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MADRAS RECORD OFFICE.**Government of Madras.***Public works* **DEPARTMENT.**

G.O. No. 1249

Press
Mis.

501-02

Dated 27. 4

1867.

Not to be folded or roughly handled

27th April 1867.

No. 501. Read the following letter from the Superintending Engineer, 2nd Division, to the Secretary to Government, Department Public Works, dated Masulipatam, 3rd April 1867, No. 2:—

1. In reply to your Memorandum No. 60, dated 20th ultimo, I have the honour to report on the progress made in the investigation of the projects enumerated.

KISTNA DISTRICT.

2. *Completing the irrigation of the Kistna Delta, including the reclamation of land from the Colair Lake.*—As the labour market is limited, it must take some years before the district can be supplied with canals to the extent proposed by Colonel Anderson in

* Men who were formerly labourers are now well-to-do ryots, and every extension of cultivation withdraws so much labour from our works.

the Proceedings of Government No. 430, dated 12th February 1864. At present, it is difficult to get through more than two and a half lacs of Rupees* worth of earth-

work per annum, and without Government think it desirable to raise the rates to such an extent as to draw labour from other districts, this will continue to be the case.

† A Statement showing particulars is appended.

At present, of estimates sanctioned, there remains Rupees 6,30,000† to spend.

Estimates for widening the Ellore canal up to Casarapilly and Ryves' channel with its branch will be submitted shortly. Several estimates for the extension of the minor channels are also being prepared, but till the enlargements of main lines, viz., the Masulipatam canal to Kunkipaud, the Poollairoo thence to Cowtram, of the Ellore canal to Ryves' channel, and that of the latter channel itself are well advanced, it does not seem very desirable to extend cultivation, as the present water supply is *barely* sufficient to meet the demands of land already classed as irrigated. Every effort will be made to push on work on these important lines, and I would here solicit an expression of the wishes of Government as to whether such increase of rates should be offered as may encourage the immigration of labour into the Kistna district. To do this, I anticipate that at least an advance of 25 per cent. on sanctioned rates will be necessary, as large works are in progress in all the surrounding districts except Hyderabad; but at the same time I would venture to advocate such a policy, on the ground of eventual economy, both through the speedy extension of irrigation and through the completion of the works, before prices which are rapidly rising have obtained a mark which will probably be in excess of the rise of 25 per cent. now proposed. From the above, you will observe that *labour, rather than estimates*, is urgently needed.

3. *With regard to the Colair Lake reclamation.*—I have made arrangements that the needed survey should be made as soon as the Dhalwa crops are ripe. This will be about the middle of May. The lake will then be emptied to high water neap tide level, i. e., the level on which the embankment will be raised. A further survey will be made about September next, when the lake will be full, and the difference shown in the areas of the lake under the two conditions mentioned will testify as to the quantity of land which may be reclaimed. I hope I may be able to bring the matured project before Government about Christmas next.

4. I have not yet taken up the subject of the anicut across the Moonyaroo river, but a preliminary survey will be shortly commenced.

5. *Dondapaud Tank*.—I lately examined, at the request of the Collector, a ruined tank at the village of Dondapaud, about seven miles from Vinconda. The situation of this tank is very favourable. It will command a large extent of country, and the rise of the country being moderate, and the basin broad, its capacity is great. It has a breach 170 yards wide at base, and the maximum height of the bund is $8\frac{1}{2}$ yards. The escape is too small, and must be extended. I estimate that the cost of restoring the tank, enlarging escape, and making the needed irrigation ducts will be about 22,000 Rupees. The catchment basin of the reservoir is thirty square miles, and allowing that thirty-six inches of rain fall on this surface, and that only one-third of this amount reaches the tank, there would be nearly thirty-one millions of cubic yards stored, which would be sufficient for the irrigation of 4,300 acres. This at 5 Rupees an acre (including dry sist) would return a revenue of 14,500 Rupees (after deducting 7,000 Rupees for land now paid under dry cultivation), or nearly 66 per cent. on the capital invested. The Tahsildar's accounts show 5,047 acres as available, which would yield a net profit of Rupees 18,649; as I have calculated the minimum rain-fall and the maximum probable evaporation and absorption, it is quite possible that there would be water for the latter number of acres. If so, the returns would be $84\frac{1}{2}$ per cent. Surveys and levels for this project will be undertaken as soon as possible.

NELLORE DISTRICT.

6. Levels have been commenced to be taken in the Nellore district with reference to the improvement of the lands which might come under an anicut at Sungum, but I cannot say when plans or estimates for any scheme in connexion with it will be ready. I should be glad if the services of an experienced Engineer Officer could be placed at my disposal for the investigation of several projects in Nellore, which I have every reason to believe will prove very remunerative. The more important works in the Kistna district do not allow me that leisure which would be necessary to personally see after the details of such works, and with the exception of Mr. R. Smith, all the Range Officers in the Nellore District are Supervisors, who, though willing and effective as regards ordinary work, have none of that scientific knowledge which is an absolute necessity when projects of large magnitude are taken in hand.

7. The works I would propose to be undertaken in Nellore, in addition to the Pennair northern delta project, are as follow:—

First.—*The restoration of a reservoir at Gundapollem*.—This work will be a very remunerative work. I append a Memorandum* concerning it, and will only add

* With sketch.

that in calculating roughly the cost and profits I have, I believe, rather understated the latter.

Second.—*An Anicut across the Muneair*, in the neighbourhood of Chinni Poweny or Unkumpett, for the supply of water to the Buddapudy, Rajapollem, Caradoo and other tanks. I can speak with so little accuracy as to the probable cost or revenue derivable from the scheme, that I would at present only mention my strong impression that it would be a very remunerative one.

Third.—*A channel from Pallair near Nundanavanum to supply Betugoonta, Pakala, Somayapoolay, and Binganapully tanks*.—This project is worthy of investigation.

Fourth.—*An Anicut on the Goondlacumma river near Boorapully* from which water might be delivered to a large portion of the Ongole talook. This scheme is also worth investigation, but I am not in a position to say more than that I think it might prove amply remunerative.

8. I think it would be desirable, if Government will permit me, to remodel the temporary establishment allowed. The highest pay is too small to obtain men who have had irrigation experience, and can be left unsuperintended for some days together, whilst it is too high for ordinary Surveyors. I have given the subject considerable thought, and talked over it with Officers of experience, and I now would submit for the consideration of Government—

First.—That an Engineer Officer, experienced in irrigation, be sent on special duty to the Nellore district to develop the projects of which I have given an outline sketch in this letter, and to superintend and direct in my absence the Surveyors in the district.

G. O. No. 93, dated 11th January 1867.

Second.—That the temporary establishment allowed for this division in

G. O. No. 3,402, dated 24th October 1866, be modified as follows:—

Present Establishment.				Proposed Establishment.			
		RS.	RS.			RS.	RS.
3 Surveyors	...	at 150	= 450	1 Surveyor	...	150	= 150
3 Draughtsmen	...	at 60	= 180	2 Surveyors	...	100	= 200
12 Lascars	...	at 7	= 84	1 Leveller & Draughtsman	...	45	= 45
				1 Do.	...	40	= 40
			714	2 Do.	...	30	= 60
				5 Lascars	...	7	= 35
				30 Do.	...	6	= 180
							710

The modification I propose with reference to the men I have found actually available for the work, and by this arrangement I am sanguine that the views of Government regarding the extension of irrigation will be rapidly carried out.

P. S.—The Collector of the Kistna agrees with me in the necessity of raising the sanctioned rates considerably, in order to draw sufficient labour to spend more money, and accelerate work.

Memorandum on the Goondapollem Reservoir.

1. The river Pillaplauroo is the principal stream in the Oodiagerry talook of the Nellore district. At a point N. by E. near the village of Gundapollem, of the town of Oodiagerry, a large earthen bund was at some remote time thrown across it, abutting at each end on a hill, to form a reservoir. It was nearly a mile in length, its top with 18 yards, with slopes apparently 2 to 1, and revetted with stone on the interior. The average height of the bund is about 13 yards. The revetment is now much dilapidated, and there is a large breach in the bank, through which the river flows. The width of the breach is 96 yards at the bottom and 144 yards at the top. The greatest depth is 22 yards. The water was allowed to escape by a cut 36 yards wide in the side of the north hill. Tradition asserts that the tank was breached by an enemy of the Oodiagerry Zemindar, and as the escape seems to have been sufficient, this is more probable than that the work was a failure. One sluice, 63 yards long with interior dimensions of $5\frac{1}{2}$ feet $\times$ $3\frac{1}{2}$ feet, still remains in very fair condition; another sluice is probably quite sound, but is choked up with rubbish.

*Proceedings of the Madras Government, Public Works Department,
27th April 1867.*

2. The catchment basin has an area of 140 square miles. Therefore (as per margin*) the quantity of rain water that would fall during a season, allowing 36 inches of rain per annum, would be 433½ millions cubic yards. Being in the neighbourhood of the eastern ghauts, the fall of the river from its sources to the reservoir is great, and the soil generally hard and rocky. I therefore consider that half of the above amount, (say,) 217 millions cubic yards, would be available for storage.

3. Assuming that every acre of paddy crop requires 2½ cubic yards per hour for 120 days, the requirement per acre for the season is 7,200 cubic yards. There would, therefore, be water enough to supply 30,140 acres, or allowing 500 acres only to the square mile (i.e., deducting villages, towns, &c) of 60 square miles.

$$\frac{217,000,000}{7,200}$$

4. In the absence of contour levels or any survey of the reservoir, I must write very indefinitely concerning the capacity of the tank. But I think that probably 10 square miles would be its area, and the average depth 5 yards. It would therefore probably not contain more than 155 millions cubic yards, which would be sufficient to supply 20,000 acres.

$$\frac{1700 \times 1700 \times 10 \times 5}{7200} = 20,100$$

5. As, however, the stream would continue to run in considerable volume into the reservoir during the time the crops are on the ground, one-third more may be safely added in this calculation, and we may say that 27,000 acres would be cultivated.

6. It is probable that this amount of land would be taken up, and allowing 4 Rupees per acre for water tax, the increase in revenue would be Rupees 1,08,000.

7. If the total acreage 30,140, for which there is water (vide paragraph 3), can be stored, the revenue would increase by Rupees 1,20,560.

8. The breach may be repaired in two ways, first, by restoring the bund with earth and stone revetment; and strengthening the work by an interior wall of stone in mortar (no clay for puddling is procurable), or secondly, by building a wall only across it with wing-walls attached, after the manner of a calingulah.

9. In the first case I believe the following estimate will be found to be sufficient :—

Building wall inside bund at deep portion of the breach 100 yards × 3 yards × 15 yards = 4,500 cubic yards, at Rupees 3	RS. 13,500
Restoring the bund, allowing a slope of 3 to 1 on interior and 2 to 1 on exterior side and 18 yards top width 72 × 22 × 120 = 1,93,920 cubic yards, at 6 Annas per cubic yard	71,280
Revetting interior with stone 120 × 69 = 8,280 square yards at 1 Rupee per square yard	8,280
Repairing rain gullies in the present bank	1,500
Repairs to two sluices at 500 Rupees each	1,000
Making main ducts and repairing old channels	30,000
	1,25,560
Add 10 per cent. for contingencies	12,556
Total	1,38,116

Say 1,40,000 Rupees.

10. In the second case the following calculation will show the approximate cost :—

Building body wall 18 yards high, including foundation and allowing ¾ths of height for top width and ⅙ths for bottom width.	RS.
$\frac{54 + 126}{2} \times 18 \times 100 = 16,200$, at 3 Rupees per cubic yard	48,600
Parapet wall 3 × ¾ × 100 = 225 cubic yards, at 4 Rupees	900
Two wing-walls allowing mean thickness to be ¼ of height, 20 yards, and slopes of wings to be 2 to 1 on each side.	
$4 \times \frac{20 \times 20}{2} \times \frac{20}{8} \times 40 = 4,000$ cubic yards at 3 Rupees	12,000

*Proceedings of the Madras Government, Public Works Department,
27th April 1867.*

Repairing rain gullies in present bank and filling in behind wing-walls	RS. 4,000
Repairs to two sluices at 500 Rupees each	1,000
Making main ducts and repairing old channels	30,000

	96,500
Add 10 per cent. for contingencies	9,650
	1,06,150

11. The second proposal would seem to be the most favourable as regards cost. I think it is preferable on other grounds, as if the river rose whilst the work was in progress, less damage would be done to it than to the earthen bund with masonry core, also the number of labourers to be employed would be probably fewer, and in the event of cholera breaking out and the work people absconding, comparatively small fear need be felt on account of the work being left in an unfinished state.

12. Limestone, building stone, and wood for fuel are all procurable in the vicinity of the work. The wall would be built on rock.

13. The bund of the tank and its interior is, however, the property of the Calastry Zemindar. There are several villages in the bed of the tank, and a good deal of cultivation. For these the compensation necessary will be considerable, but I am not in a position to estimate the amount. As the Zemindar would enjoy considerable advantage from the irrigation of portions of his lands by the tank water, I do not suppose he will object to receive an equivalent for the villages and lands that would be swamped.

14. Taking the larger estimate 1,40,000 Rupees for construction, and the smaller estimated increase of revenue (1,08,000 Rupees) into account, the work now proposed would pay 77 per cent. per annum. If the smaller estimate be considered, the returns will be somewhat over 100 per cent.

15. This profit will, of course, be considerably less when the compensation to be paid the Zemindar is included, but still there is no doubt as to its being a very remunerative work, and I have therefore made arrangements for a proper survey of the country being made, and levels taken under the provisions of G. O. No. 93, dated 11th January 1867. The Collector of Nellore has been applied to, to enter into communication with the Zemindar of Calastry on the matter.

Statement showing the unexpended balances of sanctioned estimates of the Kistna Delta Projects, on the 1st April 1867.

Works.	Estimate.	Expenditure up to 1866-67.	Balance.
	RS.	RS.	RS.
Improvements of Upper Pullaru Project	1,72,830		1,72,830
Widening head of Masulipatam Canal	20,080		20,080
West side channel of do.	49,860		49,860
East do. of do.	15,610		15,610
Side channels of Nizampatam do.	48,757		48,757
Commamur Channel Project	1,85,460	75,972	1,09,488
Widening lower portion of Pullaru...	1,04,050	95,481	8,569
West bank Channel	1,46,479	1,12,950	33,529
Seetanagram Main Canal Project	2,76,404	1,67,239	1,09,165
Duggeralla Lock	27,800	16,575	11,225
Jagarlamudy do.	7,760		7,760
Nizampatam Canal	2,94,815	2,92,815	2,000
Vellatur Drainage Channel	10,460		10,460
Rompairu do.	5,400		5,400
River embankment between Yenamalacuduru and Modpe-devy	56,910	32,981	23,929
Total	14,22,675	7,94,013	6,28,662

MASULIPATAM,
3rd April 1867.

(Signed) G. V. WINSOM, Lieut.-Colonel, R. E.,
Superintending Engineer, 2nd Division.

*U. ... escape seems to
have been sufficient, this is more*

Proceedings of the Madras Government, Public Works Department,

No. 502.

ORDER THEREON, 27th April 1867, No. 1,249.

IRRIGATION, No. 27.

1. His Excellency the Governor in Council observes with satisfaction from this report that there are several

irrigation projects in the Kistna and Nellore districts which, if carried out, promise to be both useful and remunerative, but he is disappointed at the very little progress which has been made in their investigation. The Government have reason to believe that funds for carrying out any irrigation works that can be shown to be likely to be useful or remunerative will be readily granted, and they are desirous to have before them plans and estimates for as many schemes of that description as possible, in order that no time may be lost in submitting them to the Government of India for sanction, or for the provision of money. Colonel Winscom will accordingly take immediate steps for the completion of a few projects, and, in order to afford him assistance in their preparation, His Excellency in Council will endeavour to set free the services of Mr. Smith, Executive Engineer, by the appointment of an Officer to the Nellore district for the charge of the Nellore Range.

2. His Excellency in Council has no objection to the proposed re-distribution of the temporary survey establishment which has been allotted to the 2nd Division, and, in order to give the Superintending Engineers in this respect as much latitude as possible, the Controller of Public Works Accounts is empowered to pass the charges for such establishments as may be employed, provided the amount sanctioned for each division is not exceeded.

3. The Government are not disposed to authorize any specific increase to the rates in the Kistna district, but will leave it to the Superintending Engineer and Range Officers to pay such prices for labour and material as are necessary.

(True Extract.)

Colonel, R. E.,

Secretary to Government.

To the Superintending Engineer, 2nd Division.

“ “ “ 1st, 3rd, 4th, and 8th Divisions, with reference to paragraph 2.

„ Controller of Public Works Accounts.

Exd. S. T. Augustin.

Bundee
April 5, 1867

My dear Mr. May
You shall have plenty
of them etc. etc. you don't
it soon. My plan is
to keep away from
sending in large projects
which would not be carried
out for 3 or 4 years & come
in & see what we can do
changed - sent you

As 140000 volume is desired quickly - I
of volume 2 - I may expect some before
both start your & I - I am
convinced that is - Smith has in his anxiety
not for years - I think the lawfully prove
more than enough - I completely taken rather
less of original - I think about it, but it left
book - I think I shall not right - I
sufficient - I have for you will receive it
of data to me from me before many
for an out the letter - Thanks

for what you say. Since
 the introduction of the
 suffering from a disease
 with which he was
 afflicted. & of course many
 some have been (disbated)
 so he was glad to get away
 from there.
 Yours sincerely
 C. M. M.

Memo on the Gundasipollam Reservoir.
 The River Pellopalairam
 is the principal stream in the Odiageri
 Taluk of the Kallakur District. At
 a point N by E. near the Village of
 Gundasipollam, of the town of Odiageri
 a large earthen bund was at some remote
 time thrown across it, abutting at each
 end on a hill, to form a reservoir. It
 was nearly a mile in length, its top
 width 18 yards, with slopes apparently
 2 to 1 and finished in the stone in the interior.
 The average height of the bund is about
 13 yards. The presentment is now much
 deteriorated, and there is a large breach
 in the bank, through which the river
 flows. The width of the breach is 96 yds.
 at the bottom and 14 yds. at the top.
 The greatest depth is 22 yards. The
 water was allowed to escape by a cut
 36 yds wide in the side of the North hill.
 Tradition asserts that the Tank was
 breached by an Enemy of the Odiageri
 Zamindar, and as the escape seems to
 have been sufficient, this is more

probable than that the work was a failure. One sluice 63 yds long with interior dimensions of $5\frac{1}{2} \text{ ft} \times 3\frac{1}{2} \text{ ft}$ still remains in very fair condition. Another sluice is probably quite sound but is choked with rubbish.

2. The Catchment basin has an area of 1403 square miles. Therefore (as per margin) the quantity of rain water that would fall during a season, allowing 36 inches of rain per annum, would be 433½ Millions Cys. Being in the neighbourhood of the Eastern Ghats, the fall of the River from its source to the reservoir is great, and the soil generally hard and rocky. I therefore consider that $\frac{1}{2}$ of the above amount, say 217 Million Cys. would be available for storage.

3. Assuming that every acre of paddy crop requires $2\frac{1}{2}$ Cys. for harvest 120 days, the requirement for acre for the season is 7200 Cys. There would therefore be water enough to supply 30140 acres or allowing 500 acres only to the square mile (i.e. counting villages & towns) of 60 square miles.

$$1760 \times 1760 \times 11 \times 140 = 433,664,000 \text{ Cys.}$$

$$\frac{217,000,000}{7200}$$

$$\begin{array}{r} 1760 \times 1760 \times 10 \times 5 \\ 154,880,000 \\ 155,000,000 \\ \hline 7200 = 20,000 \end{array}$$

4. In the absence of contour levels or any survey of the Reservoir, I must write very indefinitely concerning the capacity of the tank. But I think that probably 10 square miles would be too great and the average depth 5 yds. It would therefore probably not contain more than 155 millions of Cys. which would be sufficient to supply 20,000 acres.

5. As however the stream would continue to run in considerable volume into the reservoir during the time the crops are on the ground, one third or one half may be safely added in the calculation and we may say that 27,000 acres would be cultivated.

6. It is probable that this amount of land would be taken up, and allowing Rs. per acre for water tax, the increase in Revenue would be Rs. 1,08,000.

7. If the total average 30140 for which there is water (vide para 3) can be stored, the revenue would increase by Rs. 1,20,560.

8. The breach may be repaired in 2 ways, viz. by restoring the bund with earth and stone revetment and by strengthening the work by an interior wall.

of stone in mortar / no clay for puddling
is procurable / or easily by building
a wall only across it with wing walls
attached after the manner of a Cul-de-sac.
In the 1st Case I believe the
following estimate will be found to be
sufficient.

Rebuilding wall inside bund at
one portion of the breach 100 x 3 x 15
= 4500 at Rs 3 = 13500

Restoring the bund allowing slope
of 3 to 1 on interior & 2 to 1 on exterior side
and 18 ft top width 72 x 22 x 120
= 190080 at 6 as per Rs 71280

Reuniting interior with stone
120 x 69 = 8280 at 1 Rupee
for gun guards = 8280

Repairing rain gullies in the
present bank = 1500

Repairs to 2 sluices at 500 Rs each = 1000

Making drain cuts & repairing
old channel = 30000

125560 Rs

Add 10 per cent for
Contingencies = 12556

Rs 138116

Say 140000 Rupees

In the

10. In the 2nd Case the following calculation
will show the approximate cost.
Rebuilding Dry wall 18 ft high
including foundation allowing
3/10 of height for top width &
and 7/10 for bottom width
 $\frac{5.4 + 12.6}{2} \times 18 \times 100 = 16200$

at 3 Rs per Cu yd = 48600
Repair wall 3 x 3/4 x 100 = 225
at 4 Rupees = 900

2 Wing walls allowing mean
thickness to be 1/4 of height 20 ft
and slopes of wings to be 2 to 1
on each side
 $\frac{4 \times 20}{2} \times \frac{20}{8} \times 40 = 4000$ Rs
at 3 Rupees = 12000

Repairing rain gullies in present
bank and filling in behind
Wing walls = 4000

Repairs to 2 sluices at 500 Rs
each = 1000

Making main cuts & repairing
old channel = 30000

96500

Add 10 per cent for
Contingencies = 9650

Rs 106150

11. The second proposal would
seem to be the most favorable as regards
Cost. I think it is preferable on other

6. Compensation necessary will be considerable, but I am not in a position to estimate the amount. As the Emindars would enjoy considerable advantage from the irrigation of portions of his lands by the Tank water - I do not

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be considerably less when the Compensation
to be paid the Zemindar is included
but still there is no doubt as to its being
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Survey of the Country being made and
levels taken under the provision of
G. O. No 93 of 11 January 1867. The
Collector of Bellary has been applied to
to enter into communication with the Zemindar
of Calastry on the matter -

Supr Ingn Office 20 Dr
Kasulpetam -
3^d April 1867 -

Statement showing the Unexpended balances
of Sanctioned Estimates of the Krishna Delta
Projects on the 1st April 1867.

9

Works	Estimate	Expenses - till up to 1866/67	Balance
Improvements of upper to Pullur Project	172,830	"	172,830
Widening head of Miasulpatam Canal	2,080	"	2,080
West side Channel of do do	49,860	"	49,860
East do do do do	15,610	"	15,610
Side Channel of Miasulpatam Canal	48,757	"	48,757
Commandur Channel Project	185,460	75,972	109,488
Widening lower portion of Pullur	104,050	95,481	8,569
West Bank Channel	14,647	112,950	33,529
Sectanagrand Main Canal Project	27,404	16,723	10,681
Duggiralla Lock	27,800	16,575	11,225
Jagarlami - do	7,760	"	7,760
Miasulpatam Canal	294,815	292,815	2,000
Vellatur Drainage Ch	10,460	"	10,460
Kompairu do do	54,000	"	54,000
Riverbankment be- tween Yanamalacuduru & Modpudery	56,910	32,981	23,929
Total			14,22,675
			7,94,013
			6,28,662

Supr Engineer
Miasulpatam
1st April 1867

Commissioner
Supr Engineer

See balance in
a letter from
the Sd Officer
to the Sd Officer
of the 1st April 1867

from labour from other Districts. This
will continue to be the case at present.
of Estimates sanctioned, there remains 630000
Rs. to spend. Estimates for widening the
Ellore Canal up to Casarapilly & Pignies
Channel with its branch will be submitted
shortly. Final Estimates for the extension
of the Minor Channels are also being
prepared - but till the enlargement of
main lines. viz. the Mangalapattam Canal
to Kimpipad, the Poddar from thence to
Cowtram, of the Ellore Canal to Pignies
Channel and that of the latter Channel
itself are well advanced, it does not seem
very desirable to extend Cultivation, as
the present water supply is barely
sufficient to meet the demands of land
already classed as irrigated. Every
effort will be made to push on work
on these important lines, and I would
here solicit an expression of the wishes
of Government, as to whether such an
increase of rates should be offered, as
may encourage the immigration of labour
into the Pisto District. So, this, I
anticipate that at least an advance of
25 per Cent on sanctioned rates will be
reupay

A statement
showing particulars
is appended.

reupay, as large works are in pro-
gress in all the surrounding Districts except
Hyderabad, but at the same time I would
venture to advocate such a policy, on the
ground of mental economy, both through
the speedy extension of irrigation and
through the completion of the work, before
prices which are rapidly rising have
obtained a mark which will probably
be in excess of the rise of 25 per Cent
now proposed. From the above, you will
observe that labour, rather than Estimates,
is urgently needed.

With regard to the Colair Lake reclamations.

I have made arrangements that
the needed Survey should be made as
soon as the Dhalwa crops are ripe.
This will be about the middle
of May. The Lake will then be emptied
to High water level, i.e., the
level at which the Embankment will be
raised. A further Survey will be made
about September next, when the Lake
will be full and the difference shown
in the areas of the lake under the two conditions
mentioned will testify as to the quantity
of land which may be reclaimed. I hope

I may be able to bring the matured
project before Government about
Christmas next.

4. I have not yet taken up the
subject of the Aqueduct across the Momyaro
River. but a preliminary survey will
be shortly commenced.

5. Dondapane Tank.

I lately examined at the request of the
Collector a ruined tank at the Village
of Dondapane about 7 miles from
Venemda. The situation of this tank
is very favorable. It will command a
large extent of Country and the rise of the
Country being moderate and the basin broad,
its Capacity is great. It has a breach
170 yards wide at base and the maximum
height of the bund is $8\frac{1}{2}$ yards. The
Escape is too small and must be extended.

I estimate that the Cost of restoring the tank
enlarging Escape and making the needed
irrigation ducts will be about 22000 Rs.
The Catchment basin of the Reservoir
is 30 square miles and allowing that
36 inches of rain fall on this surface
and that only $\frac{1}{4}$ of this amount reaches
the tank. there would be nearly 31 millions
of Cus stored which would be sufficient

3
for the irrigation of 4300 acres. This
at $5\frac{1}{2}$ an acre / including dry cost /
would return a revenue of 14500 Rs.
after deducting 7000 Rs. for land money
paid in dry cultivation / or nearly
66 per Cent on the Capital invested. &
Facilities accounts show 5047 acres a
available which would yield a net
profit of Rs. 18649. as I have calculated
the Minimum rain fall and the maximum
probable evaporation and absorption,
it is quite possible that there would
be water for the latter number of acres.
If so the returns would be $8\frac{1}{2}$ per Cent
Surveys and levels for this project
will be undertaken as soon as possible.

Nellore District

6. I have been commenced to be
taken in the Nellore District with
reference to the improvement of the lands
which might come under an Aqueduct
Jungun, but I cannot say when plans
or estimates for any scheme in connexion
with it will be ready. I should be glad
if the services of an experienced Engineer
Officer could be placed at my disposal
for the investigation of several projects

in Bellare which I have ^{to believe} ~~very~~ reason-
will prove very remunerative. The more
important works in the Krishna Dist^y
do not allow me that leisure which
would be necessary to personally see
after the details of such works and
with the exception of Mr. P. Smith,
all the Range Officers in the Bellare
District are Superintendents who tho
willing and effective as regards
ordinary work, have none of that
scientific knowledge which is an
absolute necessity when projects of
large magnitude are taken in hand.
The works I would propose
to be undertaken in Bellare in addition
to the Pennair for the Delta Project
are as follows:-

1st The restoration of a Reservoir
at Gundapollim.

This work will be a very remunerative
work. I appended a Memoir concerning
it and will only add that in Calcutta
estimating roughly the cost and profits
I have, I believe rather understated
the latter.

2nd An Aqueduct across the Pennair in

the neighbourhood of Chinn. Power on
the Pennair will supply the supply of water to
the Buddapalay, Rajapollim, Carudo and
other tanks. I can speak with so little
accuracy as to the probable cost or revenue
derivable from the scheme, that I would
at present only mention my strong im-
pression that it would be a very remu-
nerative one.

3rd A Channel from Pallair near Gundana
to supply Detagunta, Pakala,
Tomayapoolay and Dingana fully tanks.

This project is worthy of investigation.

4th An Aqueduct on the Gundlacumma
River near Doreapully, from which water
might be delivered to a large portion of the
Ongole Taluk. This scheme is also worth
investigation, but I am not in a position
to say more than that I think it might
prove amply remunerative.

5th I think it would be desirable, if
Government will permit me, to remodel
the temporary Establishment allowed.
The highest pay is too small to obtain
men who have had irrigation experience
and can be ^{left} ~~in~~ superintended for some
days together, whilst it is too high for
ordinary Surveyors. I have given the

* with sketch.

Subject considerable thought and talked over it with Officers of experience and I now would submit for the consideration of Government.

1st That an Engineer Officer experienced in irrigation be sent on special duty to the Belloni District to develop the projects of which I have given an outline sketch in this letter, and to superintend and direct in my absence the Surveyors in the District.

2nd That the temporary Establishment allowed for this Division, in G.O. No 3402, dated 24 October 1866, be modified as follows:-

G.O. No 93
of 11 January
1867

<u>Present Establishment</u>	<u>Proposed Establishment</u>
3 Surveyors at 150 = 450	1 Surveyor 150 = 150
3 Draughtsmen at 60 = 180	2 Surveyors 100 = 200
12 Vascos at 7 = 84	1 Miller and Draughtsman 45 = 45
	7/14
	1 Do 40 = 40
	2 Do 30 = 60
	5 Vascos 7 = 35
	30 Do 6 = 180
	710

The modification I propose with reference to the men I have found actually available for the work, and this arrangement I am sanguine that the views of Government regarding

the extension of Irrigation will be rapidly carried out.

I have the honor to be
Your most Obedt Servt

Res. H. M. Com. *[Signature]*
Supt. Engineer 2d Div.

P.S. The collector of the District agrees with me in the necessity of raising the sanctioned rates considerably, in order to draw sufficient labor to spend more money, & accelerate work.

10000/167. 12

12501

12449. 27 April 1867

To the Secretary
 to Government
 27th April 1867
 From the Supg Engineer
 of the 2nd Div
 12449
 Report on the
 progress made
 in the investigation
 of irrigation
 projects in
 Kistnah and
 Nellore
 Districts -
 12449. 27 April 1867

12449

Public Works Department.

1249
1249

31

PROCEEDINGS of the MADRAS GOVERNMENT.

Under the 27th April 1867
Read the following

From the Supg Engineer of the 2nd Div

(Here enter No. 2 dated 3rd April 1867 -

1300

His Excellency the Governor
 in Council observes with
 satisfaction from this Report
 that there are several
 irrigation projects in the
 Kistnah and Nellore Districts
 which, if carried out, promise
 to be both useful and
 remunerative, but he is dis-
 appointed at the very
 little progress which has been
 made in their investigation.
 The Government have reason
 to believe that funds for
 carrying out any irrigation
 works that can be shown
 to be likely to be useful
 or remunerative will be

not only at present in
 appointed in consequence
 of a small number of
 of the same kind
 in the district
 of the same kind
 in the district
 of the same kind
 in the district

readily granted, and they
are desirous to have
before them plans and
estimates for as many
schemes of that de-
scription as possible, in
order that no time may
be lost in submitting
them to the Government
of India for sanction or
for the provision of money.
Colonel Winson will ac-
cordingly take immediate
steps for the completion
of a few projects, and in order to afford him
the services of an assistance in their preparation,
an Officer he requires in Nellore to aid him
in their preparation, he will depute one
from the Kistnah District, to the Nellore District,
reporting his name and the arrangements for
conducting his Range
duties during his temporary
absence.

His Excellency in Council
will endeavour to set
free the services of
Mr. Smith Executive
Engineer, by the ap-
pointment of an Officer
for the charge of the
Nellore Range —

W. Smith
Nellore
Nellore Range

33
~~absence~~
His Excellency in Council
has no objection to the
proposed re-distribution of
the temporary Survey totals
which has been allotted
to the 2^d Division, and in
order to give the Supt
Engineers in this respect
as much latitude as
possible, the Controller of
Accounts is empowered to
pay the charges for such
establishments as may
be employed, provided
the amount sanctioned
for each Division is not
exceeded.

The Government are
not disposed to authorize
any specific increase to
the rates in the Kistnah
District, but will leave
it to the Superintending
Engineer and Range
Officers to pay such prices

for labor and material
as are receiving -

(207)

107th 1107

35-

[Signature]

17/1/67

The Supr L² 2nd Div¹
- Dr 1.3-4th and 8th Div¹
with reference to
Controller

47

7

Dec 29/4/67

c. 1000 p.m. 1867. 12 12th

26

Pub. Works 1867 Depart^o

Pro: of Govt. for April

No. 1249

Pro: of the Madras Govt.

27th April 1867

Further Pro: 2012 of 1-8-71

Passing orders on a
letter from the Sup^r Engrs of the
2^d Division, relative to the
progress made in the inves-
tigation of Irrigation Projects
in the Division

No. 501-502