,
*Acting Under Secretary to Government.*

Ex'd. S. T. Augustin.

*Proceedings of the Madras Government, Public Works Department.*
*8th November* 1867.

No. 173. Read the following letter from the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Camp at Dowlaishweram, 17th October 1867, No. 157:—

5 Reports from Nos. 1, 2, 3, 4, and 5 Ranges of Godavery District.
1 Do. from Collector, Cocanada.

1. I have the honor, as requested in Government Order No. 2,525, dated 19th August 1867, to report the advantage to the delta of the Godavery of constructing reservoirs in the Nagpore territory, as proposed by Major Haig, R.E. I have consulted the Collector and the Executives, and enclose copies of their reports upon the subject.

2. The Godavery naturally affords far more than sufficient water for raising a single crop of rice, were the entire delta both above and below the anicut irrigated.

3. Were there more water in the river before the first fresh, usually occurring about June 10th, paddy might be transplanted earlier than it now is; the only advantage in this would be that the ryots would have more time to cultivate a given acreage, the crops would not be better; and, on the other hand, if during a part or the whole of May cultivation is going on, our working season would be shortened, and the condition of the channels would deteriorate; as the population of the district increases, these arguments for and against early transplanting will vanish.

4. There is ample water in the river up to the end of December for all our present and, probably, for all our future wants.

5. The Revenue and Engineer officials are unanimous in considering that it is not advisable to raise a Dalwa crop, that is, not two crops of rice on the same land in one year, and the ryots generally are of the same opinion. The following are some of the arguments against Dalwa: it is not good for the villagers, nor for their cattle, that they should never walk upon dry land, but be perpetually surrounded by a rice swamp; the land itself will be impoverished from being overworked, and from want of perfect exposure to sun and air; moreover, it is found by experience that from Dalwa the land produces noxious weeds, and destructive grubs.

6. Were Dalwa beneficial in a revenue and general point of view, it could not for long be maintained: unless the channels are for part of the year closed they cannot be repaired, and must inevitably fall into a ruinous and ineffective state, and, moreover, to obtain labor for their repair, would be a serious difficulty.

7. In some parts of the district, especially in the neighbourhood of the Colair lake, a crop of rice can be more easily raised in the after part of the year than during and before the monsoons; there may be perhaps in the delta some 100,000 acres of such land that will eventually require 200,000 yards of water per hour during the months of December, January, February, March, but much drainage has to be done before all this extent of land can be brought under cultivation at any season of the year.

8. Provision also must be made for irrigating sugar, chillies, and other garden crops long after the principal rice-crop has been reaped.

9. The whole of the canals are open and in good working order from June 10th to November 15th, then some are closed for repairs or improvements, and others gradually become less navigable as the water in the river falls. I think there can hardly be a doubt but that our navigation would materially benefit by an artificial supply of water in the river from March 1st to June 10th.

10. Not all the water that we require for the later crops need be derived from the Godavery, on the contrary, to perfect the delta works, at least three reservoirs ought to be constructed entirely independent of the Godavery.

11. In conclusion I beg to state, as my opinion, that I consider that the Godavery delta could, with advantage to itself, pay one lac yearly for water that had been stored in reservoirs to be delivered at the Dowlaishweram anicut from March 1st to June 10th in quantities varying from 100,000 to 200,000 cubic yards per hour.

*Replies to questions circulated in the Memorandum of Captain Beckley, dated 28th August* 1867.

| *Questions.* | *Replies.* |
|---|---|
| 1. Is there sufficient water for the first crop ? | There is ample. |
| 2. Would there be any advantage in having the supply augmented in May and June, so that the rice cultivation should be commenced earlier ? | None. The seed beds are prepared and the seed sown in May, there is then enough water in the river for wetting these. The seed is ready for transplanting by 15th June, by which time generally the freshes commence ; transplanting should be over by end of August. |
| 3. Would there be any advantage in having more water in November and December so that part of the first crop might be planted later ? | No. At the latest the first crop should be transplanted by middle of September, and such crop would be cut from 15th December to 15th January. |
| 4. Is it advisable to take two crops off the land in one year ? | Certainly not. As a rule, if two crops of paddy be meant, most wet lands will stand cropping with paddy and green gram or paddy and hemp, but two crops of paddy would scourge most of the lands too much. |
| 5. How much water is required for the second crop. 1st, on land that has yielded a first crop of rice. 2nd, on land on which there has been some dry crop. 3rd, on land on which there has been no first crop ? | For a second crop of paddy the same quantity of water would be required in all the three cases specified. |
| 6. What supply of water is hereafter likely to be required in excess of that now used ? | Impossible to say until the probable number of acres to be irrigated in future in excess of the number now irrigated is known or stated. |
| 7. In what months and to what extent does navigation suffer from want of water ? | In March, April, and May. These are the months in which the necessary annual repairs are made to the channels. There are always some open and some closed at this time for this purpose, and this is unavoidable. All the main canals could not be kept open (from want of water in the river) if there were no repairs going on. |

(Signed) J. FRASER,
*Collector.*

COCANADA,
*11th October* 1867.

From the Executive Engineer, Godavery District, to the Superintending Engineer, 1st Division, dated Nursapur, 6th September 1867, No. 318.

I have the honor to acknowledge the receipt of your Memorandum No. 662, forwarding extracts from Reports by Major Haig, R. E., together with G. O. No. 2,525, of the 19th August, and



requesting my opinion on seven points connected with the questions raised in the above papers. I beg to state in answer to your questions—

1. I have not, during the last three years, known any deficiency of supply for the first crop in the delta except for raising the seed beds, this deficiency too is owing principally to the unnatural desire of the ryots to force on an earlier crop than was usual formerly. Flooding the ground during the hot season in May causes the generation of foul grasses and worms, and unless there is a constant change of water, hot weather crops are constantly attacked by worms, causing at the time that the evaporation is greatest an extraordinary expenditure of water. The desire of the ryots to transplant their first crop in May arises, I believe, from much of the area commanded by our channels being imperfectly drained, as if the lands are swamped in October and November the crop is lost unless it has grown very strong On such land only does it seem any advantage to transplant before the monsoon and freshes have regularly set in. As improvements in the delta extend the area of badly drained land will year by year diminish.

2. There would be an advantage undoubtedly in the water supply for irrigation being increased in May and June, to enable the seed beds to be raised ready for transplanting immediately the channels receive their monsoon supply ; this advantage would be limited, inasmuch as however great the supply after the setting in of the monsoon, the deficiency of labor limits the rate at which the land can be transplanted, whatever water supply can be thrown on to the land by us. On the other hand, it would, for this very reason, be some advantage to commence early, in order that the transplanting may be got over as early as possible.

3. I have never known a deficiency of the water supply in November and December. Major Haig's experience of the delta irrigation was before the raising of the anicut, which not only enables the channels to be kept fuller when we get small and early freshes, but also enables us to keep a full supply in the channels after the heavy freshes are over.

4. The ryots seem now to be generally of opinion that the Dalwa (or summer paddy) crop is a mistake ; first, because the yield is very small, compared with the expenses of the crop ; and, secondly, because land which has been cultivated with Dalwa yields much less for the first crop. In fact, land on which two crops of rice have been raised frequently deteriorates. Under the present land revenue system, land which has deteriorated would be speedily thrown up by the ryots, and the Government would, in the end, be the losers by an extensive system of over-cropping. It is, however, very desirable that there should always be an abundant supply for such summer crops as chilly, turmeric, and other garden crops, as well as for sugar-cane gardens, the revenue which now is and which can be derived from these crops being very considerable. Dalwa cultivation is injurious in the following respects : it keeps the channels and drains full at the time when repairs are otherwise most easily executed ; it drains the main canals of the supply necessary for navigation, and the labor required for keeping all the works in working order for the main crop is diverted for the Dalwa cultivation.

5. I cannot state accurately the quantity of water required for an acre of the various summer crops. Dalwa, however, takes a vast quantity of water, not less than 3 to 4 cubic yards per acre per hour. Chillies and cane gardens take much less, and summer grojelly less again.

6. I should say if the summer supply of the whole river were never less than 300,000 cubic yards per hour, all requirements both for summer irrigation and navigation could be fully met in the three delta ranges. I do not mean to say that every channel could be made navigable during the whole of the summer by this supply, as some of the main canals would be necessarily closed for clearances, but navigation on one of the main lines in each delta would then be rendered certain.

7. It generally becomes difficult after the 1st April to keep the navigation good, and the difficulty increases till the freshes set in, generally about the 20th June, when water is being much drawn off for Dalwa or seed beds ; it is at present almost impossible to keep the canals open for boats drawing more than 2 feet 6 inches or 3 feet of water, the increase of the river supply would be of essential service in maintaining good navigation.

From the Supervisor in charge of No. 4 Range, to the Acting Superintending Engineer, 1st Division, dated Ellore, 14th September 1867, No. 227.

With reference to your Memorandum No. 662, of the 28th ultimo, I beg leave to report the following points, viz.:—

| *Questions.* | *Answers.* |
|---|---|
| 1st. | There has been sufficient water in the canal. |
| 2nd. | If water be sufficient in May and June the first crop may be commenced early, and the produce may be yielded without fail. |
| 3rd. | There would be an advantage in receiving water during the months of November and December. Part of first crop can be yielded properly when planted later. |
| 4th. | Half of the land that is under the canal is fit for two crops in one year. Say 12,000 acres. |
| 5th. | There are no lands used, at first, for dry crop, second, wet crop, but lands under wet cultivation are yielding one crop of rice, and require 2½ cubic yards of water per acre per hour. |
| 6th. | The full supply of water from the Ellore canal, Godavery portion, in August is 68,000 cubic yards per acre per hour, but by the velocity taken on Nundamoor aqueduct in May is 31,490 cubic yards per acre per hour, the difference 33,600 cubic yards of water requires in May in excess of that using in that month. |
| 7th. | The navigation suffers for water during the months of April and May, and one foot of water* requires excess on Nundamoor aqueduct in these months. |

* Height.

From the Officer in charge of No. 1 or Eastern Delta Range, Godavery District, to the Superintending Engineer, 1st Division, dated Dowlaishweram, 20th September 1867, No. 604.

1. I have the honor to acknowledge receipt of your No. 662, of 28th ultimo, forwarding extract of a Report by Major Haig, and G. O. No. 2,525 of 19th August 1867, and will concisely reply to your queries, afterwards giving explanations :—

(1.) Yes.
(2.) No.
(3.) No.
(4.) No.
(5.) Two cubic yards per hour per acre.
(6.) None.
(7.) March, April, May, and part of June.

In giving the above answers I intended them only to apply to my range in particular, and at the same time to observe that they will apply more or less to the whole delta.

2. I will now give explanations to the above replies in same order :—

(1.) For first crop if it was three or four times as great as Major Haig mentions (which is impossible) there is sufficient water.

(2.) It is the opinion of every one here, that the ryots plant too early, and that the crop is not so good when planted out early ; if planting is commenced in July and finished in August, it is sufficiently early ; there is, therefore, no reason why supply for first crop should be augmented.

(3.) The water in river is quite sufficient to carry the first crop through November and December, there is, therefore, no reason why a further supply is required.

(4.) My own opinion and that of most people connected with irrigation here, including ryots, now is, that it is not advisable to take two crops off same land in one year, because, first, it impoverishes the land, and the crops are not so good; or, in other words, if two crops are regularly taken off the land, the yield is a mere trifle in excess of that given by one crop owing to land being so much impoverished, whilst the cost of cultivation is doubled, (for mind there is no manuring carried on,) and further the second crop is generally more or less destroyed by blight, or caterpillar, caused by keeping land wet during hot months, instead of allowing it to lay fallow, and so recover itself.

(5.) I am not aware that a second crop requires more or less water than at other times. I am alluding to paddy only.

(6.) Requires no explanation, as the answer to (1) is sufficient.

(7.) Navigation in the months mentioned would be all the better for from 50 to 70,000 cubic yards per hour (I allude to my range only).

3. Another reason for not having a second crop (4) is that with all the canals running full, it is impossible to keep them and their branches in proper order, or the drains either, as nothing can be done to them with water in them ; a very sufficient proof of which was to be seen in this range when I took charge of it, and even in its present state, which I consider anything but satisfactory, although for three seasons I have done my best to get it into proper order.

4. The Gazette Notice, which Major Haig takes as his stand point, was not correctly worded, as the reason for forbidding Dalwa was not entirely on insufficiency of water, but in advisability of a second crop and necessity for closing canals for repair.

From the Officer in charge of No. 2 Range, Godavery, to the Superintending Engineer, 1st Division, dated Camp at Dowlaishweram, 24th September 1867, No. 139.

As directed in your Memorandum No. 662, dated 23th August 1867 I have the honor to forward the following answers to your questions *seriatim*, as far as I am able to answer them.

1. There is sufficient water for the first crop ; and, as far as my observation goes the amount at present supplied is a good deal more than sufficient, if properly managed.

2. Some of the ryots, with whom I have conversed, think there would, but I think their motive in wishing to plant earlier is mainly that the local labor is thereby economized. If a man has ten acres of land, and can get water in May or the beginning of June, he can go on ploughing and transplanting for a couple of months with only the one or two pairs of buffaloes, and the few laborers who may belong to his own farm, whereas if he cannot get water till, say, August, he is obliged to hire labor for transplanting at what is, to a native, an exorbitant rate : women sometimes get as much as 2½ Annas for its equivalent in grain, for an easy day's work, in the transplanting season when water has been scarce. The difference in the time of transplanting does not make a proportionate difference in the time of harvest, for the paddy does not begin to grow healthily till the north-east monsoon begins to blow. So there will not be twenty days' difference in the time of harvest of two crops of the same kind of rice transplanted at the beginning of June and the end of August. But it is reasonable to suppose that the crop which has had time to mature will be stronger and heavier than that which has been only 110 days planted out. I think, therefore, that there would be some advantage in having enough water to begin transplanting in the end of May, as labor is so scarce in the district.

3. There would as far as I know, be no advantage in having more water in November and December, as there is always more than sufficient during those months, and there would be no advantage in planting the Sarva crop late.

4. As the Natives in this district will not go to the trouble of systematically manuring their land, I think it decidedly prejudicial to the land to take two rice crops off it. But some of the land, especially in the Western Delta, is so low that no early crop can be cultivated on it. Such land requires water in the Dalwa season, though it is not properly speaking a second crop.

5. Taking one cubic yard per acre per hour as the usual allowance for a rice crop in this district, I think that, in the first case proposed, no more would be required for a second crop, though, as stated above, I think second crops of paddy should be discouraged. In the second and

third cases. the land being quite dry at the time of receiving the first supply of water, and being full of deep cracks, it will probably take three times the above allowance for the first few weeks of cultivation. I would here observe that I think the one cubic yard per acre per hour a very sufficient supply where the water is carefully managed; in the southern districts we allow more, nearly three cubic yards, but the evaporation is much greater there, and the water for the most part not so rich in silt.

6. I think if the supply were increased by 20 or 25 per cent. in April and May it might be advantage, chiefly on account of the heavy navigation in the Eastern Delta.

7. I have never seen the navigation interrupted in the Central or Western Deltas for want of water, except at the lowest reaches of the canal, where the heaviest traffic is sometimes stoppep for a few days; but I believe that was chiefly owing to the bad condition of the canals, and not to the want of water. I believe, however, the supply in the Eastern Delta is sometimes a little short in April and May.

---

From the Sub-Engineer in charge of No. 5 Range, Godavery District, to the Acting Superintending Engineer, 1st Division, dated Dowlaishweram, 26th September 1867, No. 23.

In reply to your Official Memorandum No. 662, dated 28th ultimo, I have the honor to give my opinion on the following points as therein required:—

I. There is sufficient water for the first crop in Godavery.

II. There will be a great advantage in increasing the supply of water in April and May for early commencement of rice cultivation, by commencing it later the crops generally suffer from bad wind, insects, &c., in some villages.

III. There will be no benefit in having more water in November and December, as the cultivation cannot be commenced later, and also it is harvest time, at such time water is not required at all.

IV. Two crops can be taken off the land in one year in this district in some parts, provided that the land is properly manured This is generally done in the districts where two crops are made, but the ryots in this district do not know how to fertilize the soil, therefore it is not advisable to make two crops.

V. Two cubic yards of water is required per hour per acre for second crop on land that has yielded first crop, and nearly on average three cubic yards on land on which there has been some dry crop and on that which has not yielded first crop. A greater part of Dalwa cultivation, or second crop, is not made on the land which has yielded first crop, but on that which is kept quite untouched for that purpose at the beginning.

VI. As for the water required in excess of that now used, I consider that it is necessary, in low water season, to keep the head of water at the anicut two feet higher than that now stand in that season or quite level with the crest of the anicut, or six feet deep on the floor of head sluices. To effect this partly, I think the water which usually stand in shape of a pool near Poorooshotapatam, at a level of about ten feet above the crown of the anicut, can easily be thrown in by making a passage for a distance of nearly two miles through the shoals, which form as barrier between Rajahmundry and Poorooshotapatam about twenty-six miles from the anicut. At the beginning of the Upper Godavery works Government had sanctioned funds to deepen the canal and to remove shoals, &c., in the bed of river within twenty miles, for navigation between Poorooshotapatam and Rajahmundry, from which we had better head of water at the anicut in former years.

The following sum had been spent for the above purpose:—

| | | |
|---|---|---|
| In the year 1861-62 ... ... ... ... ... | Rupees | 3,017 |
| 63 ... ... ... ... ... | ,, | 4,427 |
| 64 ... ... ... ... ... | ,, | 3,249 |
| 65 ... ... ... ... ... | ,, | 1,338 |



But no work has been done within the last two years. If these shoals are removed between Poorooshotapatam and Rajahmundry, a sufficient supply can be had from the reservoir near Poorooshotapatam.

VII. Navigation does not suffer if the canals are kept in good repair, as the water on the floor of head-sluices had never been less than four feet deep even in May since the anicut was raised.

---

No. 174. ORDER THEREON, 8th November 1867, No. 3,468.

IRRIGATION, No. 8.

Before submitting to the Government of India the papers above recorded, the Government request the Superintending Engineer of the 1st Division to ascertain and report what is the approximate supply of water available for the Godavery canals during the dry months, the extent of the Dalwa crop, its assessment and water-rate. Captain Beckley will also state what proportion of the Dalwa or second crop is really only a single crop on lands which are submerged during the rains, as for example those on the margin of the Colair lake, and whether it is customary to grow a second crop of *paddy* when water is available, or whether the Dalwa crop is mostly confined to chillies, garden produce, sugar, &c.

(True Extract.)

Colonel, R. E.,
*Secretary to Government.*

To the Board of Revenue.
,, Superintending Engineer, 1st Division.
,, Revenue Department.

Exd. S. T. Augustin.

Rev = 1867 - Dept.
Pro of Govt of Bom
No 3086.

Proceedings of the
P. W. Dept.

Dated 8th Novr
Received 12th } 1867
No 3468.

Pro - of Govt Pub W Dept dated
7 Augt 1870 Pp 109.

Before submitting to the Supreme Govt papers relative to the construction of reservoirs in the Nagpore territory requesting the Supdg Engr 1st Division to report the approximate supply of water available for the Godavery canals during the dry months, with other particulars
No 2675

RECORDED.
13th Novr 67

No 214-215