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No 146 Read the following letter from the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Dowlaishweram, 30th October 1869, No. 2,845 —

One letter, No 2,761, dated 27th October 1869, to Superintending Engineer, Upper Godavery Circle
One statement showing extent of dalwa crop cultivation, assessment, and water-tax from Fusly 1269 to Fusly 1278 in the Godavery District

ADVERTING to G. O. of the 8th November 1867, No 3,468, I have the honour to submit the accompanying statement, received from the Collector of the district, exhibiting the extent of the dalwa crop for ten years, together with the assessment and water-tax derived therefrom. At the same time I beg to submit a general report on the water-supply of the Godavery in the hot months.

2. This statement shows that this cultivation, which in Fusly 1273 embraced an area of 25,294 acres, has decreased year by year till in Fusly 1278 it was only 729 acres, and an examination of the water-registers does not show that this falling off is entirely due to the short supply of water in the river, in fact, taking a series of years, there is seldom less than six feet on the sluice floors before the middle or end of March, and, with this quantity passing through them, I calculate the discharge would not be less than 500,000 cubic yards per hour for the whole Delta. This quantity of water would, of course, be ample for the largest area given in this statement; and, as the crop must be off ground by April, as the preparations for the heavy monsoon rice-crop have to be made in May and June, there is apparently an abundant supply of water in the river for this cultivation, and its falling off must be attributable to other causes.

3 Amongst these may be mentioned the length of time it takes to mature the monsoon-crop in this district—six months—and, as this crop is only reaped in December, there is very little time for the people to prepare the land for a second crop and get this off when the time for again sowing the great rice-crop comes round about May. I believe myself the people do not find it pays to take so much out of their land Another circumstance is the imperfect state of the communications in the district, particularly with the adjacent territories, there being thus very little or no demand for more produce, owing to this cause entirely, it is not worthwhile raising it Land will be cultivated, or not, just in proportion to the demand for the produce, and it is a principle admitted by the highest authorities that land which it would not otherwise pay to cultivate will be taken up for cultivation as facilities of transport are afforded and cost of same reduced; in fact, it very often occurs that it is more profitable to cultivate poor land which has the means of cheap transport than the richest land without them Again, the population of the district is still very sparse, not 200 to the square mile, whereas in Tanjore it is nearly 500, and hence the price of labour is very high, and as the cotton crop has to be picked, packed, and transported to market for shipment to England about the time the dalwa cultivation should be going on, I have an idea the farmer cannot afford to pay the rates of hire for labour for the dalwa crop which would be offered for the cotton crop, and the falling off of the former cultivation dates from the period when the demand for the latter became more and more established

4 I think, therefore, I am justified in coming to the conclusion that the falling off of the dalwa cultivation can be fully accounted for without attributing it solely

to the short supply of water in the river This circumstance is no doubt much to be lamented, but then it does not generally occur till after it is required for that crop and the considerations of the circumstances in which it appears to me to affect the district are contained in the accompanying copy of a letter I lately addressed in reply to the Superintending Engineer, Upper Godavery Works.

5 As far as I can ascertain, stored water would increase the cultivation of garden produce and sugar-cane in preference to the dalwa crop; but then, I have no doubt we shall not get this water used until we give the people every facility of transport for their produce When the Godavery navigation is complete to Sirivancha, the district will possess one highway connecting it with the interior, and some home markets, and if a line of railway were made from Ellore to Hyderabad and connected with the Bombay line, the Godavery would be placed on more equal terms with Tanjore, and there is no reason to doubt its land revenue would then soon be as large. I am not aware of any serious obstacles existing on the route I have ventured to suggest for a railway, ascending the valley of the Toomlair by an easy gradient, of perhaps 1 in 250 or 300, the line would attain the level of the water-shed of the Godavery and the Kistna rivers, and should, therefore, run into the city of Hyderabad without meeting a single river of any importance to cross.

6 It may be considered I have somewhat gone out of my way in reporting on the dalwa cultivation of the country, but as this is intimately connected with the subject of storing water, and as Colonel Haig appears to consider all the water he stores up must be of use to us, I wished to show, as well as I could, the circumstances under which it was likely to be profitable or useful to the district, and the first of them is undoubtedly facilities of transport. As regards reservoirs and their sites, I am of opinion the Central Provinces cannot afford us much in the way of help in the first place, the distance the water would have to travel before it reached the anicut, subject, of course, to loss by evaporation, consumption, and percolation, and, in the next place, the reservoirs there would receive their last supply in September, and, as we do not want the water till April and they do require it for use in December and January, I am afraid it will be difficult to show how the interests of this district will be promoted by them Without reservoirs in the Central Provinces no irrigation is practicable there; and then, when these are established, any water which escapes consumption one way or another no doubt we shall get the benefit of, but I would not recommend this as a reliable source for such important interests as we have to consider here, and I would greatly prefer trying to provide for these by reservoirs on the Severy or thereabouts

7 There is one other circumstance I may mention which has probably tended more than others to reduce the cultivation, not only of the dalwa crop but also the cultivation of garden produce and sugar-cane. I find all the irrigating sluice floors have been fixed with reference to a certain head being maintained in the supply channel, this head being that prevailing in the monsoon seasons: of course, then, as the size of the orifices has been determined by this head, as this diminishes in the dry weather the sluices discharge less and less water, and I know of instances where two feet or more of water might be in the main supply channel when not a foot or six inches would be on the sluice floors This I propose to do away with and have the sluice floors placed on a level with the channel beds, so that the last drop of water shall be available for any cultivation, and the orifices of discharge can be increased or diminished by the shutters with which the sluices are supplied

8 I understand the above arrangement was deliberately made to discourage the dalwa cultivation, but it must also interfere greatly with the sugar-cane cultivation and garden crops, and ought, therefore, to be abolished as soon as possible

9 I find no registers of the water-supply coming down the Godavery in the hot months have ever been maintained. The anicut registers are of no use for ascertaining this, as the leakage under the anicut is very great, as also by the under-sluices. I propose, therefore, to establish a register next year somewhere up the river, just above the influence of the anicut back-water, and ascertain the discharge, as well as I can, by a transverse section of the river and its observed velocity or calculated velocity if we can obtain a good longitudinal section of its bed.

From the Acting Superintending Engineer, 1st Division, to the Superintending Engineer, Upper Godavery Circle, Dumagudem, dated Dowlaishweram, 27th October 1869, No. 2,761

I HAVE the honour to acknowledge receipt of your letter, No 291-1,536, dated the 15th October 1869, and, in reply to the particular question therein mentioned, I beg to say eighty million cubic yards of water, if it could be delivered at the anicut during the three months of April, May, and June, would have very little, if any, effect in keeping open the navigation of our canals

2 I calculate, to maintain a proper supply of water in the canals for navigation, we should not have less than six feet on the head-sluice floors, and our registers show for a number of years that about this quantity can be maintained up to the middle of March and sometimes to the end of that month, the deficiency then not being sufficient to require particular attention

3 Now, with six feet on all the sluices, I do not suppose the discharge by these is less than 500,000 cubic yards per hour, but with four feet on the floors, as the supply usually is in April and May and very often less to the 20th of June, the discharge would be only 250,000 cubic yards per hour or under, and hence I conclude we require at least 250,000 cubic yards per hour for three months to make up our deficiency for complete navigation By omitting the Central Delta, 160,000 cubic yards per hour might suffice for maintaining this in the other deltas, but then the sugar-cane and garden cultivation in the Central Delta and Naggaram is so very valuable, in any question of storing water it would be a great loss to omit this supply

4 In either case, however, it is quite clear eighty million cubic yards of water delivered in three months, which would be at the rate of less than 40,000 cubic yards per hour, could have very little, if any, appreciable effect on our works Nor is it quite clear how this water, stored at so great a distance, can be delivered in its integrity at the anicut, making only a moderate allowance for evaporations and percolation I should be inclined to consider you would not give us much, if any at all, over 20,000 cubic yards per hour from such a store

5. Turning then, to the general question of the value of stored, for the use of the Delta, I am decidedly of opinion its importance cannot be too highly estimated—

1*st*—For navigation purposes

2*nd*—For sugar-cane and garden cultivation

3*rd*—For the earlier preparation of seed-beds for the great rice-crop of the delta

6 Our canals are now navigable on the main lines up to the end of March, when the natural supply in the river rapidly diminishes, and during April, May, and June the navigation is bad now it is just at this very time that the cotton crop is arriving from Guntoor and the northern talooks of this district to be shipped at Cocanada for Liverpool, and the loss inflicted on the merchants and other traders can hardly be estimated by us, but must be very heavy indeed, as they have to

incur all the expenses of imperfect land-carriage, and very often to break bulk, when the whole of the produce could be conveyed by the canals in existence if only the water-supply were regulated

7 The above refers only to the cotton crop, but the Delta must suffer very serious losses annually by having its means of communications imperfect for quarter of the year to an agricultural community, cheap means of transport can alone afford the opportunity for increasing production, as by it alone can the farmer or ryot convey his produce to where it is of more value than in his own village. Tanjore, with a population of nearly one and three quarter million, cultivates only 800,000 acres of land out of an available area of nearly 12,35,000, the Godavery, with a population less than half that of Tanjore, cultivates nearly 500,000 acres of land out of an available area of 12,00,000 acres what but the superior means of communications which has been so wisely provided for her by the great projector of these works could have enabled the district, with only half the labour power, to extend its cultivation in so short a period to such a remarkable extent!

8 I place little or no reliance on statements of labourers having to be maintained for some months in idleness That is a statement which I should like to see proved Our works alone in the Delta will employ all available hands. The fact is, the population is so sparse and the demand for labour so great, every man can get employment all the year round, and, as wages have increased 300 per cent and the price of food has risen only cent per cent, the labourer is rather the master of the position, and can choose to work or not as he pleases, and, as the means of communications of the district are further developed and connected with the adjacent territories, the demand for its produce will increase, when no doubt more land will be taken up for cultivation in proportion only, however, to the increase of the population, for I take it we are doing as much as we can with the population we have, but the district is suffering heavy losses in having its navigation so imperfect

9 For sugar-cane cultivation we ought to be able to send down a full supply in all June, but our water-registers clearly show that we can seldom or ever do so, certainly not more than once in ten years Since the anicut works were constructed there has been a remarkable increase in the cultivation of this produce, and this has been brought to the notice of this Government by the Board of Revenue With the water-supply under perfect control, as we could have it in reservoirs, the cultivation of this very valuable product would no doubt be greatly extended, I do not think so much for export by sea as for home consumption East Indian sugar does not appear able to compete with other sugars in the English or foreign markets, but if we had a railway from Ellore to Hyderabad, this produce as well as salt could be sent to markets where it is of great value But to increase the sugar-cane and garden cultivation of this district, stored water is absolutely required

10 Much difference of opinion exists, I find, on the subject of getting the seed-beds prepared earlier Some do not consider it of very much importance, but considering how great the loss must be to the ryot by any irregularity in the water-supply at this time of preparing these beds, for the river rises and falls very irregularly from the middle of May to the end of June, I am of opinion that a supply of water which would secure the preparation of the seed-beds must be of the greatest benefit to the people

11 Before leaving the Central Provinces I had planned a reservoir to be constructed on the Kunhan river, about twenty miles above Kamptee, I estimated this reservoir would be able to distribute 2,000 million cubic yards of water in one year, and its discharge per hour would, therefore, have to be 230,000 cubic yards I do not know what has become of the project beyond the fact of its feasibility having been fully confirmed by the investigations carried on by Mr Kooper, C F, but I mention the subject to you for such use as you may be pleased to make of it, and as I think it bears very directly in carrying out the object you have in view I have examined many rivers for reservoirs, but I never met with such a site as the Kunhan afforded, a river, too, I did not think it was possible to do anything with when first undertaking an examination of its basin

Statement showing the extent of Dalta Crop Cultivation, Assessment, and Water-tax from Fusly 1269 to Fusly 1271 in the Godavery District.

Items	Fusly 1269			Fusly 1270			Fusly 1271		
Talooks	Cultivation	Assessment	Water tax	Cultivation	Assessment	Water tax	Cultivation	Assessment	Water tax
	A C	Rs A P	Rs A P	A C	Rs A P	Rs A P	A C	Rs A P	Rs A P
1 Ramachendrapur — Government Zirayaty	5,417 12	28,305 14 2	6,783 2 7	4,016 09	18,757 15 11	6,618 10 10	1,809 13	7,619 12 1	3,828 2 5
do Zemindary	4 16 68	1,7 2 2 4	79 9 0	57, 81	1,881 1 5	532 2 9	298 38	1,177 12 9	500 0 1
Agraharams, Mokhasas, Inams, etc	3,181 74	9,835 5 0	4,004 2 8	2,630 44	7,978 0 0	4,738 10 11	970 47	3,292 11 1	2,883 15 10
Total	9,123 54	39,687 5 6	11,166 14 3	7,070 91	28,549 13 4	11,889 8 6	2,580 93	12,090 3 11	7,568 2 4
2 Amalapur — Government Zirayaty							19 65		148 15 2
do Zemindary							63 62		190 13 9
Agraharams, Mokhasas, Inams, etc							152 84		548 8 4
Total							236 11		888 5 3
3 Narsapur — Government Zirayaty							124 3		373 1 1
do Zemindary							1 52		4 0 0
Agraharams, Mokhasas, Inams, etc							281 80		845 6 3
Total							407 35		1,222 0 4
4 Bheemavaram — Government Zirayaty							728 32	2,890 8 0	2,164 15 4
do Zemindary							230 96	499 3 2	692 14 0
Agraharams, Mokhasas, Inams, etc							959 28	3,389 11 2	2,877 13 4
Total							104 15	520 3 6	312 7 2
5 Tuniku — Government Zirayaty				104 15	520 3 6	312 7 2	1 17 99	8 3 11 11	276 15 11
do Zemindary				131 18	654 13 0	220 6 7	25 3	83 6 3	52 15 0
Agraharams, Mokhasas, Inams, etc				16 38	60 0 0	33 8 4	287 17	1,436 8 8	602 6 1
Total				252 21	1,235 0 6	566 6 1			
6 Ellore — Government Zirayaty									
do Zemindary				10 17	5 0 9	30 9 0			
Agraharams, Mokhasas, Inams, etc									
Total				10 17	5 0 9	30 9 0			

Statement showing the extent of Dalwa Crop Cultivation, Assessment, and Water-tax from Fusly 1269 to Fusly 1271 in the Godavery District—(Concld.

Talooks	Items	Fusly 1269 Cultivation	Fusly 1269 Assessment	Fusly 1269 Water tax	Fusly 1270 Cultivation	Fusly 1270 Assessment	Fusly 1270 Water tax	Fusly 1271 Cultivation	Fusly 1271 Assessment	Fusly 1271 Water tax
		A C	RS A P	RS A P	A C	RS A P	RS A P	A C	RS A P	RS A P
7 Yernagudem	Government Ziravaty				52 18	73 3 0	69 3 3			
	Zemindary do									
	Agraharams, Mokhasas, Inams, etc				58 25	88 10 0	74 2 9			
	Total				110 13	161 13 0	143 6 0			
8 Rajahmundry	Government Ziravaty	20 33	80 3 6	23 0 5	96 60	149 4 3	60 9 1	5 33	23 4 0	15 15 6
	Zemindary do	3 60	12 10 0	3 13 10	17 13	39 8 0	46 6 3	0 26	0 7 6	0 13 6
	Agraharams, Mokhasas, Inams, etc									
	Total	24 1	92 13 6	26 14 3	53 73	188 12 3	106 15 4	5 59	23 11 6	16 12 0
9 Cocanada Division	Government Ziravaty	1,200 59	2,883 4 8	772 8 5	815 49	4,141 15 5	1,317 0 8	320 2	2,014 0 9	914 6 2
	Zemindary do	100 4	773 1 0	218 12 0	325 91	976 10 6	508 5 6	181 80	986 3 0	887 4 0
	Agraharams, Mokhasas, Inams, etc									
	Total	1,600 63	3,615 5 8	994 4 5	1,161 40	5,112 9 11	1,825 6 2	141 82	2 100 3 9	1,381 10 2
10 Coringa Division	Government Ziravaty	248 29	1 800 6 5	206 8 0	86 85	546 4 3	127 11 3	47 13	310 0 0	87 11 4
	Zemindary do	115 63	273 4 0	153 12 8	35 25	80 0 0	62 0 1	5 78	13 8 0	17 4 0
	Agraharams, Mokhasas, Inams, etc									
	Total	363 92	1,567 10 5	360 4 8	122 10	626 4 3	189 11 4	53 21	323 8 0	104 15 4
	Grand Total	11,407 73	16,644 12 6	13, 32 6 0	8,780 98	33,909 6 0	14,751 14 5	5 041 46	19,663 15 0	14,612 0 10
	PARTICULARS									
	Government Zirayaty	5 551 27	28 826 1 8	7,095 9 9	4,213 19	19 316 7 2	7,030 14 3	2,315 28	11,030 7 7	6,816 9 2
	Zemindary do	2 133 4	6 842 4 1	17 6 1 4	1,464 23	7 330 2 4	2 2 7 14 4	894 24	1 359 0 5	2,3 6 7 9
	Agraharams, Mokhasas, Inams, etc	3,723 12	10,926 6 9	4,100 10 1	3,103 56	9,223 12 6	5,163 1 10	1,851 91	4,264 7 0	5,128 15 11

Statement showing the extent of Lalua Crop Cultivation, Assessment, and Water-tax from Fusly 1272 to Fusly 1274 in the Godavery District

Talooks	Items	Fusly 1272 Cultivation	Fusly 1272 Assessment	Fusly 1272 Water tax	Fusly 1273 Cultivation	Fusly 1273 Assessment	Fusly 1273 Water tax	Fusly 1274 Cultivation	Fusly 1274 Assessment	Fusly 1274 Water tax
		A C	RS A P	RS A P	A C	RS A P	RS A P	A C	RS A P	RS A P
1 Ramachendrapur	Government Zirayaty	6,228 99	25,199 12 10	18,654 8 4	8,200 54	35,679 13 11	24,416 15 11	34,09 33	13,482 10 2	10,040 3 10
	Zemindary do	1,478 6	6,179 10 7	4,431 11 8	1,780 30	8,573 11 11	4,733 7 11	927 60	2,580 7 7	1,082 12 10
	Agraharams, Mokhasas, Inams, etc	5,300 40	15,193 14 6	15,861 1 0	5,998 89	17,258 5 3	18,279 11 3	2,333 33	6,448 8 11	6,984 10 10
	Total	13,007 15	47,173 5 11	38,947 5 0	15,979 73	61,511 15 1	47,430 3 1	6,270 26	22,511 10 8	18,607 11 6
2 Amalapur	Government Zirayaty	55 72		167 2 7	99 31		297 14 11	352 8		1,056 3 10
	Zemindary do	14 37		43 1 9	17 98		53 15 0	158 58		475 11 10
	Agraharams, Mokhasas, Inams, etc	80 53		241 9 5	132 51		397 9 11	564 40		1,693 3 3
	Total	150 62		451 13 9	249 83		749 7 10	1,075 6		3,225 2 11
3 Narsapur	Government Zirayaty	15 56		46 10 10	38 76		107 4 7	56 47		169 7 5
	Zemindary do	18 76		55 13 11	19 90		59 11 3	48 9		144 4 9
	Agraharams, Mokhasas, Inams, etc									
	Total	34 32		102 8 9	55 66		166 15 10	104 56		313 12 2
4 Bheemavaram	Government Zirayaty	1,775 13	3,938 9 6	5,325 6 3	4,360 51	9,811 2 1	13,081 8 6	4,278 44	9,877 13 4	13,135 5 0
	Zemindary do	1,801 69	2,075 5 0	3,905 1 0	434 67	1,892 5 5	1,304 0 0	317 2	1,111 8 9	1,041 7 0
	Agraharams, Mokhasas, Inams, etc				1,270 68	2,805 12 0	3,812 1 0	1,188 96	3,220 0 6	4,466 14 0
	Total	3,076 82	6,013 14 6	9,230 7 3	6,065 86	14,009 3 9	18,197 9 6	6,214 42	13,909 12 7	18,643 10 0
5 Tanuku	Government Zirayaty	194 84	194 14 9	584 8 4	194 84	194 14 9	584 8 4	194 84	194 14 9	584 8 4
	Zemindary do	192 0	1,025 3 10	288 0 2	182 47	966 10 4	273 11 4	195 4	1,047 1 7	292 9 0
	Agraharams, Mokhasas, Inams, etc	41 14	92 6 1	101 4 3	33 23	80 8 4	77 8 7	40 60	91 9 1	71 10 4
	Total	427 98	1,312 8 8	973 12 9	410 51	1,242 1 5	935 12 3	430 48	1,333 9 5	948 11 8
6 Ellore	Government Zirayaty	93 91	51 3 9	4 11 6	67 78	84 2 0	101 12 0	243 20	301 1 3	364 12 0
	Zemindary do	7 43	12 2 0							
	Agraharams, Mokhasas, Inams, etc.									
	Total	101 34	63 5 9	4 11 6	67 78	84 2 0	101 12 0	243 20	301 1 3	364 12 0

Statement showing the extent of Dalwa Crop Cultivation, Assessment, and Water-tax from Fusly 1272 to Fusly 1274 in the Godavery District—(Concld.)

Talooks	Items	Fusly 1272 Cultivation	Fusly 1272 Assessment	Fusly 1272 Water tax	Fusly 1273 Cultivation	Fusly 1273 Assessment	Fusly 1273 Water tax	Fusly 1274 Cultivation	Fusly 1274 Assessment	Fusly 1274 Water tax
		A C	RS A P	RS A P	A C	RS A P	RS A P	A C	RS A P	RS A P
7 Yernagudem	Government Zirayaty	35 4	52 10 0	52 9 0	7 23	9 13 0	21 5 0	35 57	70 1 0	54 13 6
	Zemindary do	13 17	7 9 0	18 3 0				8 40	14 12 0	12 10 0
	Agraharams, Mokhasas, Inams, etc							43 97	84 13 0	67 7 6
	Total	47 21	60 3 0	70 12 0	7 23	9 13 0	21 5 0			
8 Rajahmundry	Government Zirayaty	77 65	377 13 0	232 15 2	60 4	290 4 3	180 2 0	79 29	304 11 9	247 13 11
	Zemindary do	70 51	164 0 0	211 8 6	75 73	193 1 0	227 3 0	59 24	141 8 0	177 11 6
	Agraharams, Mokhasas, Inams, etc							138 53	586 3 9	425 9 5
	Total	148 16	541 12 0	444 7 8	135 77	483 5 3	407 5 0			
9 Cocanada Division	Government Zirayaty	1,321 19	6,933 4 10	3,933 13 2	0 50	1 0 0	1 8 0	1 20	4 4 6	4 6 1
	Zemindary do	464 54	1,907 11 8	1,390 13 8	1,484 67	6,757 7 9	4,447 6 6	1,361 37	9,929 3 9	4,0 6 0 1
	Agraharams, Mokhasas, Inams, etc				431 81	1,532 7 6	1,292 14 4	487 61	1,613 3 3	1,451 10 10
	Total	1,786 3	8,303 3 0	5,326 10 10	1,916 98	11,090 15 3	5,741 13 7	1,850 32	11,545 9 6	5,512 1 0
10 Coringa Division	Government Zirayaty	1 0 21	718 13 0	1 0 11 1	524 61	896 6 0	971 15 10			
	Zemindary do	75 78	176 12 0	227 5 5	83 45	98 5 0	249 7 6			
	Agraharams, Mokhasas, Inams, etc									
	Total	226 1	895 8 0	678 0 6	608 8	994 11 0	1,221 7 4			
	Grand Total	19,005 21	64,913 13 4	56,230 10 0	27,235 46	80,426 2 9	74,979 10 5	16,370 80	50,222 12 2	48,018 14 2
	PARTICULARS									
	Government Zirayaty	8,202 19	29,727 2 10	24,835 8 10	12,964 17	45,780 14 0	38,612 13 3	8,671 19	23,690 13 0	25,109 12 0
	Zemindary do	3,3 3 80	13,0 0 11 3	9,82 5 0	12,4 76	21,876 13 8	11,96 10 4	2,05 00	13,06 0 5	7,686 6 8
	Agraharams, Mokhasas, Inams, etc	7,72 99	11,3 1 15 5	22,0 2 12 2	8,04 23	11,768 7 1	24,396 4 10	5,630 71	11,528 14 9	15,002 11 6

Statement showing the extent of Dalwa Crop Cultivation, Assessment, and Water-tax from Fusly 1275 to Fusly 1278 in the Godavery District

Talooks	Items	Fusly 1275 Cultivation	Fusly 1275 Assessment	Fusly 1275 Water tax	Fusly 1276 Cultivation	Fusly 1276 Assessment	Fusly 1276 Water tax	Fusly 1277 Cultivation	Fusly 1277 Assessment	Fusly 1277 Water tax	Fusly 1278 Cultivation	Fusly 1278 Assessment	Fusly 1278 Water tax
		A C	RS A P	RS A P	A C	RS A P	RS A P	A C	RS A P	RS A P	A C	RS A P	RS A P
1 Ramachendrapur	Government Zirayaty	460 98	1,260 15 5	1,827 3 11	264 16	892 12 0	882 13 5	27 0	58 9 0	106 5 7	89 70	295 2 0	357 3 6
	Zemindary do	78 54	325 2 6	328 8 4	27 64	107 5 5	110 1 4	29 31	119 1 6	117 3 10	13 51	59 11 0	51 15 8
	Agraharams, Mokhasas, Inams, etc	186 38	779 9 2	736 5 0	85 81	384 3 0	245 4 6	15 83	49 13 0	63 5 0	25 67	91 14 0	94 12 7
	Total	725 90	2,365 11 1	2,892 1 3	377 61	1,384 4 5	1,238 3 3	72 14	227 7 6	286 14 5	126 88	446 11 0	503 15 9
2 Amalapur	Government Zirayaty	198 83		795 5 1	83 1		332 0 8	0 25		1 0 0	0 40		1 9 7
	Zemindary do	194 23		776 14 9	10 72		42 14 1				0 62		2 7 8
	Agraharams, Mokhasas, Inams, etc	459 56		1,838 3 10	106 72		426 14 1	2 26		9 7 0	17 30		69 3 2
	Total	852 62		3,410 7 8	200 45		801 12 10	2 51		10 7 0	18 32		73 4 5
3 Narsapur	Government Zirayaty	1,070 55		4,282 5 2	691 27		2,765 1 3	150 42		601 10 9	41 93		167 12 4
	Zemindary do	18 56		74 3 10	26 45		105 12 9	0 33		1 5 1			
	Agraharams, Mokhasas, Inams, etc	506 92		2,027 11 2	358 24		1,432 15 7	85 32		341 4 5	6 3		24 1 11
	Total	1,596 3		6,384 4 2	1075 96		4,303 13 7	236 7		944 4 3	47 96		191 14 3
4 Bheemavaram	Government Zirayaty	2,670 70	4,939 10 0	10,682 12 10	2,531 22	6,301 15 9	10,125 3 8	142 41	317 13 5	569 11 6	187 31	406 14 2	749 4 6
	Zemindary do	146 92	470 13 6	587 11 0	1,352 34	4,331 11 3	5,409 5 9						
	Agraharams, Mokhasas, Inams, etc	614 23	1,357 10 11	2,456 14 8	708 83	1,719 8 3	2,835 5 4	36 19	82 4 7	144 12 2	34 81	70 8 10	139 3 10
	Total	3,431 85	6,768 2 5	13,727 6 6	4,592 39	12,353 3 3	18,369 14 9	178 60	400 2 0	714 7 8	222 12	477 7 0	888 8 4
5 Tanuku	Government Zirayaty	194 84	194 14 9	779 8 10	194 84	194 14 9	779 8 10						
	Zemindary do	166 43	881 6 6	665 11 0							136 6	758 5 2	541 0 5
	Agraharams, Mokhasas, Inams, &c	32 72	79 9 1	131 2 5	18 50	22 9 1	74 4 5	8 11	12 2 9	24 5 3	17 84	60 6 3	67 1 7
	Total	393 99	1,155 14 4	1,576 6 3	213 34	217 7 10	853 13 3				153 90	818 11 5	611 2 0
								8 11	12 2 9	24 5 3			
6. Ellore	Government Zirayaty	148 33	587 4 6	593 5 1	257 12	167 9 11	1,028 8 2				8 34		
	Zemindary do												
	Agraharams, Mokhasas, Inams, &c												
	Total	148 33	587 4 6	593 5 1	257 12	167 9 11	1,028 8 2				8 34		

Statement showing the extent of Dalwa Crop Cultivation, Assessment, and Water-tax from Fusly 1275 to Fusly 1278 in the Godavery District—(Concld.)

Talooks	Items	Fusly 1275			Fusly 1276			Fusly 1277			Fusly 1278		
		Cultivation	Assessment	Water tax	Cultivation	Assessment	Water tax	Cultivation	Assessment	Water tax	Cultivation	Assessment	Water tax
		A C	Rs A P	Rs A P	A C	Rs A P	Rs A P	A C	Rs A P	Rs A P	A C	Rs A P	Rs A P
7 Yernagudem	Government Zirayaty	78 88	118 1 0	315 8 0									
	Zemindary do	21 71	32 1 0	46 13 0									
	Agraharams, Mokhasas, Inams, etc.												
	Total	100 59	150 2 0	362 5 0									
8 Rajahmundry	Government Zirayaty	2 68	10 0 0	10 11 6	36 41	165 7 3	145 10 3	6 81	39 15 9	27 8 10	9 36	44 11 9	87 7 0
	Zemindary do				5 85	16 0 0	23 6 5	2 55	4 12 0	10 3 2			
	Agraharams, Mokhasas, Inams, etc												
	Total	2 68	10 0 0	10 11 6	42 26	181 7 3	169 0 8	9 36	44 11 9	87 7 0			
9 Cocanada Division	Government Zirayaty	0 38	1 0 0	1 8 8	3 446 77	3,170 4 10	1,788 0 5	0 20	1 0 0	0 12 10			
	Zemindary do	300 29	1,630 7 10	1,597 8 1	103 88	669 12 4	418 9 0	276 67	2,253 12 10	1,118 0 11	145 40	971 2 5	561 5 5
	Agraharams, Mokhasas, Inams, etc.	116 21	298 1 7	463 9 8				44 66	831 10 8	178 10 9	8 21	27 15 0	30 2 7
	Total	506 88	1,929 9 5	2,063 10 0	551 65	3,840 1 2	2,206 9 5	821 53	3,089 7 6	1,297 8 6	153 61	979 1 5	591 8 0
10 Cocanada Division	Government Zirayaty	..	..	..	3 81		11 9 10	8 20	357 6 6	1,879 8 8			
	Zemindary do							276 67	2,253 12 10	1,263 13 8			
	Agraharams, Mokhasas, Inams, etc							44 66	831 10 8	771 15 9			
	Total	..	..	..	3 81		11 9 10	8 61	3,442 14 0	3,315 6 1	731 13	2,721 14 10	2,660 4 9
	Grand Total	7,758 87	12,9 .. 9	31 609 9 5	7,314 69	18,144 1 10	28,083 5 9	838 32	3,772 15 6		731 13	2,721 14 10	2,660 4 9
	PARTICULARS.												
	Government Zirayaty	4,426 17	7 14	10,258 4 9	4,001 62	7,557 4 5	4,791 14 0	320 28	357 6 6	1,879 8 8	319 34	709 0 2	1,275 11 11
	Zemindary do	904 97	1,307 1 9	4,630 9 0	1,900 81	7,771 12 0	5,601 12 7	313 12	2,441 14 1	1,263 13 8	103 91	1,760 9 7	1,139 13 2
	Agraharams, Mokhasas, Inams, etc	1,427 73	2,646 1 9	7,610 11 9	1,412 64	2,815 8 8	1,690 5 8	194 92	966 11 0	771 15 9	107 86	250 13 1	424 9 8

(Signed) J FRASER,
Collector

COCANADA,
16th October 1869

No. 147. ORDER THEREON, 7th January 1870, No 76.

IRRIGATION, No. 4

THE Government are of opinion that these papers show that, for the present at least, there is not likely to be a demand for any considerable additional quantity of water in the Godavery Delta for the supply of second crop rice cultivation, and that, until the ryots shall have learnt to pay more attention to the measuring of their lands, it is not advisable to stimulate such cultivation, on the other hand, it will be better that the tendency at present prevailing to cultivate dry crops alternately with the five or six months' paddy should be allowed free action as being probably not less profitable and, as regards the health and well-being of the population, perhaps more advantageous.

2. At the same time it would manifestly be beneficial to the maintenance and extension of sugar-cane cultivation, and to the navigation of the Delta were the river-supply to be augmented in the early part of the year, and, if by the works proposed by Lieutenant-Colonel Haig, the dry weather volume can be increased some 250,000 to 300,000 cubic yards an hour (1,875 to 2,250 cubic feet a second,) the Government consider that the circumstances of the Delta cannot fail to be considerably improved, although it may be many years before this water may be capable of being fully utilized for irrigation.

3 Ordered that the following letter be sent —

(Here enter No. 77, dated 7th January 1870.)

Colonel, R E,
Secretary to Government.

To the Superintending Engineer, 1st Division
" Revenue Department.

Exd. A. S Rodgers.

PUBLIC WORKS DEPARTMENT,

FORT ST. GEORGE, *7th January* 1870.

No 148

No 77.

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,

PUBLIC WORKS DEPARTMENT.

IRRIGATION, No 5.

SIR,—In continuation of letter, No. 848, of the 13th March 1868, I am directed to transmit, for the information of the Government of India, a copy of the Proceedings* of this Government, containing additional papers on the subject of the water-supply and requirements of the Godavery Delta, in connexion with the proposed reservoirs in the Central Provinces, together with the views of the Madras Government upon the question raised by Lieutenant-Colonel Haig.

* No 76, dated 7th January 1870.

I have the honour to be,

Sir,

Your most obedient servant,

Colonel, R. E,

Secretary to Government.

Ed A S Rodgers

Superintending Engr's Office
No. 2761 1st Division Dowlaiswaram 15
27th October 1869.

From

Major J. T. Fischer R.E.
Ag. Superintending Engineer
1st Division

To

Colonel F. T. Haig R.E.
Superintending Engineer
Upper Godavery Circle
Dumagudem.

Sir,

I have the honor to acknowledge receipt of your letter No. 291/1536 dated the 15th October 1869, and in reply to the particulars question therein mentioned, I beg to say (80) Million Cubic Yards of water, if it could be delivered at the Anikut during the 3 months of April, May, and June, would have very little, if any, effect in keeping open the Navigation of our Canals.

2 I calculate, to maintain a proper supply of water in the Canals for Navigation, we should not have less than 6 feet on the head

head sluice floors, and our registers show for a number of years that, about this quantity can be maintained upto the middle of March, and sometimes to the end of that month, the deficiency then not being sufficient to require particular attention.

3. Now with 6 feet on all the sluices, I do not suppose the discharge by these is less than 500,000 Cubic Yards per hour, but with 4 feet on the floors as the supply usually is in April and May and very often less to the 20th of June, the discharge would be only 250,000 Cubic Yards per hour or under, and hence, I consider we require at least 250,000 Cubic Yards per hour for 3 months to make provision adequate for complete Irrigation, by multiplying the Central Deltas 200,000 Cubic Yards per hour might do for us, retaining these in the other Deltas, but then the sugar cane & garden cultivation in the Central Delta of Naggareen is so very valuable, as any question of stern water it would be a great loss to omit this supply.

In either case however, it is quite clear, 80 Million Cubic Yds of water delivered in 3 months, would be at the rate of less than 100,000 Cubic Yards per hour, could have very little, if any, appreciable effect on our working, nor is it quite clear, how this water stored at so great distance can be delivered, in its integrity, at the Sluices, making only a moderate allowance for evaporation & percolation. I should be inclined to consider you would not gain as much, if any, at all over 90,000 Cubic Yds per hour from Dirch & Atbara.

5. Turning then to the general question of the value of stored for the use of the Delta, I am decidedly of opinion its importance cannot be too highly estimated.

1st For Navigation purposes

2nd For Sugar Cane & Garden Cultivation

3rd For the earlier preparation of seed-beds for the great rice Crop of the Delta.

6. Our Canals are now Navigable in the main, but up to the end of March, when the natural supply in the River rapidly diminishes, and during April, May and June the Navigation is bad;

Now it is just at this very time, that the Cotton Crop is arriving from Guntoor and the Northern Valleys of the District to be shipped at Cocanada for Liverpool; & the loss inflicted on the Merchants & other traders, can hardly be estimated by pecuniary but must be very heavy indeed, as they have to incur all the expenses of imperfect land carriage & very often to break bulk when the whole of the produce could be conveyed by the Canals in existence if only the water supply were regulated.

7th. The above refers only to the Cotton Crop, but the Delta must suffer very serious losses annually by having its means of Communications imperfect for 6 of the years, to an Agricultural community cheap means of transport can alone afford the opportunity for increasing production, as by it alone can the farmer or Ryot convey his produce to where it is of more value than in his own village. Tanjore with a population of nearly 1¾ Million cultivates only 400000 acres of land out of an available area of nearly 1235000 the Godavery with a population of less than ½ that of Tanjore

cultivates nearly 500000 acres of land out of an available area of 1200000 acres, so that but the imperfect means of communications which have been so much provided for her by the great projector of these works could have enabled the District with only ½ the labor power to extend its cultivation in so short a period to such a remarkable extent?

8. I place little or no reliance on statements of labourers having to be maintained for some months in idleness, that is a statement which I should like to see proved, our works alone in the Delta will employ all available hands, the fact is the population is so sparse, & the demand for labor so great, every man can get employment all the year round, & as wages have increased 300 per cent, & the price of food has risen only cent per cent the labourer is rather the master of the position, & can choose to work or not as he pleases, & as the means of communications of the District are further developed & connected with the adjacent territories, the demand for its produce will increase when no

doubt, more land will be taken up for cultivation in proportion only to the increase of the population, for I take it we are doing as much as we can with the population we have, but the District is suffering heavy loss in having its navigation so imperfect.

9. For sugar cane cultivation we ought to be able to send down a full supply in all June, but our water-registers clearly shew that we can seldom or ever do it certainly not more than once in 10 years since the Anicut works were constructed, there has been a remarkable increase in the cultivation of this produce & this has been brought to the notice of the government by the Board of Revenue, with the water supply under perfect control as we could have it in Reservoirs the cultivation of this very valuable product would no doubt be greatly extended, & I do not think so much for export by sea as for home consumption. East Indian sugar does not appear able to compete with other sugars in the European markets but if we had a railway from Ellore to Cuddalore, this produce, as well as salt, could be sent to Markets where it is of great value. But to increase the sugar cane & garden cultivation of this District stored water is absolutely required.

10. Much difference of opinion exists & has existed on the subject of getting the seed-beds prepared earlier some do not consider it of very much importance but consider in how great the loss must be to the ryot by any irregularity in the water supply at this time of preparing these beds for the river rises & falls very irregularly from the middle of May to the end of June, I am of opinion that a supply of water which would secure the preparation of the seed-beds must be of the greatest benefit to the people.

11. Before leaving the Central Provinces I had planned a reservoir to be constructed on the Kumbam River, about 20 Miles above Kamptee, I estimated this reservoir would be able to distribute 2,000 Million Cft. of water in one year & its discharge per hour would therefore have to be 250,000 Cft. I do not know what has become of the project beyond the fact of its feasibility having been fully confirmed by the investigations carried on by Mr. Hoosen C. E., but I mention the subject

to you, for such use as you may be pleased to make of it, and as I think it can be very useful in carrying out the object you have in view.

I have examined many rivers for reservoirs, but I never met with such a site as the Kuddalur has afforded, a river too, I did not think it was possible to do any thing with, when first undertaking an examination of its bearings.

I have the honor to be
Sir,
Your Most Obedient Servt.

(Signed) J. F. Fischer, Major R.E.
Asst. Supt. Engineer 1st Dn.

(True Copy)

Mayr. Fischer, Major R.E.
Asst. Superintending Engineer 1st Division.

Enclosure in
Letter No. 2845
from the Chief
Engineer
to the Secretary to
Government
Public Works
Department
Dated 30th October
1869

SUPERINTENDING ENGINEER'S OFFICE, 1ST DIVISION
DOLAISWARAM, 30th October 1869

No 2845.

From

Major J. F. Fischer R.E.
as Superintending Engineer
1st Division

To

Colonel C. A. Orr R.E.
Secretary to Government D. P. W.
Madras

SIR,

Reporting to G.O. of the 8th Nov. 1867

Letter No. 2761 dated 27th October 1869 to Supt Engineer Upper Godr Circle. Statement showing extent of Dalwa Crop Cultivation, assessment, and Water Tax from Fasly 1269 to Fasly 1278 in the Godavery District.

In No 3468, I have the honor to submit the accompanying statement received from the Collector of the District, exhibiting the extent of the Dalwa Crop for 10 years, together with the assessment and water tax derived therefrom. At the same time, I beg to submit a general report on the water supply of the Godavery in the hot months.

2 This statement shews that this cultivation, which, in Fasly 1279, embraced an area of 25294 acres has decreased year by year, till in Fasly 1278, it was only 729 acres, and an examination of the water registers, does not shew that this falling off is entirely due to the short supply of water in the River, in fact taking a series of years there is seldom less than 6 feet on the sluice sills before the middle or end of March, and with this quantity passing thro them, I calculate the discharge would not be less than 500,000 Cubic yards per hour for the whole Delta. This quantity of water would, of course, be ample for the largest area given in this statement and

and as the Crop must be off ground by April, as the preparations for the heavy Monsoon rice Crop have to be made in May and June, there is apparently an abundant supply of water in the River for this Cultivation, and its falling off must be attributable to other causes.

3 Amongst these, may be mentioned the length of time it takes to mature the Monsoon Crop in this District, 6 months, and as this Crop is only reaped in December, there is very little time for the people to prepare the land for a 2nd Crop and get this off when the time for again sowing the great rice Crop comes round about May. I believe myself the people do not find it pays to take so much out of their land. Another Circumstance is, the imperfect state of the Communications in the District, particularly with the adjacent territories, there being thus very little or no demand for more produce owing to this cause entirely it is not worth while raising it. Land will be cultivated or not, just in proportion to the demand for the produce, and it is a principle admitted by the highest Authorities that, land which would not otherwise pay to cultivate will be taken up for cultivation as facilities of transport are afforded, and cost of same reduced. In fact it may very often occur that it is more profitable to cultivate poor land which has the means of cheap transport, than the richest land without them. Again the population of the District is still very sparse Not 200 to the Square mile, whereas in Tanjore it is nearly 500, and hence the price of labor is very high, and as the Cotton Crop has to be picked, packed, and transported to Market for shipment to England, about the time the Dalwa Cultivation should be going on, I have an idea the farmer cannot afford to pay the rates of hire for labor for the Dalwa Crop, which would be offered for the Cotton Crop, and the falling off of the former Cultivation, dates from the period when the demand for the latter became more and more established.

4 I think therefore, I am justified in coming to the conclusion, the falling off of the Dalwa Cultivation, can be fully accounted for without attributing it solely to the short supply of water in the River. this circumstance is no doubt much to be lamented, but then it does not generally occur till after it is required for that Crop and the considerations of the circumstances in which it appears to me to affect the District are contained in the accompanying Copy of a letter I lately addressed in reply to the Superintending Engineer Upper Godavery works.

5 As far as I can ascertain, stored water would increase the Cultivation of garden produce and sugar cane, in preference to the Dalwa Crop, but then, I have no doubt we shall not get this water used until we give the people every facility of transport for their produce. When the Godavery Navigation is complete to Sirivancha, the District will possess one highway connecting it with the interior

interior, and some home markets, and if a line of Railway were made from Ellore to Hyderbad, and connected with the Bombay line, the Godavery would be placed on more equal terms with Tanjore, and there is no reason to doubt its Land Revenue would then soon be as large. I am not aware of any serious obstacles existing on the route I have ventured to suggest for a railway, ascending the valley of the Toomilair by an easy gradient of perhaps 1 in 250 or 300 - the line would attain the level of the water shed of the Godavery and the Kistna rivers, and should therefore run into the city of Hyderbad without meeting a single river of any importance to cross.

6. It may be considered, I have some what gone out of my way in reporting on the Dalwa cultivation of the country but as this is intimately connected with the subject of storing water, and as Colonel Haig appears to consider all the water he stores up must be of use to us, I wished to shew, as well as I could, the circumstances under which it was likely to be profitable or useful to the District, and the first of them is, undoubtedly, facilities of transport - As regards Reservoirs and their sites, I am of opinion, the Central Provinces cannot afford us much in the way of help: in the first place, the distance the water would have to travel before it reached the Cowrie, subject of course to loss by evaporation, consumption and percolation; and in the next place, the Reservoirs there would receive their last supply in September, and as we do not want the water till April and they do require it for use in December and January, I am afraid it will be difficult to shew how the interests of this District will be promoted by them. Without reservoirs in the Central Provinces no irrigation is practicable there, and when these are established, any water which escapes consumption one way or another we should have the benefit of. but I would not recommend this as a reliable source for such important interests as we have to consider here, and I would greatly prefer trying to provide for these by Reservoirs on the Sewry or thereabouts.

7. There is one other circumstance I may mention which has probably tended more than others to reduce the cultivation, not only of the Dalwa crop, but also the cultivation of garden produce and Sugar Cane, I find all the irrigating Sluice floors have been fixed with reference to a certain head being maintained in the supply channel. this head being that prevailing in the monsoon season of course then at the sill of the orifices has been determined by this head, as this diminish

in

in the dry weather, the sluices discharge less and less water, and I know of instances, where 2 feet or more of water might be in the main supply channel, when not a foot or 6 inches would be on the sluice floors. This I propose to do away with and have the sluice floors placed on a level with the Channel beds so that the last drop of water shall be available for any cultivation, and the orifices of discharge can be increased or diminished by the shutters with which the sluices are supplied.

8 I understand the above arrangement was deliberately made to discourage the Dalwa cultivation, but it must also interfere greatly with the Sugar Cane cultivation and Garden Crops, and, ought therefore, to be abolished as soon as possible. I find no registers of the water supply coming down the Godavery in the hot months have ever been maintained. The Anicut Registers are of no use for ascertaining this, as the leakage under the Anicut is very great as also by the Under Sluices. I propose therefore to establish a Register kept year somewhere in the River, just above the influence of the Anicut backwater and ascertain the discharge, as well as I can, by a transverse section of the River and its observed Velocity or calculated velocity if we can obtain a good longitudinal section of its bed.

I have the honor to be
Sir,
Your most obt. Servant

Mc. G. Richey Major R.E.
Asst. Engineer 1st Division

in the dry weather, the Mean Discharge less and less water, and I know of instances, when just or more of water might be in the Main supply

P.W. 1869 Dept
No 2845
Chief Engr. Irrigation
Recd 6th Dec
The Offg Supt Engineer
1st Dn
Do.
The Secretary to Govt
P.W.D.
Madras

Dated 30th October 69.
Recd 6th Nov.

Forwards a Statement
showing the Extent of the
Native Crop Cultivation
during the last 10 years
and submits a general
report on the water supply
of the Godavery during
the last Quinquennium.

No 76 of 7th Jany 70.

Ans 11/6

2. 24. Nov 1869 OR. 10 Dec

Public Works Dept.

No 76.

31

Proceedings of the Madras Govt.
Irrigation dated the 7th Jany 70.
Read the following.

From the Offg Supt Engr. of the 1st Div. } No. 2845 dt 30th Oct 69

The Government are of opinion that these papers show that for the present at least, there is not likely to be a demand for any considerable additional quantity of water in the Godavery Delta for the supply of 2d Crop Rice Cultivation; and that, until the ryots shall have learnt to pay more attention to the measuring of their lands, it is not advisable to stimulate such cultivation; on the other hand it will be better that the tendency at present prevailing to cultivate Dry Crops alternately with the 5 or 6 months

Paddy

party should be allowed free action as being probably less profitable and as regards the health and well being of the population perhaps more advantageous.

2. At the same time it would manifestly be beneficial to the maintenance and extension of sugar cane cultivation, and to the navigations of the Delta where the river supply to be augmented in the early part of the year, and if by the works proposed by Lieut. Col. Kaye the dry weather volume can be increased some 250,000 to 300,000 cubic yards an hour (1875 to 2250 cubic feet a second), the Govt. consider that the circumstances of the Delta cannot fail to be considerably improved, although it

it may be many years before this work may be capable of being fully utilized for irrigation.

To the Inspr. Genl. of Irrn.
" Revenue Dept.

Dated 12/1/70

Ordered that the following letter be sent.

No. 77.

The Secretary to the
Govt. of India. P.W.D.

Sir,

In continuation of letter No. 848 of the 13th March 1868. I am directed to transmit, for the information of the Govt. of India, a copy of the Proceedings of this Government, containing additional papers on the subject of the water supply and requirements of the Godavery Delta, in connection with the proposed reservoirs in the

Central

No. 76 dated 7th Jany. 70.

Central Provinces, together with the views of the Madras Government upon the question raised by Lieut. Col. Hart.

Dispd 23/1/70 with Copy of Gen No 76 of 1870.

Govt. of {1869} Madras.

PUBLIC WORKS.

To The Government of India

Dated

Read

G. O. 7th Jan 1870 No 76

Nos 116-117 & 118

(Letter)

Forwarding a copy of Pro containing additional Reports on the subject of water supply & requirements of the Godavery Delta in connection with the proposed reservoirs in the Central Provinces.

24 Dec 1869 CR 10 Deer