(1) பக்கங்களின் எண்ணிக்கை 98

(2) புதுக்கித் திருப்பிய நாள் ஜூ2-88

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

பொதுப் பணி துறை

அரசாணை எண். 2235 W

~~மு. கோப்புத் தாள் எண்.~~

அச்சகம்

~~பலவகை~~

நாள் : 21-7-1888 ~~198~~.

கண்டபடி கையாளவோ கூடாது

GO

2235
1

21st July 1888, No. 2235 W., Public Works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General Establt
~~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. III/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 ~~his~~ doubtless entitled to respect, but it would appear from

10

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 1884, for 26 days, the level was up to and above $1\frac{1}{2}$ feet;
" 1886 there was never less than $2\frac{1}{4}$ feet;
" 1887 never less than 2 feet.

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~~ 31 days was it below $1\frac{1}{2}$ feet.

In December again it was never below 9";
It was over 1 foot for 99 days out of 124;
for 66 " it was over $1\frac{1}{4}$";
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 $1\frac{1}{2}$ "
In August there was never less than 3 feet;
while for half the month it rose to 4 " and over;
and during one-third of the month, it rose to 6 "
for eight days it was over $7\frac{1}{2}$
and it rose even higher than this to 9, 10, and even $12\frac{1}{2}$ feet.

See [illegible] 1445. 4/7/88 printed [illegible]

---

* 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; 45 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.

2235/2

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 10 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."

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.

---

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

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 Cheetah tank (a little distance above Darogee tank) rather than lower the level of the Darogee-Sidamanhalli channel.*

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 [illegible] 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 30,000 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. Burlton 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 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 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 Vullabapur, Darogee, &c., with reference to the project. All the time I was in Bellary I used my best

2235/4

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 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 endeavoured, 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 *bonâ 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. 239 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-B.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).

---

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

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

(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.,
3rd July 1888. Chief Engineer for Irrigation.

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 Tungabhadra channel project, which the Chief Engineer for Irrigation forwarded to Government with a Note containing some severe strictures 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.

Exd. F. R. Bantleman.
Spare Copies

2235/6

General
Estate

~~IRRIGATION.~~

Govt. of (1888) Madras.

PUBLIC WORKS.

Dated July, 21st.

Recd. Encl.

G.O., 21st July 1888, No. 2235 W.

JULY.

Tungabhadra Project, Bellary District

Orders on an appeal from Colonel Vibart, R.E., against the censure conveyed in G.O. No. 239 I., 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.

2235/7

List of Enclosures to Letter No. 1112 dated 18 June 1888 to the Secretary to Government P. W. Department

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

2. (a) Precis of Correspondence with reference to placing the water distribution of the Toongabudra River Channels under the Control of P. W. D and

(b)

(2) Copy of Report on the Toongabudra Channels by A. H. Garret Esqre Executive Engineer.

3. Copy of Demi Official Note dated 28 November 1857 from Colonel H. M. Vibart R.E. to Colonel G. R. Mead R.E.

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

7164
6405/88
7188

Coll. R.E.
Superintending Engineer
5 Circle

Bangalore
18 June 1858

278

Superintending Engineer's Office
3rd Circle. Bellary—

No. 79.

Camp. Ramandroog dated 10th April 1858

From,
Colonel H. M. Vibart 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 Toongabudra Channel proposed to be formed from Vullabapoor for the Irrigation of Bellary District. The first section runs from Vullabapoor Anicut, passes south of Hospet and Camalapoor to Upparahalli and thence through a heavy Cutting and tunnel into Daroojee Tank. This will command all the level Country between the Channel and the River and in this Section 321 C.ft per second or 42800 Cyds an hour will be available for Irrigation. This will suffice for 20,000 acres.

2. The Channel from Darogie Tank onwards to near ~~[illegible]~~ Giddhamnalli will Carry 298 Cft per second or 64400 Cyds. an hour or sufficient for 30,000 acres. This Channel Commands the whole tract of Country between the Channel and the River about 100 Sq. miles or 64000 acres.

3. The Vallabapoor Channel will Carry sufficient water for 50,000 acres and I should be gla[illegible]now what profits may be [illegible] 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 &c
Sir
Your most obed. Servt
(Signed) A. W. Tibart Col R.E.
Superintending Engr
3rd Circle

Enclosure 1.
No. 1881.

Bellary Collectors Office
Dated 21st June 1886

From
A. St. A. Goodrich Esquire
Collector of Bellary

To
The Superintending Engineer
3rd Circle

Sir,

I have to thank you for your Letter of 10 April (which I only saw on rejoining the District on 2 Instant) and the map which accompanied it.

2. I understand that you desire 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 Valabapur 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

er last No. 1550 printed above G.O. dated 3rd November 1885 No. 2579 W. Public Works.

4 I will not however assume that 30 lacs (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 works will I understand make it p[illegible]e to supply to the large town population of Bellary City and Cantonment 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 Vallabapur may be made without injury to the Kurnool Canal.

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

irrigate 20,000 acres above (or west of Daroji Tank and 30,000 below (or North east of that work)

6. To take the lands above, 12000 of these acres are now irrigated by the River Channels which pass Chitvadigi, Kamalapur, Bukkasagaram, Ramasagaram and Humpi. 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 subsoil. 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 Kamalapur and 6000 north east of Vupparahalli.

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 Ayacut and set down Rs 4 per acre for 8000 acres here.

8. We have now to deal with the lands South east of Waroope Tank. The Cultivation under that work is now 1640 acres paying Rs 4 per acre and the soil is I believe mostly regada (black aluminous) to the East, Sand [illegible] loam 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 Waroope is very good, indeed almost unfailing (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

ranges of Sondur) (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 Kanakal waters a tract of black aluminous soil and the farmers have sufficient stock and labor but they do not keep in cultivation quite 2/3rds of the ayacut, (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 lime stone underlies at no great depth the Easternmost portion of the tract to be irrigated by the Reservoir as enlarged, and if so, I apprehend much danger of such land becoming sour when irrigated.

10. On the other hand the fact that the work is stated by you to command 64000 acres will make it possible to select the 30,000 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 Irrigation. We may also anticipate large indirect benefit 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 unfailing supply to 50,000 acres situated as described.

12. (a) 8000 acres at Rs 4 (see para 4. supra) = 32000 Rs

(b) 1640 acres now watered by the Daroji Tank at 1¼ Rs per acre to be added to their assessment in Consideration of improved irrigation = 2050 Rs

(c). 28,360 acres at an average of 4 Rs per acre added to their rate as unirrigated lands = 113440 Rs

In all 1,47,490 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 8000 acres above Daroji and 30000 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 10000 to 150000 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 aspect of the question. It is not 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

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

I have the honor to be
Sir,
Your most obed^t servant
(Signed) A. Goodrich
Collector

Executive Engineer's Office
No. 52.
"C" Project Division
D/ 30th June 1886

From
The Executive Engineer
"C" Project Division
Bellary

To,
The Superintending Engineer
III^d Circle
Bellary

Sir,

In reference to your No. 576 dated 24th June 1886 forwarding a copy of Letter No. 1881 dated 21st 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 Daroji to Siddhammalli (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 4½ 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 Daroji being of very similar soil ought to be found suitable for wet Cultivation.

Still reference to para 12 which mentions that 1640 acres are irrigated by Daroji Tank, 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 Darojee, most suitable for irrigation. But this will be explained in my report and need not be entered into here.

As regards para 11 I would point out, that the 1640 acres now watered by the Darojee Tank are in addition to what we expect to bring under cultivation by the new Channel which will be sufficient to irrigate 30,000 acres irrespective of what the tank now cultivates. 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 113,440 derivable from 28,360 acres.

As regards para 12 I will fully report on the Bellary water supply scheme when or immediately after submitting the Estimates which, I have promised to have ready by 15 July— 2 35/14

I have the honor to be
Sir
Your most obedt. servant
(Signed) C. H. B. Burlton
Executive Engineer
C. Project Division

Bellary Collector's Office

No. 2611.

Dated 1st August 1886

From,

H. St. A. Goodrich Esquire
Collector of Bellary

To,

Superintending Engineer
III Circle

Sir,

In continuation of my Letter No. 1881/21.6.86 I wish to record my opinion that the Government when considering the question then discussed, ought to have before them the opinion of settlements department as to the profits to be expected from the proposed improvement of the Talabapur Anicut and the Construction of a level Channel to Daroji

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 aligned.

3. When riding over that part of the Country last week. I thought I saw reason to believe that beyond Nellapoor (see Atlas sheet No 68) midway between Kamlapoor x and Daroji x where your Channel turns to the South east and a North Easterly Branch will Command a great area of land suitable for irrigation on the plain across which the name Hampi Davenhully is printed, it seemed to me probable that the Construction of a second reservoir at or near Kamnapoor x would be found desirable. As the Project has been so long and minutely examined no doubt you have all the levels. In a good monsoon the natural Catchment basin of Daroji will fill that fine tank and if beyond Nellapoor the River Channel bifurcates (the North east branch going ~~nea~~ via Bopparhally) no water need be wanted even when a heavy fall in the Sondur Hills may have filled the Daroji Reservoir at the same time that a fresh Comes down the Tungabadra.

x These names are all misspelled as in the map.

I do not wish to be understood to have Conceived 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 Daroji at the summit level and it seems to me that a suitable site for a reservoir exists.

I have &c.
(Signed) H. Goodrich
Collector

True Copy
Col. R.E.
Superintending Engineer

18 June 1855.

No. 1038.

Superintending Engineer's Office
3rd Circle – Bellary
Dated 21st August 1886.

In. 5
6103/88
7188

From,
The Superintending Engineer
3rd Circle Bellary —

To,
The Collector
Bellary —

Sir,

With reference to your Letter No. 2611 of 17th August 1886, I have the honor to inform you that in the Project now about to be submitted a large sluice capable of discharging water for 10 or 15000 acres has been allowed near the 30th mile – the channel to Daroji Tank being 35 miles in length. This is intended to irrigate lands between Devalapore nulla to Kumply and the River Toongabudra.

I have &c.
(Signed) G. M. Vibart Col. R.E.
Superintending Engineer
3rd Circle —

True Copy

Col. R.E.
Superintending Engineer
5 Circle

18 June 1888

2235/18

Précis of Correspondence with reference to placing the water distribution of the Toongabudra River Channels under the Control of P. W. D. —

(1) Major Clarke then Officiating Superintending Engineer in November 1883 inspected the Channels and in his Inspection Notes remarked about the leaky condition of sluices and encroachments &c.

(2) The same Officer addressed the Collector No. 2550 dated 10 December 1883.

(3) Colonel Vibart addressed the Chief Engineer for Irrigation recommending the transfer of the Channel management to this Department vide Letter No. 739 dated 10 July 1884. In this Letter the description of the Toongabudra Channels in Prospect and their present condition with particulars of Revenue is given.

(6)

(4) The Chief Engineer for Irrigation
in his Inspection Notes recorded with
G.O. No 905 I of 8 October 1884 while remark-
-ing on the condition of the Channels stated
in para 5 of his notes noted that "the Super-
"intending Engineer in sending up proposition
"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
"build new anients or to alter alignment of
"Channels but to ensure systematic repairs
"and conservancy and better regulation, and
"any scheme which will ensure this, will no
"doubt meet with the approval of all officers
"interested in the improvement of the district"

(5) With reference to this G.O. the
Executive Engineer in No 1764 dated 28th
November 1884 was called upon to submit
a scheme for future conservancy of the
Channels

(5 a)

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

(6) Colonel Vibart R.E. 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
regard 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 Nirgunties are placed
under the orders of the P.W.D. Letter No 1787 dated
14th June 1886.

(8) In 1886 when Mr Garrett's transfer
to Bellary was ordered Colonel Vibart wrote
(No 1012 D/19 August 1886) wishing him to
make

make 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 improvement.

(9) In reply to this Mr. Garret sent his report with report No. 172 dated 20 April 1887.

In #5
~~610.~~/58
7/88

(10) Colonel Vibart wanted a copy of this report to be sent to the Chief Engineer for Irrigation and the Collector in continuation of previous Correspondence, but that Officer was relieved of charge on the 9 May and Mr. Peters wished to satisfy himself by personal inspection of the channels &c. before he would move in the matter. He had the 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 their transfer to the P. W. D. is still going on with the Collector.

Vibart
Col R.E.

2235/18

Report on the Toongabudra Channels

	M.	F.
Hospet Taluq		
1. Basavannah Channel	15	"
2. Raya Channel	20	"
3. Bella Channel	7	"
4. Toorta Channel	11	"
5. Ramasagar Channel	9	7
6 Kumply Channel	8	1
7. Bellagodal &c.	6	7
Bellary Taluq		
1 Siruguppa Channel	7	3
2. Desanoor Channel	7	"
Adoni Taluq		
1 Rampoor Channel	1	3

The 10 Channels whose names are given in the margin are old native works and depend for their supply on 9 Anicuts built across the Toongabudra River. Most of these channels are provided with head sluices of an antiquated type, but 5 of these 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 channel during the last 12 years is 13052 acres the average revenue being 122991.

If more water were available, it is stated that 1237 acres of dry land would 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. To look after the distribution of water the Revenue Department employs 128 nirgunties a list of them 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 Nirgunties 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 Nirgunties 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 Nirgunties brings no adequate return and this must be the opinion of every one who has seen the state of the Channels are in.

Present state of Channels

The Channels are old native works and have the faults common to such. They show however traces of great neglect. Silt clearances have not been properly sectioned, banks are over grown with trees and bushes, which make an inspection on horseback out of the question, and the masonry works generally are in a very bad state of repairs

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

Proposed Changes.

The dual control should be abolished and the channels placed under the charge of the P. W. D. Und the present system owing to the divided responsibilities neither department takes a proper interest in the channels, and the arrangement for their maintenance have been proved to be useless.

The present Channel Superintendents should be retained and instead of 128 Nirgunties drawing very small pay and doing no work for it. 50 Channel Lascars on Rs 5 – – each

per

27D/V

per mensem should be appointed. This would allow 1 man for every two miles of Channels and the total cost would be less than at present.

(Signed) A. A. Garrett
Executive Engineer

20 April 1887 –

– True copy –

Col. R.E.
Superintending Engineer
– 5 Circle –

Bangalore
18 June 1888

En ~~3~~ 4
~~6103~~ / 18
7118

2235/22

— Demi Official Note —

— 28 November 1857

My dear Mead,

I return you the papers of the Bellary Toongabudra Project. It was considered that during the time from July to January we should be able to keep the Darojee Tank full and it was not intended to use Darojee Tank for storing water for the 33000 acres to be watered from the Darojee - Siddhammalli channel. It was proposed to take off from the river 819 Cft a second (July to December) and this was intended to be used direct. 321 Cft a second would be utilized before the Darojee Tank is reached and 498 Cft would enter the tank and this would be required for the 33000 acres. There would be none to be stored except what was received from the Catchment basin of the Tank some 250 or 300 Sq 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 with which it is proposed to irrigate the 33,000 acres.

The Darojee-Siddhammalli 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 2d Crop is under the present sluices of Darojee Tank and very limited in extent.

A large extent of land is Commanded by the Darojee-Siddhammalli channel perhaps as much as 96000 acres, but provision is made for irrigating nearly 50000 of this - for in addition

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 31st mile of channel this land being in the neighbourhood of Thimply. I myself think that the Capacity of Darojee Tank might with safety be largely increased by raising the crest of weir 3 or 4 feet.

Nelson Calculated difference between F. T. L and M. W. L. to be 5 3/4 feet and the ~~length~~ height of bank was to 6 1/4 above this - bank to be 12 feet above weir crest. Generally the bank is ~~more~~ now higher than this and is very broad in most parts. I believe the M. W. 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 Nelson extend the water spread from 81 millions to 135 millions of sq ft.

There is a tank a short distance above the Darojee 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 L. Vibart

5112³
~~5113~~ / 81
7188

True Copy

H. Vibart Coll RE
Superintending Engineer —
5 Circle —

Bangalore
18 June 1888

2235/24

Estimate of returns based on estimate of Collector of Bellary —

Under Vullabapoor Channel.

20000 acres at 4 Rupees.	80000
1640 acres now watered by Darojee Tank at 1¼ Rs per acre to be added to their assessment in Consideration of improved irrigation	2050

Under Darojee Sidhammalli 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.

H. Vibart Coll RE
Superintending Engineer
5 Circle —

18 June 1888

Ent. 2
~~6103~~/88
7188

Complete file & send for S.E.'s remarks

J.C.
21/6/88

Rect. & letters

7735/96

Order

No 1114 of 18 June

In his letter ^now^ submitted Col. Vibart appeals against the censure conveyed in G.O. No. 239 I 14th April 188.

2. Col. Vibart in Augt. 186 submitted plans & estimates for the Tungabhadra Channel Project, which the C.E. for I forwarded to Govt. with a note containing some severe strictures on the way in which the estes. were prepared. The Govt., accepting the views of their professional adviser expressed their regret that the project had been sent up in an unsatisfactory state, and remarked that Col Vibart appeared to have paid but little attention to the orders of the C.E. for I & had submitted the estimates in a very incomplete state and with little or no examn.

3. Col Vibart now explains that the so called orders by the C.E. for I 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 & attention he devoted to the subject.

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

2236/27

4 The C.E. for I. does not accept these explanations & demurs to Col. Vibart's views on many points.

5. The Govt. accept the views of the C.E. for 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. Vibart's explanation that he did not regard the Memo. sent to him by the C.E. for I. as containing orders, but suggestions, and his assurance that he took the greatest interest in the project.

6. It appears however, to the Govt., that the remarks made by the C.E. for I. regarding the incompleteness of the project as submitted, adding as he had good reason to do, that the project was forwarded as complete, were justified, and that had Col. Vibart not intended the estimates to be regarded as a complete project, he should have submitted them as approximate on which further orders were required before they could be laid before Govt.

7/7/88

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

SUPERINTENDING ENGINEER'S OFFICE,
V Circle, Madras,

No. 1114. Bangalore ~~Chepak~~, 18 June 1888.

SECRETARY TO GOVERNMENT
21 JUN
P.W. DEPARTMENT MADRAS.

From
Colonel H. M. Vibart. R.E.
SUPERINTENDING ENGINEER, V CIRCLE,

To
THE Secretary to Government
Public Works Department.
Ootacamund

SIR,

Enclosures.

With reference to G.O. No 239 I of 14 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 unmerited, that the remarks of the Chief Engineer for Irrigation in his memo on which the G.O is founded, are unjustifiable and that the statement 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 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 statistics we now have fully bear me out in my opinion. When Colonel Hasted wrote his memo No 114/7 B.L. Mr Norfor 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 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 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 freshes so as 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 irrigate 50000 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 [illegible]0000 acres.

5 It is quite true that Colonel Mullins considered it very doubtful whether the Toongaboodra 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 Vallabapoor. Early in 1884 I endeavoured in vain to get any recorded register of River discharge at Vallabapoor. 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 2 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

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 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, (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 so I will pass on to the other months.

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

In 1884 for 26 days the level was up to & above 1½ ft

in 1886 there was never less than 2¼ ft

in 1887 never less than 2 ft

In 1885 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 ½ ft and the cultivation even in that year could have been commenced about the middle of July as the tank would be full, for it 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 1½. 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 1½ 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 1¼ "

and for 34 " over 1½

I will show later on that when 6" is flowing over the anicut there is amply sufficient for the supply of 50000 acres. 11

To support my assertion that in 1884 12

there

× 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. During the 4 years from July 1884 to March 1888 it was never so low as it was in the hot weather. We have records for 45 months & during all that time the water level was only below crest of anicut on 61 days. 45 of these during the hot weather & 16 in July 1885 – hence it is extremely unlikely such a low level will be reached again in July for many a long year.

---

there was a fine supply in the river I must again refer to the registers. V 6/3

In July I find that for 11 days there was 3½' or over

" 20 " 2½' "

and that for only 4 days was it less than 1½'

In August there was never less than 3 ft

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

and during ⅓ of the month it rose to 6 ft;

for eight days it was over 7½

and ~~that~~ it rose even higher than this to 9ft 10, and even 12½ ft

In September there was never less than 2½'

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 9½'

In October there was never less than 2 ft

for 10 days it was over 3½'

and for a week it was 4½, 5½ & 6½ ft

In November it was only less than 1' on 4 days

and for 10 days it was over 1½'

In December it was never less than 9"

and for 10 days over 1 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 the water* in the river may be decidedly
taken as a "fine supply"

* It would have
sufficed to irrigate
the whole district
of Bellary
Mead

As 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
finished perusal of this letter they will
be far more disposed to agree with me
than with Colonel Mead.

He complains that I forwarded no 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 &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 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 en-
closed 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 strictures.

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 Korajul anicut (1000 ft), by an island. The latter belongs to the Nizam's Government and has during the last few years been raised 1.8 ft above 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 our 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 1400 of this is supplied by the Buswanna Channel which takes off above the Vallabapoor Anicut so below the Anicut water is only required for 13000 acres.

It has always been considered that 19

2 C yds

2 C yds 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 yds per hour per acre.

21 Colonel Mead states, that the discharge over the anicut is –

cft a second
Coeff 5/8 (Weir) 1/2 Thus with 1/2 ft on crest probably about 500
2/3 1 ft — do — do — 2000
2/3 1 1/2 — do — do — 4000

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

22 Merely taking the discharge over a weir

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

with ½ ft 1280 Cft a second
" " 1 " 3620 "
" " 1½ 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

½ ft on anicut the Buswanna Channel will discharge about } Cft 500
1 ft —— do —— do —— 660
1½ —— do —— do —— 760

This will make the total discharge available amount to 1780
4280
and 7410 } respectively

without including the Channel on the Nizam's side which probably takes off ~~quite~~ two thirds as much as the Buswanna.

I do not know accurately the amount of irrigation under the Nizam's 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 ⅓rd 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 the balance of 150 Cubic feet a second will return again into the river below ×the Anicut× so that actually the amount available for our river cultivation and the proposed new area will be at.

½ ft on crest – 1780 + ~~2~~150 = ~~2000~~ 1930
1 ft —— " —— 4280 + ~~2~~250 = 4~~[illegible]~~530
1½ —— " —— 7410 + ~~3~~350 = 7~~[illegible]~~760

Now taking 700 as that required for the present river cultivation on our side ⊗ (I consider 350 should suffice) we have ~~[illegible]~~ 1230 Hwd. Cubic feet a second to indent upon for our supply which is fully 500 cubic feet more than we require and this when there is merely 6" on the Vullabapoor anicut

× I may also remark that there are two Under Sluices in the Korapul Anicut & that a great deal of leakage passes through these sluices: Even in the driest weather there is a good deal of leakage. This water would also be available for the lower irrigation. Hwd

18/6/88

⊗ Only 13675 acres would require water below Vullm. Anicut as the Buswanna Irrn. will be provided for by the Vullm. Channel. Hence at Col. Meads rate only 616 cft per sec will be reqd below the Anicut while nearly 1000 cusec passes over Anicut & would be available besides surplus water from Korapul Channel & Anicut Hwd.

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 no 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 distribu-
-taries (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 this
extra water can be passed down the
channels

2370/... GP

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
18th, 21st, and 26th Miles 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 so more water
then it seems to me that it would be better
to raise the weir of Darojee Tank some
3 or 4 ft and restore the Cheetah Tank
(a little distance above Darojee Tank) ~
rather than lower the level of the Darojee
Sidamanhalli channel. *

* It might also be feasible as sugges-ted by the Collector to construct a small reservoir near Cunnapore

27 The land commanded by this Channel now
probably amounts to 96000 acres;
about 1/3rd of this will be commanded
by the Channel near Dewalapur so that
64000 will be available from which the
Ryots can select land to be watered
by Darojee-Sidamanhalli channel.
A considerable amount of this land ~

will be required for Villages, dry cultivation
grazing lands, Channels roads &c and
ome 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 28
bjection, I beg to insert an extract of
letter from the Collector of Bellary
earing on this point "In black soil the"
eople best acquainted with its properties"
hose who live on and by it do not culti-"
ate the whole area which seems avail-"
able. The fine reservoir at Kanekal"
aters a tract of black aluminous soil"
nd the farmers have sufficient stock"
nd labor but they do not keep in ~"
ultivation quite 2/3rds of the ayacut"
1400 out of 2100), this was observed just"
o much before the famine as in these"
atter years"—"On the other hand the"
act that the work is stated by you to"
mmand 64000 acres will make it ~"
ossible to select the 30000 acres most"
uitable for irrigation in the tracts"
and

"and justifies our assuming that the whole"
"area for which we could supply water even-"
"-tually 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 com-"
"-mand a much greater area of arable land"
"than the water it carries can irrigate con-"
"-stantly 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 Burlton 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 140000/

The total cost including percentages would be diminished by nearly Rs 150000/ and thus the expense of supplying 36 gallons a head to 50000 people would be about 587,000 in place of 737,000 Rs.

36 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 Darojee 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.

I have always taken the greatest interest 31 in the project, and was I think the first to suggest a modified scheme on a comparatively

223/38 115

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 Toongabudra and I accompanied him to Vullabapoor Darojee &c with reference to the project. All the time I was in Bellary I used my best endeavours to improve the Toongabudra 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

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

to the interests of the Ryots and Government alike.

32 I endeavoured 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 as

may

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 bonâ-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 Obed^t. Servant
Col. R.E.
Superintending Engineer
V Circle

P.W.C. No [illegible]

From

THE SUPERINTENDING ENGINEER,

V Circle,

To

THE Secretary to Govt
P. W. Deptt

Dated }
Recd. 27th } June 1888.

ENCLOSURES.

No. 1114

Tungabhadra Project
Bellary District

Forwards certain remarks in connection with "the" proposed channel from the Vullabapoor anicut for the irrigation of a large tract of land in the Bellary District and for the supply of the town

183

P.W. Department
Ootacamund. 22nd June 1888.
No 3542.

R.M.

Referred to the Chief Engineer for Irrigation for remarks.

[illegible] Colonel R.E.
Secy to Govt P.W. Department

279 I 14.4.85
10 I 6.1.86 }
956 I 13.11.85
924 I 4.4.84

2235
A0

...NDING ENGINEER'S OFFICE,

No. 14

V CIRCLE, MADRAS,
~~Chepauk,~~ Bangalore 4th July 1888.

14 P

From

Colonel H. M. Vibart R. E.
SUPERINTENDING ENGINEER,
V CIRCLE,

To

THE Secretary to Government
I. P. W.

Enclosures-

SIR,

I beg to point out that in the latter part of para 10 of my letter of 18th June 1888 regarding the Toongabudra 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 1½ ft."

I have the honor to be
Sir
Your most obedt Servant
H. M. Vibart Col. R.E.
Supg. Engineer V Circle

PWC No 7187

SUPERINTENDING ENGINEER,
V CIRCLE,

To

THE Secretary to Govt
P.W.D.

SECRETARY TO GOVERNMENT
7 JUL 88
P.W. DEPARTMENT, MADRAS.

Dated 4
Recd. 21 July 1888.

ENCLOSURES.

No. 1445

Toongabudra Project

—

Pointing out an error crept into the letter of 18th June/88 regarding

P.S. 37

3d July 88

2285/91

Note No 70 Sd

15P

Reference W's endorsement No 354 d 22/6/88

1 In his letter No 1114 dated 18th June Col Vibart complains that he has not been fairly treated by me in my Note No 62 I forwarding to Govt the estimate for the Toongabhudra project in Bellary district (see G O No 239 I dated 14th April 88)

The following are the principal points brought forward by Col Vibart

1st That Col Hasted's memo No III/7 BL of 24 April 85 was not orders but only suggestions therefore he was perfectly justified in carrying out his own views (see paras 2, 3, & 4)

2nd That he did not expect the estimates &c would be forwarded to Govt without ~~[illegible]~~ some discussion between the Ch. E 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

4th That he was in cor-respondence with the Revenue authorities with regard to the returns but that when he forwarded the estimates this was not completed)
(paras 23 & 24

5th That there is no means provision for the branch channels para 25

6th That the water supply in the River is ample without any storage
paras 5 to 14 & 17 to 22

7th That the cost of taking an extra foot in depth down the channel for storage would be very great
para 26

8 That the level at which the Sidamanhalli ch is proposed to be taken off namely present level of Doraga tank FSL ought on no account to be lowered (and that if storage is required Doraga tank FSL shd be raised) because if the channel is taken off 7 ft lower sufficient land will not be commanded para 27

9 That he Col Vibart has always taken the

He goes somewhat further but he certainly might have ascertained the matter more fully, as Col. Hasted said it was the primary one to be considered & open to considerable doubt

greatest interest in the project and that he proposed ~~that~~ to take measures to check the great waste of water in the Tungabhadra Chls Dn
paras 31

With regard to No 1 I can only refer to the memo in question and I consider Col Vibart was not justified in forwarding the project as he did in 86 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 memo is 24th April 85 there was ample time for Col Vibart if he did not agree with Col Hasted to have given his opinion regarding the question of storage and to have asked for orders

No 2 X As so long a time had elapsed since the plans & estimates have been put in hand I considered it right to place before Govt the information regarding the project that had been collected
As Col Vibart had left

2235/43

the circle and as owing to reductions in establishment it was impossible to expect that everything towards making the project complete could be done. it was while thereby referring officially to him regarding his proposals, which he had forwarded and given his opinion that the work sh'd be carried out without delay see para 52 of his letter No 1045 of 20 May 86 forwarding the project

3 When I found that Col Hasted's orders or suggestions had had no attention paid to them I sent for Col 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 FSL of Doragu tank sh'd be raised

This is against Col Hasted's ideas and I for one can see no reason for it.

4th When I looked through the project I had of course only the papers &c that Col Vibart sent with it, the bulk of them 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 what the point was Mr he might have referred to this correspondence

5th There certainly is money provision for distribution ch'ls A H'd Shams but in the project there are

no levels or surveys to
shew 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 & from the
Daroga Tank

6th

With regard to water
supply this is a question
about which there must
be different opinions
Col Vibart ought I
consider in forwarding the
project to have gone fully
into the question and not
as in his letter forwarding
the project contented
himself in 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 Col Hasted's
orders or suggestions
to furnish storage

I consider that Col 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 4 years records to go
on and this but a short
period on which to base
a project
Col 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 1/2 a foot & 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 5/8
and for 1/2 foot overflow
took about 1/2 the theoretical
quantity for a clear fall
for 1 foot & 1 1/2 ft I
took about 2/3, these are I
consider low but safe

quantities to work on

With regard to supply required for the cultivation 2 Cyds per hour has been usually with good regulation is I believe ample even in Bellary district but with bad or rather no regulation 3 Cyds is not an extravagant allowance.

Again judging from the records (see Mr Garrett's report forwarded by Col Vibart) I do not consider the 700 c. ft per 1" allowed by me as too much, Col 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 ~~it~~ we are likely to be able to do this, at any rate we have to accept the fact of waste.

Opinions do not much differ as regards the supply available in Rivers but judging from the serious over estimate of supply available that has been made in many places I prefer my figures to those of Col Vibart's as they have been taken on the safe side; Col Vibart's are in my opinion much too high. He had when forwarding the project only 2 years Returns. we now have 4 years only.

7th Col Vibart in his remarks suggests that he has allowed MSL to be 1½ ft above FSL therefore there will be no necessity to raise the banks or extensive walling &c in order to pass down an extra foot of water

8th With regard to this point I regret that there is no information whatever given in the previous surveys &c ~~that~~ that have been forwarded and I cannot therefore accept Col Vibart's assertion that taking the channel from Daroji Tank on a line 7 ft lower than proposed would reduce the area the land commanded dangerously

In the plans so forwarded the only information given is the length of the land through which it is proposed to take the channels and there is nothing to show the area of land commanded

In Col Vibart's letter now forwarded he states that 96,000 acres probably are commanded by the channels out of this he proposes to irrigate 50,000. This to me in a country like Bellary (not taking into consideration the tanks 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 sh'd 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. 2235/96

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

In conclusion I consider that Col 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 Sept 1884 to [illegible] Aug 1886 forwarded the project in a very incomplete state and also did not attend to the orders or suggestions given to him by the Ch. Eng I Col Hasted

Nor did he refer to that officer for further instructions as he sh'd have done when he considered these orders could be with advantage

modified
When this and other
(real or ~~suppt~~ 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
Govt 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 & advisable
and I further believe
after considering Col
Vibart's letter that it
is doubtful whether
the land commanded
by the Chl is sufficient
for the irrigation of 50,000
acres. This point will
have to be carefully considered
when the project is taken
up again
3/7/88

To W
of 13417

P.W. Cw. 7188

Sk 7

Recd. 21.7.88

PPH
16 Jul

Irrigation

PUBLIC WORKS DEPARTMENT.

211

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

2235/187

(1) Letter from the Superintending Engineer V Circle } H.E. No. 1114 d/18th June 1888

(3) Letter from the Superintending Engineer V Circle } H.E. No. 1445 d/4th July 1888

(4) Note by the Chief Engineer for Irrigation d/3rd July 1888

In his letter No. 1114 dated 18th June now submitted Colonel Vibart appeals against the censure conveyed in G.O. No. 239 I d/14th 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 containing some severe strictures 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

explains the deep interest he took in the project, and the care and attention he devoted to the subject.

2255/48

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. ~~but they are~~ willing to accept Colonel Vibart's explanation that he did not regard the Memorandum sent to him by the Chief Engineer for Irrigation, as ~~containing orders, but suggestions and his assurance that he took the greatest interest~~ in [illegible]

Col. Vibart's view that the Chief Engineer's Mem.^m of April 85 s^d be regarded as containing ~~advice~~ suggestions rather than orders may perhaps be admitted, but even when it is taken in that light, ~~[illegible]~~ the point w^h it put forward as of primary importance, viz. the sufficiency of the supply in the river, ~~[illegible]~~ ~~deserved~~ much fuller treatment than it received in ~~the point~~ two short sentences of his 50th paragraph. The elaborate calculations now submitted might be of some value when the project is revised, but they ought to have been furnished before. ~~The Govt. cannot~~ While they accept Col. Vibart's assurance that he took the greatest interest in the project, the Government cannot entirely relieve him ~~Col. Vibart~~ from the imputation of having sent it up ~~the project~~ in an incomplete form & without sufficient detail ~~[illegible]~~

If [illegible] did not intend his Report

~~on 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, were justified, and that had Colonel ~~Vibart not intended the estimates~~ to be regarded as a complete project, he should have submitted ~~them~~ estimates as approximate ~~or~~ merely & requiring ~~which~~ further orders ~~were required~~ before they could be laid before Government.

[illegible] 9/7/88

[illegible] 14/7/88

S. E. V circle

Ch. E. Or [illegible]

[illegible] 11668

377 [illegible] 917 of 17.vii.88

2235/43

Govt. of (1888) Madras.

PUBLIC WORKS.

Copy 23/7

Dated

Recd Encl.

G.O. 21 July 1888, No. 2235 W.

ungabhadra Project
Bellary District.

ders on an appeal from
Vibart R.E., against
censure conveyed in G.O.
2399 dated 14th April 88,
r work done by him, in
connection with the proposed
annel from the Valavapur
ut, for the irrigation of a
tract of land in the
ary district, and further
ply of the town.