

- (1) பக்கங்களின் எண்ணிக்கை 98
(2) புதுக்கித் திருப்பிய நாள் ஜூன்-88
(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் 6/8

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

பெரியார் துறை

அரசாணை எண். மு. கோப்புத் தாள்-எண்.	<u>2235 W</u>	அச்சகம் எலவணக
நாள் :	<u>21-7-1888</u>	<u>198</u>

கண்டபடி கையாளவோ கூடாது

50

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Colonel Hasted
Irrigation

READ—the following papers :—

From Colonel H. M. VIBART, R.E., Superintending Engineer, V Circle, to the Secretary to Government, Public Works Department, dated Bangalore, 18th June 1888, No. 1114.

With reference to G.O. No. 239 I., of 14th April last, and in continuation of my letter No. 504, of 7th May 1888, to the Chief Engineer for Irrigation, I have the honor to forward the following remarks with the view of showing that the censure conveyed in the Government Order is unmerited, that the remarks of the Chief Engineer for Irrigation, in his memorandum on which the Government Order is founded, are unjustifiable, and that the statements which led him to condemn my scheme in such an unreserved way are incorrect and apt to mislead the Government.

2. In his Note Colonel Mead states that little or no attention was paid to the orders of the Chief Engineer for Irrigation, that I did not go fully into the question of the water-supply available, and that I did not, in point of fact, take any trouble with the project.

3. Now, first with regard to what Colonel Mead calls the "orders" of the Chief Engineer for Irrigation, I have the Chief Engineer's memorandum before me, and it contains no absolute orders, having been apparently written to give me assistance by making suggestions as to the course to be pursued. It seemed to me that the water in the river available during the season was quite sufficient to irrigate 50,000 acres without any storage, and I consider the statistics we now have fully bear me out in my opinion. When Colonel Hasted wrote his memorandum, No. 111/7 B.L., Mr. Norfor had been engaged on the project for nearly eight months, and had, to a very great extent, completed the project previously intended; and as he had still a certain amount to do to complete the upper project as far as Darogee tank, and had practically finished the project from Darogee tank to Bellary, he asked permission (as he then was shortly going home) to complete the upper project and to let his successor attend to the revised project below Darogee tank. This I allowed him to do, and he sent in the project from Vullabapur to Darogee as well as the one from Darogee to Bellary, which was disapproved of by Colonel Hasted.

4. Mr. Burlton succeeded Mr. Norfor, and got up the project for the channel from Darogee tank for irrigation as well as the project for supplying water to Bellary for domestic purposes. The proposal to raise Darogee tank weir between 3 and 4 feet was abandoned, and the level of the channel to supply irrigation between Darogee and the river was lowered to more than 7 feet below crest of weir of tank. Colonel Hasted only "thought that extension of irrigation must principally be looked for under Darogee tank by taking advantage of freshes so as to fill the tank three or four times during the season."

He gave no absolute orders on the subject, and I having come to the conclusion that there was sufficient water in the river to irrigate 50,000 acres direct, without storage, and that the channel from the river must be as economical as possible arranged to have the channel carry only sufficient for 50,000 acres.

5. It is quite true that Colonel Mullins considered it very doubtful whether the Tungabhadra could be relied on to give a constant supply except to a small area of cultivation. His opinion was doubtless entitled to respect, but it would appear from

the tenor of his remarks that he had not founded his opinion on statistics regarding the actual discharge of the river at Vullabapur. Early in 1884 I endeavoured in vain to get any recorded register of river discharge at Vullabapur. I am glad to be able (for the sake of the district of Bellary) to say that I by no means agree with Colonel Mullins. I had a better opportunity of judging than he had, for before I sent up the project, we had the water registers for two years.

6. I will now proceed to the matter of water-supply available, and I feel sure that an unbiased mind will readily believe that there is sufficient water in the river to supply 50,000 acres in Bellary without any resort to storage.

7. Colonel Mead takes exception to my statement that "the water-supply will suffice" and "that about 750 cubic feet will, I think, be readily available without injury to vested interests from July to January," and that "in 1884, when only 6" of rain fell in Bellary, there was a fine supply of water in the river," and observes that these statements are not borne out by the water returns of Vullabapur anicut, &c.

8. Now I went into the water-supply question as far as I was able. Previous to my arrival in the district there were no statistics regarding the river-supply available, and it was I who started the register in June 1884 (three or four months after I took over charge).

9. Now, as regards the months of August, September and October, there is no difference of opinion between Colonel Mead and myself regarding the sufficiency of the water, so I will pass on to the other months.

10. First as to July (I am now dealing with records of four years).

In 1881, for 26 days, the level was up to and above $1\frac{1}{2}$ feet;

" 1886 there was never less than $2\frac{1}{2}$ feet;

" 1887 never less than 2 feet.

* The river was so extraordinarily low in the beginning of July that it must be considered an exceedingly exceptional occurrence. On the 17th July it was 2 feet below the crest of anicut, and during the four years, from July 1884 to March 1888, it was never so low as this, even in the hot weather. We have records for 45 months and during all that time the water level was only below crest of anicut on 61 days; 15 of these during the hot weather, and 16 in July 1885. Hence it is extremely unlikely such a low level will be reached again in July for many a long year.—H. M. V.

In 1885 the record is less favourable, but even then for the last ten days of the month there was 1 foot, and for the last few days $1\frac{1}{2}$ feet, and the cultivation even in that year could have been commenced about the middle of July,* as the tank would be full; for during the month of June there was never less than 1 foot in the river, and on 17 days it was up to and over $1\frac{1}{2}$. Now with reference to November (out of 120 days, taking the four years) the water was never below 9 inches, and that on only four days, while on only 15 days was it below $1\frac{1}{2}$ feet. 31

In December again it was never below 9";

It was over 1 foot for 99 days out of 124;

for 66 " it was over $1\frac{1}{2}$;

and for 34 " over $1\frac{1}{2}$.

11. I will show later on that when 6 inches is flowing over the anicut, there is amply sufficient for the supply of 50,000 acres.

12. To support my assertion that in 1884 there was a fine supply in the river, I must again refer to the registers:

In July I find that for 11 days there was $3\frac{1}{2}$ feet or over;

20 " $2\frac{1}{2}$ "

and that for only four days was it less than $1\frac{1}{2}$ feet;

In August there was never less than 3 feet;

while for half the month it rose to 1 " and over;

and during one-third of the month, it rose to 6 " and over;

for eight days it was over 7 " and over;

and it rose even higher than this to 9, 10, and even $12\frac{1}{2}$ feet.

In September there was never less than $2\frac{1}{2}$ feet;

for 24 days it was over 3 ";

for 10 days over 4 ";

and it rose on several days to 6 feet and on one day to $9\frac{1}{2}$ feet.

In October there was never less than 2 feet;

for 10 days it was over $3\frac{1}{2}$ ";

and for a week it was $4\frac{1}{2}$, $5\frac{1}{2}$ and $6\frac{1}{2}$ ";

In November it was only less than 1 foot on 4 days;

and for 16 days it was over $1\frac{1}{2}$ feet.

In December it was never less than 9 inches;

and for 10 days over 1 foot.

Now considering that practically in 1884 there was no rain in Bellary (for 6 inches can be considered only as a mere trifle), I think the water* in the river may be decidedly taken as a "fine supply."

* It would have sufficed to irrigate the whole district of Bellary.—H.M.V.

13. As I have before observed, I cannot agree with the opinion of former officers regarding the necessity of storing water for the reduced area to be supplied, and I do not believe that the water returns in any way support their opinions.

14. If my proposals are carried out, I feel sure they will not result in failure, and I think before the Government have finished perusal of this letter, they will be far more disposed to agree with me than with Colonel Mead.

15. He complains that I forwarded no recorded opinion of the Revenue authorities. Now I by no means lost sight of this point as will be shown by the correspondence with the Collector, which I beg to enclose. I certainly did not suppose for a moment that the estimates, &c., sent in by me would be passed on to Government without some discussion between the Chief Engineer for Irrigation and myself.

I sent up the project just before I went on privilege leave in August 1886, and the correspondence with the Collector was still incomplete. I returned from privilege leave in November, but I heard nothing further officially from the Chief Engineer for Irrigation about the plans, &c., till a short time ago, when Colonel Mead wrote his memorandum. Twenty months had elapsed from the time I sent in the project. In the ordinary course the papers would have been sent back to the Superintending Engineer for such explanations as he might have to offer, and he would have been asked to supply any omissions and to correct any errors which might have been found.

16. About a year before Colonel Mead wrote his memorandum, I had been transferred to the V Circle, and this obvious course was not taken. Colonel Mead asked me about the project in November last, and I wrote him the enclosed note on the subject; but until I saw his memorandum in print, I had no idea that he was about to write so unfavourably regarding me, and I cannot think it was right of him to write so strongly without giving me an opportunity of replying officially to his strictures.

17. I must now enter on the subject of the quantity of water in the river in greater detail. The Vullabapur anicut is 1,015 feet long, and is separated from the Koragul anicut (1,085 feet) by an island. The latter belongs to the Nizam's Government, and has, during the last few years, been raised 1.8 feet about the level of the Vullabapur anicut. I think it is a pity that this was allowed; if raising was necessary at all, it would have been better to raise both anicuts, say, 9 inches. This would have had much the same result in raising the river level when the water was low, and during floods each branch would have discharged its proportionate quantity; but now the floods will be raised 1 foot, and our branch will be called upon to discharge more than its fair share.

18. The irrigation in the Bellary District from the river channels amount to 14,500 acres. Between 1,300 and 1,400 of this is supplied by the Buswanna channel, which takes off above the Vullabapur anicut, so below the anicut water is only required for 13,000 acres.

or so more water, then it seems to me that it would be better to raise the weir of Darogee tank some 3 or 4 feet and restore the Chestah tank (a little distance above Darogee tank) rather than lower the level of the Darogee-Sidamanhalli channel.*

* It might also be feasible, as suggested by the Collector, to construct a small reservoir near Gannapore—H.M.V.

27. The land commanded by this channel probably amounts to 96,000 acres; now about one-third of this will be commanded by the channel near Dewalipur, so that 64,000 will be available from which the ryots can select land to be watered by Darogee-Sidamanhalli channel.

A considerable amount of this land will be required for villages, dry cultivation, grazing lands, channels, roads, &c., and some of the land may prove unsuitable for wet cultivation. If the channel is taken off 7 feet lower than is proposed, the cultivators will be greatly restricted in their choice.

28. To show that this is not an imaginary objection, I beg to insert an extract of a letter from the Collector of Bellary bearing on this point: "In black soil the people best acquainted with its properties, those who live on and by it do not cultivate the whole area which seems available. The fine reservoir at Kanekal waters a tract of black aluminous soil, and the farmers have sufficient stock and labor, but they do not keep in cultivation quite two-thirds of the ayacut (1,400 out of 2,100), this was observed just as much before the famine as in these latter years." "On the other hand, the fact that the work is stated by you to command 64,000 acres will make it possible to select the 50,000 acres most suitable for irrigation in the tract, and justifies our assuming that the whole area for which we could supply water eventually would be brought under cultivation."

29. Mr. George Gordon, Member of the Institution of Civil Engineers, was of much the same opinion as will be seen from an extract of a paper read by him before the Institute of Civil Engineers in 1872. He says: "It is desirable that a main canal should command a much greater area of arable land than the water it carries can irrigate constantly; some land may not be suitable for irrigation at all, and in no case could all the land be converted from dry to wet cultivation under many years, as three times the population would be required to cultivate it."

30. In the last paragraph of Colonel Mead's memorandum, he states that Mr. Burton allowed 60 gallons per head for the water-supply to Bellary.

This is not the case; he only allowed 36 gallons a head for 100,000 people. In my letter forwarding the project, I pointed out that the population of Bellary was not much more than 50,000, but that if this project was carried out, Bellary would increase considerably in importance and extent. I added, however, that if it was considered necessary only to provide for 50,000 people, the cost of the project would be reduced in works alone by a sum of about Rs. 1,10,000. The total cost, including per-centages, would be diminished by nearly Rs. 1,50,000, and thus the expense of supplying 36 gallons a head to 50,000 people would be about 5,87,000 in place of 7,37,000 rupees.

Thirty-six gallons a head per diem is a very liberal allowance, but it is to be recollected that Bellary is an especially dry place where evaporation is very excessive, and the want of water very great, especially during the hot months when the river (and consequently the Darogee tank) would be at its lowest.

The water will have to be stored in the fort ditch, and here evaporation must be especially great owing to the proximity of the bare granite rock of the fort.

31. I have always taken the greatest interest in the project, and was, I think, the first to suggest a modified scheme on a comparatively small scale. I endeavored to frame a scheme which would be as inexpensive as possible, and with this view reduced the main canal to the least possible. Hence it was not practicable to allow anything for the passage of storage water.

I urged the Chief Engineer for Irrigation to visit Bellary with reference to the irrigation from the Tungabhadra, and I accompanied him to Vullachapur, Darogee, &c., with reference to the project. All the time I was in Bellary I used my best

endeavours to improve the Tungabhadra river channels, and did all possible to get the management* of these channels into the hands of the Public Works Department, with the view of checking the great waste of water which takes place, and

* Précis of correspondence on this subject is enclosed for reference.

also for the purpose of regulating the distribution and demarcating the channels with the object of putting a stop to encroachments which have been very extensive and extremely detrimental to the interests of the ryots and Government alike.

32. I endeavored, as far as I could, to carry out the suggestions of the Chief Engineer for Irrigation, and the only reasons I could possibly have in deviating from them was to ensure the economy of the scheme, which I consider most essential to the well-being of the district. I do not, of course, deny that if the scheme was to be more extensive, allowance for storage would be a *sine qua non*.

33. I think it will be seen from this letter that there is very much to be said in favor of the scheme sent in, and although it may contain errors, and is not as complete in details as might be desired, I would ask whether any scheme of this extensive nature is free from defects, until it has been subjected to some discussion.

34. In conclusion, I have the honor to request that this letter may be placed before the Government to show them that I interested myself warmly in the project, and that I have not laid myself open to the censure conveyed in the orders under remark. My action throughout has, I beg leave to assert, been *bona fide*, and in the true interests of Government.

35. This letter has been delayed a good deal by the necessity of obtaining a large number of papers from the III Circle.

No. 354 D.

Referred to the Chief Engineer for Irrigation for remarks.

OOTACAMUND,
22nd June 1888.

(Signed) J. O. HASTED, Colonel, R.E.,
Secretary to Govt., P.W.D.

From Colonel H. M. VIBART, R.E., Superintending Engineer, V Circle, to the Secretary to Government, Public Works Department, dated Bangalore, 4th July 1888, No. 1445.

I beg to point out that in the latter part of para. 10 of my letter of 18th June 1888, regarding the Tungabhadra project a slight error has been made. It should read thus: "Now with reference to November (out of 120 days taking the four years) the water was never below 9 inches, and on only four days below 1 foot, while on only thirty-one days was it below 1½ feet."

No. 70 E.W.

Note by the Chief Engineer for Irrigation.

Reference—Endorsement from the Secretary to Government, Public Works Department, No. 354 D, dated 22nd June 1888.

In his letter No. 1114, dated 18th June, Colonel Vibart complains that he has not been fairly treated by me in my Note No. 62 I., forwarding to Government the estimate for the Tungabhadra project in Bellary District (see G.O. No. 299 I., dated 14th April 1888).

The following are the principal points brought forward by Colonel Vibart:—

(1) That Colonel Hasted's Memorandum No. III/7-P.L. of 24th April 1885, was not orders but only suggestions; therefore he was perfectly justified in carrying out his own views (see paras. 2, 3, and 4).

- (2) That he did not suppose the estimates, &c., would be forwarded to Government without some discussion between the Chief Engineer and himself (para. 15).
- (3) That he was asked by me about the project and wrote a demi-official letter on certain points explaining them (*see* para. 16).
- (4) That he was in correspondence with the Revenue authorities with regard to the returns, but that when he forwarded the estimates this was not completed (paras. 23 and 24).
- (5) That there is a money provision for the branch channels (para. 25).
- (6) That the water-supply in the river is ample without any storage (paras. 5 to 14 and 17 to 22).
- (7) That the cost of passing an extra foot in depth down the channel for storage would be very great (para. 26).
- (8) That the level at which the Sidamanhalli channel is proposed to be taken off, namely present level of Darogee tank F.S.L., ought on no account to be lowered (and that if storage is required Darogee tank F.S.L. should be raised), because if the channel is taken off 7 feet lower sufficient land will not be commanded (para. 27).
- (9) That he (Colonel Vibart) has always taken the greatest interest in the project, and that he proposed to take measures to check the great waste of water in the Tungabhadra channel, &c., (para. 31).

With regard to No. 1, I can only refer to the memorandum in question, and I consider Colonel Vibart was not justified in forwarding the project as he did in 1886, taking no notice of the fact that no provision for storage had been made, and only giving his opinion that the supply was ample. The date of the memorandum is 24th April 1885; there was ample time for Colonel Vibart, if he did not agree with Colonel Hasted, to have given his opinion regarding the question of storage and to have asked for orders.

2. As so long a time had elapsed since the plans and estimates have been put in hand, I considered it right to place before Government the information regarding the project that had been collected.

As Colonel Vibart had left the Circle, and as owing to reductions in establishment, it was hopeless to expect that anything towards making the project complete could be done; it was useless, therefore, referring officially to him regarding his proposals which he had forwarded, and given his opinion that the work should be carried out without delay. *See* para. 52 of his letter No. 1045, dated 20th August 1886, forwarding the project.

3. When I found that Colonel Hasted's orders or suggestions had had no attention paid to them, I sent for Colonel Vibart and asked him to explain how this was, and I also pointed out several serious omissions in the project; he asked to be allowed to take away the papers and consult Mr. Burlton, who was then at the Mount; this he did, and the result was his demi-official letter, a copy of which he gives. I do not consider it is any explanation at all; it only says that storage was thought unnecessary, but recommends, if storage is thought necessary, that as at first proposed by him that the F.S.L. of Darogee tank should be raised. This is against Colonel Hasted's ideas, and I for one can see no reason for it.

4. When I looked through the project, I had of course only the papers, &c., that Colonel Vibart sent with it; the fact of their being letters between him and the Collector of Bellary does not in any way show that my statement, that the project was sent in without any recorded opinions of the Revenue authorities, is incorrect. I have to point out even the correspondence now forwarded is hardly sufficient to base a large project on, and certainly on his return from leave, or when I asked him about the point last November, he might have referred to this correspondence.

5. There certainly is money provision for distribution channels and head sluices, but in the project there are no levels or surveys to show generally where these distributaries are to run or where the land to be irrigated is situated. The project simply consists of a main channel to and from the Darogee tank.

6. With regard to water-supply, this is a question about which there must be different opinions. Colonel Vibart ought, I consider, in forwarding the project to have gone fully into the question, and not, as in his report forwarding the project, contented himself in only saying the quantity required would be available for seven months.

It is too late for him now to go into elaborate calculations; this ought to have been done before he had the project prepared without any storage and when he received Colonel Hasted's orders or suggestions to furnish storage.

I consider that Colonel Vibart's figures of quantities are much higher than they should be; at the same time, I am quite willing to allow that my figures are perhaps too low; this I did intentionally, as I consider it right in a project of this sort to be on the safe side. We have only four years' records to go on, and this is but a short period on which to base a project.

Colonel Vibart has taken a coefficient of .67, and allowed for the water in the anicut crest to have a clear fall.

I consider this as more than it should be for a depth of half a foot and a foot going over an anicut. Of course, the coefficient depends entirely on where the gauge is and the nature of the crest of the anicut.

I took a coefficient of $\frac{5}{8}$ and for half foot overflow took about half the theoretical quantity for a clear fall, for 1 foot and $1\frac{1}{2}$ feet I took about $\frac{2}{3}$; these are I consider low but safe quantities to work on.

With regard to supply required for the cultivation 2 cubic yards per hour per acre with good regulation is, I believe, ample even in Bellary District, but with bad or rather no regulation 3 cubic yards is not an extravagant allowance.

Again, judging from the records (*see* Mr. Garrett's report forwarded by Colonel Vibart), I do not consider the 700 cubic feet per 1 inch allowed by me as too much. Colonel Vibart states in para. 20 he thinks this unnecessary if proper steps are taken to prevent waste in the river channels.

I am not aware that in Bellary or in other places we are likely to be able to do this; at any rate, we have to accept the fact of waste.

Opinions do and must differ as regards the supply available in rivers; but judging from the serious over-estimates of supply available that have been made in many places, I prefer my figures to those of Colonel Vibart's, as they have been taken on the safe side. Colonel Vibart's are, in my opinion, much too high; he had, when forwarding the project, only two years' returns; we now have four years nearly.

7. Colonel Vibart in his remarks forgets that he has allowed M.S.L. to be $1\frac{1}{2}$ feet above F.S.L., therefore there will be no necessity to raise the banks or expensive walling, &c., in order to pass down an extra foot of water.

8. With regard to this point, I regret that there is no information whatever given in the papers, surveys, &c., that have been forwarded, and I cannot therefore accept Colonel Vibart's assertion that taking the channel from Darogee tank on a line 7 feet lower than proposed would reduce the area of the land commanded dangerously.

In the plans, &c., forwarded, the only information given is the level of the land through which it is proposed to take the channel, and there is nothing to show the area of land commanded. In Colonel Vibart's letter now forwarded, he states that 96,000 acres probably are commanded by the channel, out of this he proposes to irrigate 50,000; this to me in a country like Bellary (not taking into consideration the facts brought to notice in para. 28 of his letter) is a very large proportion, and for this extent of cultivation, I consider a much larger proportion of land should be commanded. I suppose this area of 96,000 is gross area, and not selected blocks of land. Without definite information it is useless attempting to argue on this point, and this information has not been given.

9. I have no doubt but that Colonel Vibart has taken great interest in the project, and has proposed to check the great waste of water that occurs in the Tungabhadra channel, but this has nothing to do with the points in question.

In conclusion, I consider that Colonel Vibart, after being in charge of the preparation of the project, and being given an officer and a special establishment to work it out from September 1884 to, I believe, August 1886, forwarded the project in a very incomplete state, and also did not attend to the orders or suggestions given

to him by the Chief Engineer for Irrigation, Colonel Hasted. Nor did he refer to that officer for further instructions as he should have done when he considered those orders could be with advantage modified.

When this and other (real or apparent) omissions were pointed out to him, he did not give a satisfactory explanation, and he has, therefore, no right to complain that he was not referred to before I placed before Government the present unsatisfactory state of the project.

With regard to the supply available, I consider that for the cultivation of the 50,000 acres proposed, storage is necessary and advisable, and I further believe, after considering Colonel Vibart's letter, that it is doubtful whether the land commanded by the channel is sufficient for the irrigation of 50,000 acres. This point will have to be carefully considered when the project is taken up again.

(Signed) H. R. MEAD, Colonel, R.E.,

Chief Engineer for Irrigation.

3rd July 1888.

To the Secretary to Government, Public Works Department.

Order—dated 21st July 1888, No. 2235 W., Public Works.

In his letter No. 1114, dated 18th June, now submitted, Colonel Vibart appeals against the censure conveyed in G.O. No. 239 I., dated 14th April 1888.

2. Colonel Vibart, in August 1886, submitted plans and estimates for the Tunga-Bhadra channel project, which the Chief Engineer for Irrigation forwarded to Government with a Note containing some severe criticisms on the way in which the estimates were prepared. The Government, accepting the views of their professional adviser, expressed their regret that the project had been sent up in an unsatisfactory state, and remarked that Colonel Vibart appeared to have paid but little attention to the orders of the Chief Engineer for Irrigation, and had submitted the estimates in a very incomplete state and with little or no examination.

3. Colonel Vibart now explains that the so-called orders by the Chief Engineer for Irrigation were considered by him as suggestions for his guidance, and, at very considerable length, gives his reasons for having submitted the project as he did, and explains the deep interest he took in the project, and the care and attention he devoted to the subject.

4. The Chief Engineer for Irrigation does not accept these explanations, and demurs to Colonel Vibart's views on many points.

5. The Government accept the views of the Chief Engineer for Irrigation on the professional questions involved and must decline to enter into any discussion on this part of the subject. Colonel Vibart's view that the Chief Engineer's memorandum of April 1885 should be regarded as containing suggestions rather than orders may perhaps be admitted, but, even when it is taken in that light, the point which it puts forward as of primary importance, viz., the sufficiency of the supply in the river, demanded much fuller treatment than it received in two short sentences of his 50th paragraph. The elaborate calculations now submitted may be of some value when the project is revised, but they ought to have been furnished before. While they accept Colonel Vibart's assurance that he took the greatest interest in the project, the Government cannot entirely relieve him from the imputation of having sent it up in an incomplete form and without sufficient detail. If he did not intend his report to be regarded as a complete project, he should have submitted the estimates as approximate merely, and requiring further orders before they could be laid before Government.

(True Extract.)

Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, V Circle,
Chief Engineer for Irrigation.

Encl, F. R. Bantleman,
Spare Copies

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General
Estimate
IRRIGATION.

Govt. of (1888) Madras.
PUBLIC WORKS.

Dated July, 21st.

Recd.

Encl.

G.O., 21st July 1888, No. 2236 W.

JULY.

Tungabhadra Project, Bellary
District

Order on an appeal from Colonel Vibart,
R.E., against the censure conveyed in G.O.
No. 239 L., dated 14th April 1888, for
work done by him in connection with the
proposed channel from the Vallabapur anicut,
for the irrigation of a large tract of land in
the Bellary District and for the supply of
the town.

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List of Enclosures to Letter No. 1124
dated 18 June 1888 to the Secretary to
Government P. W. Department

1. Copies of Correspondence (a) from
the Sup. Engr. 3^d Circle to the Collector of
Bellary Letter No. 49 dated 10th April 1886 (b) from
the Collector of Bellary to the Sup. Engr. 3^d Circle
No. 1881 dated 21st June 1886 (c) from the
Executive Engineer S. Project Division to the
Superintending Engineer 3^d Circle No. 52 dated
30 June 1886. (d) from the Collector of
Bellary to the Superintending Engineer
3^d Circle No. 2611 dated 1st August 1886
and (e) from the Sup. Engineer 3^d Circle
to the Collector of Bellary No. 1038 dated
21st August 1886.

2. (a) Press of Correspondence with
reference to planning the water distribution
of the Tungabhadra River Channels
under the control of P. W. D. and
(b)

2. Copy of Report on the Tungabhadra
Channels by A. H. Garret Esq. Executive
Engineer.

3. Copy of Demer Official Note dated
28 November 1887 from Colonel A. M.
Thwait R. E. to Colonel G. R. Mead R. E.

4. Estimate of returns based on Estimate
of Collector of Bellary.

Respectfully Submitted
Superintending Engineer
5 Circle

Bangalore
18 June 1888.

No 49.

Superintending Engineer

3rd Circle. Bellary.

Camp. Ramenahally dated 10 April 1888.

From, Colonel A. M. Thwait R. E.

Superintending Engineer
3rd Circle.

To,

The Collector
of Bellary District.

Sir,

I have the honor to forward
a map on which is marked by a red line
the Tungabhadra Channel proposed to be
formed from Tulabapur for the Irrigation
of Bellary District. The first section runs
from Tulabapur station, passes south of
Hosur and Bangalore to Channarayana and
thence through a heavy cutting and tunnel
into Varanasi Park. This will command
all the level country between the Channel
and the River and in this section 32 cfs
per second or 42000 cfs an hour will
be available for Irrigation. This will
be supplied

Price for 20,000 acres.

2. The Channel from Nasojee
Tank onwards to near ^{Giddhamalli} ~~Subhamalli~~ will
Carry 498 Cft. per second or 64000 cogs.
an hour or sufficient for 30000 acres. This
Channel Commands the whole tract of
Country between the Channel and the
River about 100 sq. miles or 64000 acres.

3. The Vallabapur Channel will carry sufficient water for 5,000 acres and I should be glad to know what profits may be derived if this work was carried out. Doubtless Sugar - Cane cultivation would be very largely extended and I understand that for this crop 10 Rs an acre is paid by the Ryots.

I have the honor to
Trs

Yours most obed. Servt.
Signed H. B. Tibbels Col. 98
Superintendent Eng.
3^d Co. 10.

Enclosure.
Oct 1881.

37/9
 Botany Collection Office.
 Dated 21st June 1886.

Thom. A. G. St. Goodrich Esquire.
Collector of Bellamy—

No.
The Inspecting Engineer.
— 3^d Corps —

Sir,
 I have to thank you for your
 Letter of 10 April (which I only saw on
 receiving the instruction to Portland) and
 the map which accompanied it.

2. I understand that you deserve my opinion on the question, what are the reasonable expectations of dividend on capital expended on a modified project for enlarging the capacity of the Channel now led from the Tungabudra at Talabapur near Hospet.

3. No information as to the estimated cost of the proposed work is before me excepting that in the second enclosure to your letter of 22nd October.

and last of 1850, printed above G. C.
dated 3^d November 1855 at 2549 N. Public
Houses.

4. I will not however assume
that 30 laes (as there set down) has been
found to be the probable cost of the work
but will give you such an opinion
as I am able to form on the value of the
water which will be available for
Irrigation, leaving the value of the water
which the execution of the work will
understandably ^{be} ^{to} supply
to the large town population of Bellary City
and Cantonments to be separately discussed
and not entering into the question of the
proportion of profits to capital spent on
the works. Neither do I question at present
the correctness of your assumption that the
proposed abstraction of water at Vallab-
pur may be made without injury to the
Thurmoor Canals.

5. You state in your letter
under reply that you will (after the proposed
works are completed) be prepared to
irrigate

irrigate 20000 acres above (or west of)
Baroji Tanks. and 30000 below (or southward
of that work).

6. To take the lands above, 12000
of these acres are now irrigated, the River
channels which pass Chitradigi, Maina-
lapur, Butekasagaram, Ramasigaram
and Kumpuli. I name the principal
Villages. They pay a little less than
Rs 8 per acre and their soil is for the
most part red sand or loam with a
gravel sub-soil. The Irrigation they
receive is excellent under present
Conditions.

7. Whether there are 8000 additional
acres commanded by the proposed channel
and accessible to distributaries led
therefrom is a question of fact. From
my knowledge of the ground I should say
that 2000 acres will be found east of
Kannalapur and 6000 more east of Suppara-
halli. This is nearly all red gravelly
soil and would in my belief pay Rs 4

per acre for river irrigation in addition to its dry rate, and as there would be a second crop on a good deal of it, perhaps we may take the high estimate of a full rate over the whole Agency and set down to 4 per acre for 8000 acres here.

8. We have now to deal with the lands situated east of Garoga Tanks. The cultivation under that work is now 1600 acres paying to 4 per acre and the soil is I believe mostly regado (black aluminous) to the East, Sand & gravel in the west of the tract.

9. Now several matters call for consideration; (a) the charge upon land which Government levy is fixed (as to its amount) by Custom far more than by Competition, especially in thinly peopled districts like this (b) the irrigation of the tract now watered by Garoga is very good, indeed almost perfect (I need only remind you of the extent of the catchment basin draining into it which includes ~~all~~ almost all the forest clad

ranges

ranges of Gondar). (c) In black soil the people best acquainted with its properties, those who live on and by it do not cultivate the whole area which seems available. The fine reservoir at Kanak waters a tract of black aluminous soil and the farmers have sufficient stock and labor but they do not keep in cultivation quite $\frac{2}{3}$ of the Agency, (1400 out of 2100) this was observed just as much before the famine as in these latter years (d) I fear that an impermeable stratum of limestone underlies at no great depth the lacustrine portion of the tract to be irrigated by the Reservoir as enlarged, and of so, apprehend much danger of such land becoming sour when irrigated.

10. On the other hand the fact that the work is sketched by you to command 64000 acres will make it possible to select the 30000 acres most suitable for irrigation in the tract and justifies our assuming that the whole area for which we could supply water eventually

eventually would be brought under
irrigation. We may also anticipate
large indirect benefits to the farmers of
lands in the valley from the increased
supply of water in their wells.

11. I think I have adverted
to the most important points which it
is needful to consider, and I furnish
you with the following Estimate of
the possible profits to Government
to be expected, if works be executed
capable of furnishing sufficient supply
to 50,000 acres situated as described.

12. (a) 3000 acres at Rs. 10 (see para 4. supra)
= 30000 Rs.

(b) 1640 acres now watered by the
Waroji Tank at $1\frac{1}{2}$ Rs per acre to
be added to their assessments in
consideration of improved irrigation
= 2050 Rs.

(c). 28,360 acres at an average of
4 Rs per acre added to their rates
as irrigated lands = 113440 Rs.
In all 1,44,490 Rs per annum.

13. This handsome return will only
be realized if (a) the Government permit
of so high a rate as Rs 4 an acre being
charged, (b) if the 3000 acres above
and 3000 below it be found at suitable
levels, populated, cleared and levelled,
stocked and cultivated. I should not
expect this to be done under a period of
some 15 years and I should roughly
estimate the immediate direct return at
10000 Rs rising annually by 1000 to 15000
attained after 15 years growth of population
and expansion of cultivation.

14. I shall be obliged if any
scheme for the supply of drinking water
to Bellary has been matured, by your
favouring me with the present aspects
of the question. It is most impossible
that the Local Board might assist such
a scheme, if its financial success were
fairly assured by a loan: but very full
information would be necessary before
such a step could be recommended.

I have the honor to return
the map which accompanied your letter
under reply.

I have the honor to be
Sir,
Your most obedt servant—
(Engd) S. Goodrich—
Collector—

Ch 50.
Executive Engineer's Office
"C" Project Division—
27/30 June 1886—

Dear Sir,
The Executive Engineer
"C" Project Division—
Bellary—

CC,
The Superintending Engineer—
M. C. Choudhury—
Bellary—

Sir,

In reference to your Ch.
54/6 dated 24 June 1886 forwarding a copy
of Letter Ch. 1885 dated 21 June 1886 from
the Collector of Bellary for any remarks that
I may wish to make:—

The soil from borings taken
every half furlong along the line of proposed
Irrigation Channel from Barojie to
Siddhamnalli

Siddhamnalli (eight miles) has been found
to be, almost invariably, black Cotton with
a substratum of gravel or rock. The
thickness of the black Cotton stratum varies
from three quarters of a foot to $4\frac{1}{2}$ feet, the
latter being an isolated extreme case. The
usual depth of soft soil is three or four
feet, and where it is not black Cotton it
is red earth, and this appears to be the
nature of the soil mentioned in para 6
of the Collector's letter wherein he states that
12000 acres are now irrigated by River
Channels which pass through a country
which will be commanded by the first
portion of the proposed irrigation channel.
It would therefore appear that the lands
to the east of Barojie being of very similar
soil ought to be found suitable for wet
Cultivation.

This reference to para 12 which
mentions that 1640 acres are irrigated by
Barojie Tanks, an early opportunity will
be taken of ascertaining the kind of soil
under cultivation, and if there is a

Substratum

stratum of rock or gravel within a few feet of the surface, the evidence which we wish to establish may be considered conclusive.

With regard to para 10 of the letter under reference ample provision will be given for selecting the 30000 acres to the east of Dargod, most suitable for irrigation. But this will be explained in my reports and need not be entered into here.

As regards para 11 I would point out, that the 1640 acres now watered by the Dargod Tank are in addition to what we expect to bring under cultivation by the new Channel which will be sufficient to irrigate 30000 acres irrespective of what the tanks now cultivate. The figures 28360 acres therefore mentioned in sub para C of para 12 may be changed to 30000, which at a rate of 4 Rs per acre would bring in as high a Revenue as 1,20,000 against Rs 118,440 derivable from 28,360 acres.

As regards para 12 I will fully report

report on the Bellary water supply scheme when or immediately after submitting the Estimates which I have promised to have ready by 15 July - 27/7/14

I have the honor to be

Yours most obedt servant

Signed G. B. B. Burdett

Executive Engineer
- Co. Project Division -

26/11.

Bellary Collection Office
- Dated 1st August 1881 -

Dram.

G. B. B. Goodrich, Esquire.
Collector of Bellary -

26/11

Superintending Engineer
- Mr. Lewis -

Sir,

In continuation of my Letter of 1881, I wish to record my opinion that the Government should, considering the questions thus discussed, ought to have before them the opinion of

settlements respectively as to the
profits to be expected from the proposed
improvement of the Palabarus channel
and the construction of a level channel
to Waraji

2. The Survey maps are
now complete or nearly so and one of
Mr Cox's head classifiers with the maps
in his hand could after going over the
ground give you the exact acreage
commanded by the channel as abovementioned.

3. When riding over that part
of the Country last week, I thought
I saw reason to believe that beyond
Mellapoor (see Atlas Sheet No 58) midway
between Mellapoor and Warajee where your
channel turns to the South east ^{as} ~~and~~ ^{as in the map.} ~~as in the map.~~
North Easterly Branch will command
a great area of land suitable for
irrigation on the plain across which
the main Stampi dam is built, it seemed to me probable that the
construction of a second reservoir
at or near Mellapoor would be found
desirable.

desirable. As the Project has been so long
and minutely examined no doubt you
have all the levels. In a good manner
the natural Catchment basin of Waraji
will fill that fine tank and if
beyond Mellapoor the River channel
diverges (the North east branch going
~~near~~ via. Poppahally) no water needs
be wanted even when a heavy fall in
the Gondur Hills may have filled the
Waraji Reservoir at the same time that
a fresh comes down the Tungabhadra.
I do not wish to be understood to have
convinced myself that another reservoir
ought to form part of the scheme, but
I am pretty sure that a large proportion
of the extension of irrigation will be
best supplied by a North East Channel
led from the channel to Waraji at the
summit level and it seems to me that a
suitable site for a reservoir exists.

I have &c.
Signed H. Goodrich
Collector

Thos Cope
H. Goodrich
Superintending Engineer

18 June 1888.

(4) The Chief Engineer for Irrigation
in his Inspection Notes recorded with
G.O. No 905 of 8 October 1884 while remark-
ing on the condition of the channels stated
in para 5 of his notes noted that "the Engineer
intending Engineer in sending up propositions
for taking the Channels entirely under the
P.W.D. should consult the Revenue authorities
and obtain accurate information regarding
the Cultivation and Revenue in past years
and the lands that may be available for
extension of cultivation. It is not proposed
to make any new and startling changes, to
change the alignment of
Channels but to ensure systematic repairs
and conservation and better regulation, and
any scheme which will ensure this, whether
decided upon with the approval of all officers
interested in the improvement of the district"

(5) With reference to this G.O. the
Executive Engineer No 1754 dated 20
November 1884 was called upon to submit
a scheme for the improvement of the
Channels.

(5a) The Head Assistant Collector
gave his opinion that there is no necessity
for interfering with the present system
of distributing water. The Acting Collector
concurd generally in his Assistant's remarks.
See Collector's Endorsement No 72 of 10 January
1885.

(6) Colonel Phibbs P.C. writing to the
Collector (No 2224 of 9th February 1885) stated
he is unable to agree with him and expressed
his opinion that it is of great importance
that water distribution should be controlled
by the P.W.D. It was also pointed
out that the permanent Collector
Mr. Goodrich was of his opinion with
regards to the Channel management.

(7) Mr. Goodrich on his return
from leave in June 1886 stated that the
control of water distribution would be
most effectual if irrigation was placed
under the orders of ^{the} P.W.D. Letter No 1487 dated
11th June 1886.

(8) In 1886 when Mr. Garrett transferred
to Bellary was ordered. Colonel Phibbs wrote
(No 1012 of 17th August 1886) wishing him to
make

makes a thorough inspection of the Channels after taking charge of the Bellary Division and to submit a complete report regarding their present state with suggestions for improvements.

(9) In reply to this Mr. Garrib sent his report with the report of 14th dated 20 April 1847.

(10) Colonel Vaneau wanted a copy of this report to be sent to the Chief Engineer for Irrigations and the Collector in continuation of previous correspondence, but that Officer was relieved of charge on the 9th May and Mr. Peters wished to satisfy himself by personal inspection of the channels so before he could move in the matter. He had this file with him for some time and returned the same without any disposal.

The channels are still in charge of the Revenue Department as before, Correspondence as to this transfer to the P. D. is still going on with the Collector.

Wm. B. Bant
Col R

28/8

Report on the Pongaludra Channels

This is 10 channels whose names are given in the margin

1. Baravannal Channel	10	are given in the margin
2. Pongal Channel	20	are old native
3. Bellary Channel	7	works and
4. Pongal Channel	11	depend for their supply
5. Pongal Channel	9	on 9 points built across
6. Pongal Channel	8	the Pongal
7. Pongal Channel	6	has been
8. Pongal Channel	4	of the
9. Pongal Channel	3	channels are
10. Pongal Channel	2	provided with sluices of an antiquated type, but 5 of them are without any means of regulating the supply received from the river.

Area cultivated. From the enclosed statements furnished by the Collector it will be seen that the average total area cultivated under the channels during the last 12 years

is 10052 acres the average revenue being
122991.

If more water were available,
it is stated that 1234 acres of dry lands could
be brought under wet cultivation.

Management of Channels.

Under the present
system the Revenue Department undertakes
the distribution of water whilst the Public
Works Department is responsible for the
execution of all repairs and other works
that may become necessary. As to the
distribution of water the Revenue De-
partment employs 128 mirgunties a list of
these with their emoluments is appended.
It will be seen that their pay is very small
and that much work cannot be expected
from them as a matter of fact they do
nothing.

The P. W. D. employs 5 Channel
Superintendents, their pay ranging between
15 and 30. The Mirgunties are supposed
to be under the orders of these Superintendents
and to carry out under their instructions
any

any work that may become necessary.
Practically however they are of no use
whatever and it is impossible for the
Channel Superintendents to enforce obedience
to their orders, as the Mirgunties are paid
by a different department and complaints
against them would have to go through
so many Channels, that it would be
useless to make them.

As the Channel Superintendents
do not get their orders attended to, it
follows that they themselves cannot be of
much use. I think therefore that the
amount now annually spent on the
Superintendents and Mirgunties brings
no adequate return and this must be the
opinion of every one who has seen the state
of the Channels in the river.

Present state of Channels.

The Channels are old and
works and have the faults common
to such. They show however traces of
of great neglect. Silt clearance has not
been

owing to the numerous sluices and defective water distribution only, the lands at the head of the channels grow second crops though there is, it is believed ample water for all the lands.

The dual control, should be abolished and the channels placed under the charge of the P. L. E. And the present system owing to the divided responsibilities neither department takes as proper interest in the channels, and the arrangements for their maintenance have been proved to be useless.

Erasmus

Signed A. H. Garrett.
Executive Engineer

- True copy -

Messrs. S. & S. Co. P. E.
 Superintending Engineer
 Bangalore
 18 June, 1906.

47/35
22
— Semi Official state —

— 28 November 1941 —

My dear Mead,

I return you the papers of
the Bellary, Koonigabudra Project. It was
considered that during the time from July
to January we should be able to keep the
Wargjee Tank full, and it was not intend-
ed to use Wargjee Tank for storing water
for the 33,000 acres to be watered from the
Wargjee - Siddhamalli channel. It was
proposed to take off from the river 819
ft a second (July to December) and
this was intended to be used direct. 321-
ft a second would be utilized before
the Wargjee Tank is reached and 498 ft
would enter the tank and this would
be required for the 33,000 acres. There
would be none to be stored except
what was received from the Catchment
basins

basin of the Tank some 250 or 300 miles

If the storage question is to be considered the Estimate will have to be increased or the extent of irrigation diminished so that water may be provided for storage. Either the Channel from the river must be enlarged to carry the extra quantity required for storage or else the required quantity must be taken from that water which it is proposed to irrigate the 33000 acres.

The Warogio-Siddhamalli Channel is only intended to irrigate a single crop so that after December but little water will be required.

The land which it is supposed will get a 2^d crop is under the present sluices of Warogio Tank and very limited in extent.

A large extent of land is commanded by the Warogio-Siddhamalli Channel perhaps as much as 6000 acres, but provision is made for irrigating nearly 50000 of this - for in addition

235
addition to the 34840 acres supplied from D. S. Channel and the tank itself there are to be 15000 acres supplied by a large sluice in 3 1/2 miles of channel - this land being in the neighbourhood of Kumply. I myself think that the capacity of Warogio Tank might with safety be largely increased by raising the crest of weir 3 or 4 feet.

Mr. Forster calculated difference between H. T. L. and M. T. L. to be 5 3/4 feet and the length height of bank was to be 6 1/4 above this - bank to be 12 feet above new crest. Generally the bank is ~~more~~ higher than this and is very broad in most parts. I believe the M. T. L. has never been known to be more than 3 feet over weir.

The water spread of the tank extends to some 3 1/2 or 4 square miles and raising the weir 4 ft. would according to Mr. Forster extend the water spread from 8 millions to 135 millions of sq. ft. other

There is a tank at short distance
above the Dargis Called the Chutalo tank
it is now breached but could be
restored and utilized for storage.
but if this question of storage is to
be considered more water must
be taken from the river.

Yours Sincerely
Signed Henry R. Viliard

True Copy

Henry R. Viliard Col. R.E.

Superintending Engineer -
5 Circle -

Bangalore
18 June 1958

2235/24
Estimate of Returns based on estimate
of collector of Bellary -

Under Tillabapoor Channel.

20000 acres at 4 Rupees.	80000
1640 acres now watered by Dargis Tank at 1 1/4 Rs per acre to be added to their assessments in consideration of improved irrigation	2050

Under Dargis Sidhaminalli Channel.

30000 acres at an average rate of 4 Rs per acre added to their rate as an irrigated land -	120000
--	--------

202050

I do not know if all this 50,000 acres
is really now assessed as dry cultivation. Possibly
some of it may be waste land, and in that case
the dry assessment on the lands should be credited
to the returns on projected outlay.

18 June 1958

Henry R. Viliard Col. R.E.
Superintending Engineer
5 Circle -

817
 7103
 7/88

Complete file & sent for S.I. & ...
 J. ...
 2.1.1890

SUPERINTENDING ENGINEER'S OFFICE,
 V. Circle, Madras,
 18 June 1888

Order
 In his letter and submitted
 Col. Robert appeals against the
 Census Enquiry in P.O. No. 239 I
 14th April 1888.

2. Col. Robert in Aug^r 1886 submitted
 plans & estimates for the Tongachudi
 Canal Project, which the C.E.P.I.
 forwarded to Gov^t with a note con-
 taining some severe criticisms on
 the way in which the plans were
 prepared. The Gov^t, accepting the
 views of their professional advisers
 expressed their regret that the
 project had been sent up in an
 unsatisfactory state, and remarked
 that Col. Robert appeared to con-
 sider the little attention & the orders
 of the C.E.P.I. & had submitted
 the estimates in a very incomplete
 state and with little or no ...

3. Col. Robert has explained that the
 Co. ordered orders by the C.E.P.I.
 were considered by him as suggestions
 for his guidance, and at very con-
 siderable length from his leave
 for having submitted the project
 as he did, and explained the steps
 interest he took in the project, and
 the care & attention he devoted
 to the subject.

Bengaluru, 18 June 1888.

4. The C.E. & I does not accept
the explanation & demand
of Col. Roberts re: on many
points.

5. The Govt. accept the re: of
the C.E. & I on the professional
questions involved & must decline
to enter into any discussion on this
part of the subject, but they are
willing to accept Col. Roberts' expla-
nation that he did not regard the
trans. sent him by the C.E. & I
as containing orders, but suggestions,
and his assurance that he took
the present interest in the project.

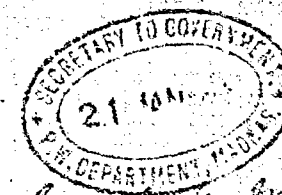
6. It appears however, from Govt.,
that the remarks made by the C.E.
& I regarding the incompleteness
of the project is admitted, adding
that he ^{has} had reason to do, that the
project was forwarded as complete,
was justified, and that had Col.
Roberts not intended the statement
that he had sent as a complete project,
he should have submitted them
as approximate on which further
orders were required before they
could be laid before Govt.

Done
7/7/88

SUPERINTENDING ENGINEER'S OFFICE,

V Circle, Madras,

No. 1114.



Benifaloor
Chennai, 18 June 1888.

From

Colonel H. M. Vibart, R.E.

27/70

SUPERINTENDING ENGINEER, V CIRCLE,

To

THE *Secretary to Government*
Public Works Department.

Cotacamund

Sir,

Enclosures.

With reference to G.O. No 2392 of 14th April last, and in continuation of my letter No 504 of 7th May 1888 to the Chief Engineer for Irrigation, I have the honor to forward the following remarks with the view of showing that the censure conveyed in the G.O. is unwarranted; that the remarks of the Chief Engineer for Irrigation in his Memo in which the G.O. is founded, are unjustifiable and that the statements which led him to condemn my scheme in such an unwarranted way are incorrect and apt to mislead the Government.

2. In his Note Colonel Mead states that little or no attention was paid to the orders of the Chief Engineer for Irrigation that

that I did not go fully into the question of the water supply available, and that I did not in point of fact take any trouble with the Project.

3. Now first with regard to what Colonel Mead calls the "Orders" of the Chief Engineer for Irrigation. I have the Chief Engineer's Memo before me, and it contains no absolute orders, having been apparently written to give me assistance by making suggestions as to the course to be pursued. It seemed to me that the water in the river available during the season was quite sufficient to irrigate 50000 acres without any storage, and I consider the statement we now have, fully bears me out in my opinion. When Colonel Hasted wrote his Memo 20th/11/13. & Mr Chorfor had been engaged on the Project for nearly 8 months and had to a very great extent completed the Project previously intended, and as he had still a certain amount to do to complete the upper Project as far as Darogee Tank, and had practically finished the Project from Darogee Tank to Bellary, he asked permission

permission (as he then was shortly going home) to complete the upper Project, and to let his successor attend to the revised Project below Darogee Tank. This I allowed him to do, and he sent in the Project from Tullabapoor to Darogee, as well as the one from Darogee to Bellary, which was disapproved of by Colonel Hasted.

4. Mr Burtton succeeded Mr Chorfor and got up the Project for the Channel from Darogee Tank for Irrigation, as well as the Project for supplying water to Bellary for domestic purposes. The proposal to raise Darogee Tank weir between 3 and 4 ft was abandoned, and the level of the Channel to supply irrigation between Darogee and the River was lowered to more than 7 ft below crest of weir of tank. Colonel Hasted only "thought that extension of irrigation must principally be looked for under Darogee Tank by taking advantage of fresher water to fill the tank 3 or 4 times during the season."

He gave no absolute orders on the subject, and I having come to the conclusion that there was sufficient water in the river to

to irrigate 50000 acres direct; without storage, and that the channel from the river must be as economical as possible. I arranged to have the channel carry only sufficient for 50000 acres.

It is quite true that Colonel Mullins, considered it very doubtful whether the Tungabhadra could be relied on to give a constant supply, except to a small area of cultivation. His opinion is doubtless entitled to respect. But it would appear from the tenor of his remarks that he had not founded his opinion on statistics regarding the actual discharge of the river at Vallabapur. Early in 1884 I endeavoured in vain to get any recorded register of River discharge at Vallabapur. I am glad to be able (for the sake of the District of Bellary) to say that I by no means agree with Colonel Mullins. I had a better opportunity of judging than he had, for before I sent up the paper we had the water registers for 2 years. I will now proceed to the matter of water supply available, and I feel sure that an unbiased mind will readily believe

that there is sufficient water in the river to supply 50000 acres in Bellary without any resort to storage.

7 Colonel Mead takes exception to my statement that "The water supply will suffice" and "that about 750 Cft will I think be readily available without injury to vested interests from July to January" and that "In 1884 when only 6" of rain fell in Bellary there was a fine supply of water in the river" and observes that these statements are not borne out by the water returns of Vallabapur Ancient.

8 Now I went into the water supply question as far as I was able. Previous to my arrival in the District there were no statistics regarding the river supply available, and it was I who started the register in June 1884, (3 or 4 months after I took over charge).

9 Now as regards the months of August September and October there is no difference of opinion between Colonel Mead and myself regarding the sufficiency of the water as I will now pass on to the other months.

Final

First as to July (I am now dealing with records 10 of 4 years)

In 1884 for 26 days the level was up to & above $1\frac{1}{2}$ ft

in 1886 there was never less than $2\frac{1}{4}$ ft

in 1887 never less than 2 ft

In 1888 the record is less favourable, but

even then for the last 10 days of the month

there was 1 ft and for the last few days $2\frac{1}{2}$ ft

and the cultivation even in that year

could have been commenced about the

middle of July as the tank would be

full, for during the month of June there

was never less than 1 ft in the river, and

on 17 days it was up to and over $1\frac{1}{2}$. Now

with reference to November (out of 120 days

taking the 4 years) the water was never

below 9", and that on only 4 days. While

on only 15 days was it below $1\frac{1}{2}$ ft

In December again it was never below 9"

It was over 1 ft for 99 days out of 124

for 66 " it was over $1\frac{1}{4}$ "

and for 34 " over $1\frac{1}{2}$ "

I will show later on that when 6" is in

flowing over the ancient there is amply

sufficient for the supply of 50000 acres.

To support my assertion that in 1888 12

thousand

* The river was so extraordinarily low in the beginning of July that it must be considered an exceedingly exceptional occurrence. On the 17th July it was 2 feet below the crest of the ancient. & during the 4 years from 1884 to March 1888 it was never so low as this even in the hottest weather. We have records for 45 months & during all that time the water level was only below crest of ancient on 68 days. 45 of these during the hottest weather & 16 in July 1885 - hence it is extremely unlikely such a low level would be reached again in July for many a long year. H. M. S.

there was a fine supply in the river I must again refer to the registers.

In July I find that for 11 days there was $3\frac{1}{2}$ or over
20 " $2\frac{1}{2}$ "

and that for only 4 days was it less than $1\frac{1}{2}$

In August, there was never less than 3 ft

while for half the month it rose to 4, and over;

and during $\frac{1}{3}$ of the month it rose to 6 ft.

for eight days it was over $7\frac{1}{2}$

and that it rose even higher than this to 7 ft 10

and even $12\frac{1}{2}$ ft

In September there was never less than $2\frac{1}{2}$

for 24 days it was over 3'

for 10 days over 4'

and that it rose on several days to 6' and

on one day to $9\frac{1}{2}$

In October, there was never less than 2 ft

for 10 days it was over $3\frac{1}{2}$

and for a week it was $4\frac{1}{2}$, $5\frac{1}{2}$ & $6\frac{1}{2}$ ft

In November it was only less than 1 on 4 days

and for 10 days it was over $1\frac{1}{2}$

In December it was never less than 9"

and for 10 days over 8 ft

Now considering that practically in 1884

there was no rain in Bellary (for 6" can

be considered only as a mere trifle) I

think

think the water in the river may be decidedly ^{* It would have} sufficient ^{to supply} the whole district ^{of Bellary} taken as a "fine supply."

And I have before observed I cannot agree ¹³ with the opinion of former officers regarding the necessity of storing water for the reduced area to be supplied, and I do not believe that the water returns in any way support their opinions.

If my proposals are carried out I feel ¹⁴ sure they will not result in failure, and I think before the Government have a finished perusal of this letter they will be far more disposed to agree with me than with Colonel Mead.

He complains that I forwarded his ¹⁵ recorded opinion of the Revenue authorities. Now I by no means lost sight of this point as will be shown by the correspondence with the Collector which I beg to enclose. I certainly did not suppose for a moment that the Estimates he sent in by me would be passed on to Government without some discussion between the Chief Engineer for Irrigation and myself.

I sent up the project just before I went on Privilege Leave in August 1886, and

^{W/31 3-P} the correspondence with the Collector was still incomplete. I returned from Privilege leave in November but I heard nothing further ^{officially} from the Chief Engineer for Irrigation about the plans till a short time ago when Colonel Mead wrote his memo. 20 months had elapsed from the time I sent in the Project. In the ordinary course the papers would have been sent back to the Superintending Engineer for such explanations as he might have to offer, and he would have been asked to supply any omissions, and to correct any errors which might have been found.

¹⁶ About a year before Colonel Mead wrote his memo I had been transferred to the ~~5th~~ circle and this obvious course was not taken.

Colonel Mead asked me about the Project in November last, and I wrote him the enclosed note on the subject, but until I saw his memo in print, I had no idea that he was about to write so unfavourably regarding me, and I cannot think it was right of him to write so strongly without giving me an opportunity of replying ^{officially} to his statements.

¹⁷ I must now enter on the subject of the ^{quantity}

quantity of water in the river in greater detail. The Vallabapoor anicut is 1015 ft long, and is separated from the Koozgul anicut (1000 ft) by an island. This latter belongs to the Nizam's Government and has during the last few years been raised 1.8 ft about the level of the Vallabapoor anicut. I think it is a pity that this was allowed; if raising was necessary at all, it would have been better to raise both anicuts say 9". This would have had much the same result in raising the river level when the water was low and during floods each branch would have discharged its proportionate quantity; but now the floods will be raised 1 foot, and one branch will be called upon to discharge more than its fair share.

The irrigation in the Bellary District 18 from the River Channels amount to 14500 acres. Between 13 and 14500 of this is supplied by the Bustwana Channel which takes off above the Vallabapoor Anicut or below the Anicut water is only required for 13000 acres.

It has always been considered that 19
2 c.yd

2 c.yd per hour per acre will suffice for rice cultivation, and that 1 cubic foot a second will irrigate 66.6 acres and this quantity has been allowed for in the project.

20. Colonel Mead says the quantity required is 3 c.yd per hour. This latter quantity being allowed about 300 cft. a second would be required below the anicut.

Colonel Mead considers that this should be doubled, I myself think this quite unnecessary if proper steps are taken to prevent waste in the river channels; but even if the very large quantity of 700 cft. a second is to be allowed for 14500 acres I can still show that there is ample besides for 50000 acres at 2 c.yd per hour per acre.

21. Colonel Mead states that the discharge over the anicut is

60 ft $\frac{5}{8}$ ft $\frac{1}{2}$ ft $\frac{1}{3}$ ft $\frac{2}{3}$ ft $\frac{1}{3}$ ft
with $\frac{1}{2}$ ft on crest probably about 500 cft a second
1 ft — 0° — 00 — 2000
1 1/2 — 30 — 00 — 4000

Now I calculate the discharge to be very much higher than this.

22 Merely taking the discharge over a weir ignoring

ignoring the velocity of approach (which although of course small when river is low) must be appreciable in a river which has a fall of 7 or 8 ft a mile.

I find the discharge to be

1/2 ft	1280 Cft a second
1	3620
1 1/2	6650

In addition to this we have available the discharge of the 2 channels (one on each side of the river).

I find that when there is

1/2 ft on ancient the Buiswanna	Cft
Channel will discharge at out	300
1 ft	660
1 1/2	760

This will make the total discharge available amount to 1780

4280 } respectively
and 7480 }

without including the channel on the Nizamis side which probably takes off two thirds as much as the Buiswanna.

I do not know accurately the amount of irrigation under the Nizamis Channel but I think it may safely be assumed that

that it does not exceed 3000 acres. The channel is only I believe 12 miles in length and the strip of ground watered between the channel and the river has not I take it more than an average width of 1/2 of a mile. It seems clear then that 300 cubic feet a second cannot be required for this area, and that even allowing the high rate mentioned by Colonel Mead (about 1 Cft. for 21 acres) only 150 cubic feet a second would be necessary and

x I may also remark that there are two the balance of 850 cubic feet a second under sluices in the Koraput Ament will return again into the river below & that a great deal of leakage passes the Ament so that actually the amount through these sluices. Even in the worst available for our river cultivation and together there is a good deal of leakage the proposed new area will be at this water would also be available for the lower esaga

1/2 ft on crest	1780 + 850 = 2630
1 ft	4280 + 850 = 5130
1 1/2	7480 + 850 = 8330

Only 13675 acres would require water below the Ament as the Buiswanna will be provided for by the Vallu Channel (I consider 350 should suffice) we have hence at Col Mead's rate only 618 Cft per sec. will be reqd below the Ament for our supply which is fully 500 cubic feet more than we require and then surplus water from Koraput Channel & Ament

After my return I heard nothing further regarding the Project, and the subject was put on one side for the time - as there were of course many other subjects to be considered, and ~~in~~ less than 6 months after my return, I was transferred to Madras.

With reference to the provision of branch 25 distributing channels. There was indeed no time for working these out in detail; moreover it would have been superfluous to do this until the general scheme was adopted by the Government.

By a reference to the general abstract of cost it will be found that no less than 150000 Rs were allowed for distribution (50000 acres at Rs 3 an acre) besides Rs 12000 for sluices.

Colonel Mead proposes to get enough 26 water for storage by making the channel sufficient to carry an extra depth of 1 ft, and states that this storage can be obtained "at little or no extra cost".

There is no question of the water being available, but I do not see how the extra water can be passed down the

channel.

Channel "at little or no cost" I think the cost will be considerable, as all the surplus works will have to be raised, and the expensive walling which is required in 18", 21", and 26" ditches will require strengthening and raising. The banks of the tanks through which the channel passes will also have to be raised, and other works such as bridges and aqueducts will probably have to be improved. If it is proposed to go to the extra cost of making the channel carry a foot or 1 1/2 more water than it seems to me that it would be better to raise the weir of Daroge Tank some 3 or 4 ft and restore the Chetabai tank.

* It might also be feasible as suggested a little distance above Daroge Tank to construct a small reservoir rather than lower the level of the Daroge near Sumapone. Sedamankhalli channel.

The land commanded by this channel probably amounts to 96000 acres; now about 1/3 of this will be commanded by the channel near Dewadipura so that 64000 will be available from which the Ryots can select land to be watered by Daroge-Sedamankhalli channel. A considerable amount of this land

will be required for villages, clay cultivation, grazing lands, channels roads, &c. and some of the land may prove unsuitable for wet cultivation. If the Channel is taken off 7 ft lower than is proposed the cultivators will be greatly restricted in their choice.

To show that this is not an imaginary objection, I beg to enclose an extract of a letter from the Collector of Bellary bearing on this point. He states that the people best acquainted with the properties of the land are the farmers and they do not cultivate the whole area which seems available. The fine reservoirs of Kanakoti and the former have sufficient stock and labor but they do not keep in cultivation quite $\frac{2}{3}$ of the area and 1400 out of 2100 (this was observed just a month before the famine in these latter years) — "On the other hand the fact that the work is stated by you to command 64000 acres will make it possible to select the 30000 acres most suitable for irrigation in the tracts

and

97/39 JBP
"and justifies our assuming that the whole area for which we could supply water even —
"truly would be brought under cultivation"
29. Mr George Golden member of the Institution of Civil Engineers, was of much the same opinion as will be seen from an extract of a paper read by him before the Institute of Civil Engineers in 1872. He says "It is —
"desirable that a main Canal should command a much greater area of arable land than the water it carries can irrigate constantly some land may not be suitable for irrigation at all and in no case could all the land be converted from dry to wet cultivation under many years as 3 times the population would be required to cultivate it."

30. In the last para of Colonel Mead's Memo he states that Mr Boulton allowed 60 gallons per head for the water supply to Bellary.

This is not the case he only allowed 36 gallons a head for 100000 people. In my letter forwarding the project I pointed out that the population of Bellary was not much more than 50000, but that if this project was

was carried out Bellary would increase considerably in importance and extent. I added however that if it was considered necessary only to provide for 50000 people the cost of the project would be reduced in works above by a sum of about Rs 100000.

The total cost including percentages would be diminished by nearly Rs 150000 and thus the expense of supplying 36 fullons a head to 50000 people would be about Rs 7000 in place of Rs 22000.

36 fullons a head per annum is a very liberal allowance but it is to be recollected that Bellary is an especially dry place where evaporation is very excessive, and the want of water very great especially during the hot months when the river runs low. Consequently the Darogah Tank would be at its lowest.

The water will have to be stored in the Bellary ditch and here evaporation must be especially great owing to the proximity of the sun. I have accordingly made the estimate on a liberal scale of the cost.

I have always taken the greatest interest in the project, and was I think the first to suggest a modified scheme on a comparatively

27/3/11
small scale. I endeavoured to frame a scheme which would be as inexpensive as possible, and with this view reduced the Main Canal to the least possible. Hence it was not practicable to allow any thing for the passage of storage water.

I urged the Chief Engineer for Irrigation to visit Bellary with reference to the Irrigation from the Joongabodra and I accompanied him to Vallabapur Darogah with reference to the project. All the time I was in Bellary I used my best endeavours to improve the Joongabodra River Channels, and did all possible to get the management of these Channels into the hands of the Public Works Department with the view of checking the great waste of water which takes place, and also for the purpose of regulating the distribution and demarcating the channels with the object of putting a stop to encroachments which have been very extensive and extremely detrimental to

* Precise of
Correspondence
on this subject
is enclosed.
for reference

to the interest of the people and the
-ment of the -

I am convinced as far as it could 32
be doing out the suggestion of the Chief
Engineer for navigation, and the only
reasons I could possibly have in
deviating from them was to ensure
the economy of the scheme which I
consider most essential to the well being
of the District. I do not of course deny
that if the Scheme was to be more
extensive allowances for storages
would be a sine-qua-non.

I think it will be seen from this 33
letter that there is very much to be
said in favor of the scheme sent in,
and although it may contain errors
and is not as complete in details
as might be desired I would ask
whether any scheme of this extensive
nature is free from defects until
it has been subjected to some dis-
-cussion. In conclusion I have the 34
honor to request that this letter may

17/27 1921
may be placed before the Government
to show them that I interested myself
warmly in the project, and that I
have not laid myself open to the
censure conveyed in the orders under
remark. My action throughout
has, I beg leave to assert been bona-
-fide, and in the true interests of
Government.

35 This letter has been delayed a good
deal by the necessity of obtaining
a large number of papers from the
3rd Circle -

I have the honor to be

Sir

Your Most Obedt Servant

Henry J. B. B. B.

Superintending Engineer
V Circle

100
P.W. Department
Chennai. 22 June 1888.
No. 554 B.

Referred to the Chief
Engineer for Irrigation for
remarks.

Let. sent. Colonel R.E.
Superior P.W. Department

From
THE SUPERINTENDING ENGINEER,
V Circle,

To
The Secretary to Govt.
P. W. Dept.

Dated } June 1888.
Recd. }

ENCLOSURES.

No. 1114.

Jungabhadra Project
Bellary District

Forwards certain remarks
in connection with the
proposed channels from the
Vallabapoor Aicut for the
irrigation of a large tract of
land in the Bellary District
and for the supply of the
town.

239 D 14.4.88
10 D 6.1.88
950 D 13.11.85
924 D 4.4.84

2735
ENGINEER'S OFFICE, R.
V CIRCLE, MADRAS,
4 July 1888.

No. 114 C.

From
Colonel R. E. Vibart R.E.
SUPERINTENDING ENGINEER,
V Circle,

To
The Secretary to Government.
P. W. Dept.

Sir,

Enclosures.

I beg to point out
that in the latter part of para
10 of my letter of 18th June 1888
regarding the Jungabhadra
Project a slight error has been
made. It should read thus "Now
with reference to November (out of
120 days taking the 4 years) the water
was never below 9" & on only 4 days
below 1 ft. while on only 31 days
was it below 1 1/2 ft."

I have the honor to be
Sir
Your most obed^t servant.
R. E. Vibart Col. R.E.
Super. Engineer V Circle

SUPERINTENDING ENGINEER,
V. CIRCLE,

To

The Secretary to Govt.
Madras.



Dated

Recd.

July 1888.

ENCLOSURES.

No. 1465

Tongabudra
Project.

Proceeding out
an error crept into
the letter of 18 June
regarding

30 July 88
2285/41
No. 708
151
Refund No. 3548 22/6/88
In this letter No 1114
dated 10 June Lt Vibant
complains that he has
not been kindly treated
by me in my letter No
62 I forwarding to Govt
the estimate for the
Tongabudra project in
Bellary district (see
of 6 No 239 I dated
14 April 88)
The following are the points
which he has pointed out by
Lt Vibant
1st That Lt Hastings memo
No III/7 B.L. of 24 April 85
was not ordered but only
suggested. Therefore he was
perfectly justified in
expressing out his own
views (see items 2, 3, & 4)
2nd That he did not submit
the estimate as would be
forwarded to Govt without
any discussion between
the Lt. & himself (see 13)
3rd That he was asked by me
what the project cost and wrote
a similar letter in
certain points explaining
them see item 16

the circle and as owing
to reductions in establishment
it was inevitable to expect
that everything towards
reaching the Soviet Committee
could be done. It was
waited. Meanwhile referring
officially to him regarding
his proposals, which he
had forwarded and given
his opinion that the work
should be carried out without
delay.

See para 52 of his
letter No 1045 of 20 May 1966
concerning the Soviet.

3. When I found that
Lt Hushko's orders in
any system had been no
attention paid to them
I sent to Lt Vihant
and asked him to
explain how this was
and I also pointed out
several serious complaints
in the project. He asked
to be allowed to take away
the papers and consult his
Bureau who was then
at the moment. This he
did and the result was
his own official letter
a copy of which he gave.

I do not consider it is
any explanation at all
it only says that Stoyan

2/3/66

was thought concerning
that recommends if
Stoyan is thought necessary
that as at first proposed
by him that the FSL of
Soviet tank should be raised.
This is against Lt Hushko's
ideas and I can see
no reason for it.

4. When I looked through
the project I found of course
only the papers on that Lt
Vihant sent with it. The
fact of them being letters
between him and the Director
of Railway does not in any
way show that any statement
that the project was sent in
without any detailed
explanations of the Russian
ambitions, is incorrect.
I have to point out even
the correspondence now
forwarded is hardly
sufficient to base a
large project on, and
certainly on his return from
there in when I asked him
about the point that what
he might have referred
to this correspondence.

5. There certainly is
money provision for
distribution to A. H. Shum
but in the project there are

new levels or surveys to
show generally when
these distributions can be
run or when the head
of the project is situated

The Project simply
consists of a main
channel to a from the
Dorsey Tank
6th

With regard to water
supply this is a question
about which there must
be different opinions
Let Vibert explain it
consider is forwarding the
project to have gone fully
into the question and set
it in his report forwarding
the project contained
himself is only saying
the quantity required
would be available for
7 months

It is too late for him
now to go into elaborate
calculations, this ought
to have been done before
he had the project
prepared without any
storage and when he
received Let Haskins
orders or suggestions
to furnish storage

2235
4/4

I consider that Let Vibert's
figures of quantities are
much higher than they
should be, at the same time
I am quite willing to
allow that my figures are
perhaps too low, this I
did intentionally as I
consider it right in a project
of this sort to be on the
safe side. We have
only 4 years records to go
on and this has a short
period on which to base
a project

Let Vibert has taken a
coefficient of .67 and
allowed for the water in
the channel just to have
a clear bed.

I consider this as more
than it should be in a depth
of $\frac{1}{2}$ a foot & a foot
going over an amount
Of course the coefficient
depends entirely on when
the gauge is and the
nature of the crest of
the amount

I took a coefficient of $\frac{5}{8}$
and for $\frac{1}{2}$ foot water
took $\frac{1}{2}$ the theoretical
quantity for a clear bed
for 1 foot & $1\frac{1}{2}$ ft I
took $\frac{2}{3}$, then as I
consider how that safe

guarantee to work on

With regard to supply
required for the cultivation

2 Cysts per acre per year
with good vegetation
is I think much more
than required but
with bad or rather no
vegetation 3 Cysts is
not an extravagant
allowance.

Again judging from
the records (see but
I cannot recall the number
of let Vibants) I do not
consider the 700 a large
amount by any means
too much. Let Vibant
states - from 20 he thinks
this unnecessary if
proper steps are taken
to prevent waste in the
river channels.

I am not aware that in
Belgium or in other places
it is an attempt to be
made to do this, at any
rate we have to accept
the fact of waste.

Of course the most urgent
dilemma as regards the
supply available is
Rivers but judging from

1912
The series over estimate
of supply available
that has been made
many times. I think
my figures & those of
let Vibants as they have
been taken on the same
side, let Vibants
are in my opinion much
too high. He died
when forwarding the project
only 2 years. Returns
are now from 4 years
of let Vibants & his
remarks suggest that he
has allowed MSL to
be 1 1/2 ft when FSL
should be with the no
velocity to raise the banks
or extensive walking or
in order to keep them in
better part of water.

8th With regard to this
point I regret that there
is no information
whatsoever given in the
reports savings or cost
that has been estimated
and I cannot therefore
accept let Vibants
assertion that taking
the channel from Sarin
Trench in a line 7 ft
below the present
would reduce the area

The land commenced
dangerously
In the plans we forwarded
the only information
given is the land of the
land through which
it is proposed to build
the channels and then
is nothing to show the
area of land commenced
In the Vibant letter
now forwarded he states
that 96,000 acres probably
are commenced by the
channel out of this he
proposes to irrigate
50,000. This he says
is a country like Belgium
[not taking into
consideration the lands
he has to irrigate in
para 20 of his letter]
is a very large population
and for this extent of
cultivation I consider
a much ^{large} population of
land should be commenced
I suppose this area of
96,000 is gross area
and not selected blocks
of land
Without definite
information it is useless

attending a meeting
on this point and the
information has not
been given. 27/10
9th I have no doubt but
that Mr Vibant has
taken great interest in
the project and has
proposed to check the
great waste of water
that occurs in the Tangabhadra
channels but this has
nothing to do with the
points in question
In conclusion I consider
that Mr Vibant after
being in charge of the
persecution of the project
and being given an office
and a special establishment
to work it out from
Sept 1884 to I believe
Aug 1886 forwarded
the project in a very
incomplete state and
also did not attach to
the notes or suggestions
given to him by Mr C. J. I
Mr Hastel
He did not refer to the
office for further instruction
as he should have done when
he considered them unless
could be with advantage

medicinal

When this and other
(real or ~~supposed~~ apparent)

unpleasantness were pointed
out to him he did
not give a satisfactory
explanation and he
has shown no right
to complain that he
was not referred to
when I stated before
that the present
unsatisfactory state
of the project.

With regard to the
supply available, I
consider that the
cultivation of the 50,000
acres proposed storage
is necessary & advisable
and I believe before
after considering Col
Vibart's letter that it is
in doubt whether
the land commenced
by the C. is sufficient
for the irrigation of 50,000
acres. This point will
have to be carefully considered
when the budget is taken
into account.

M. M.

3/7/88

To Mr

Off. Secy

P. W. C. W. 7188

Recd. 2/7-88

87

Irrigation

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the

Read the following

2235
187

- Letter from the Superintending
Engineers V Circle } H.E. No 1114 d/18th June 1888
Letter from the Superintending
Engineers V Circle } H.E. No 1145 d/4th July 1888
Note by the Chief Engineer for Irrigation d/3rd July 1888

PPH
167-7

In his letter No 1114 dated
18th June, now submitted Colonel
Vibart appeals against the decision
conveyed in G.O. No 239 d/4th
April 1888.

2. Colonel Vibart in August/86
submitted plans and estimates
for the Tungabhadra Channel
Project, which the Chief Engineer
for Irrigation forwarded to
Government with a note contain-
ing some severe strictures on the

3. Colonel Vibart now explains that the so called orders by the Chief Engineer for Irrigation were considered by him as suggestions for his guidance, and at very considerable length gives his reasons for having submitted the project as he did, and explains

4. The Chief Engineer for Irrigation does not accept the explanations and demands to Colonel Vibart's views on many points.

the subject, but they are
willing to accept Colonel
Vibart's explanation that
he did not regard the Memo-
randa^{sent} to him by the Chief
Engineer for Irrigation as
containing orders but suggestions
and did not assume that he

[illegible][illegible]

2235
48

in the project.
6. It appears however, to the
Government, that the remarks
made by the Chief Engineer
for Irrigation regarding the
incompleteness of the project
as submitted, assuming as he
had good reason to do, that
the project was forwarded
as complete, was justified,
and that had Colonel
~~Whit~~ not intended the
~~estimates~~ to be regarded
as a complete project, he
should have submitted
them as approximate ^{estimates} ~~estimates~~ & requiring
which further orders were
required before they could
be laid before Government.

over
9/1/85

See above
9/1/85

L. E. V. Allen
Ch. E. for Irr.

11630
377
9/17/85

GOVT. OF INDIA
PUBLIC WORKS.

12/7
23/7

Date

By

Engl.

G.O. 21 July 1888, No. 22354

Bengabhadra Project
Bellary District.

Read on an appeal from
S. Vibart R.R., a person
employed in G.O.
No. 239 I. dated 16th April 1888.
The work done by him, in
connection with the proposed
canal from the Valavapur
Tank, for the irrigation of a
tract of land in the
Bellary District, and for the
benefit of the lower

26/6