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Proceedings of the Madras Government, Public Works Department, 13th August 1873.

Read the following papers :—

No. 209. From R. SMITH, Esq., District Engineer, Nellore, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, Fort St. George, dated Nellore, 17th May 18[illegible], No. 28.

4 Appendices.
1 Sketch Map by banghy.

I HAVE the honour to acknowledge the receipt of Captain Smith's letter, No. 338 of 31st December last, requesting me to furnish information regarding the irrigable area that could be brought under wet cultivation by a high level channel from the Nellore Anicut, and the extent of land dependent on the existing river channels that traverse the country commanded by the proposed new channels from Sungum. The details connected with the latter were prepared by the Collector, and will be found in Appendix B; and I trust the other documents that accompany this Report are sufficiently explicit to demonstrate that there are 52,760 acres to be irrigated from the Nellore Anicut before the Madras Irrigation Company have any claim to the flood waters of the Pennair.

2. A channel, with the head six feet below the crest of the anicut and falling at the rate of two inches per mile, would follow the line indicated on the accompanying sketch map, and would, with some few exceptions, irrigate the whole country on the east of it to within a short distance of the sea. To facilitate reference, this area has been coloured yellow on the map alluded to.

3. From Appendix A. it will be seen that 75,003 acres of this tract "can be easily cultivated," that the average area irrigated, during five consecutive years, was 24,634 acres, and that the area under wet and dry cultivation, in the same period, was only 31,451 acres. These figures show that 50,369 acres* are available for the extension of *wet* cultivation, but as the actual area that will be converted into rice land, in each village, cannot be ascertained at present, a considerable deduction has been made from the above for isolated patches, that would be rather costly to irrigate, and for a certain amount of dry cultivation being retained in the delta.

		RS.
* Total irrigable area	... ...	75,003
Deduct present cultivation ..	...	24,634
		50,369

4. By referring to Appendix C. it will be observed that I have assumed the increase, in the area of wet cultivation, will be limited to 22,525 acres, or to about 45 per cent. of the irrigable land, and that the total acreage to be classed as "wet" in that part of the delta has been fixed at 60,435 acres. The distribution described would leave 14,568 acres of the irrigable land without the means of irrigation, but it must be remembered that a large proportion of this area would be required for the enlargement and improvement of the principal tanks in those parts to compensate for the loss of the Kanaghery reservoir, which is on too high a level to be supplied by a feeder from the Nellore Anicut.

5. A somewhat less storage capacity would, however, suffice for a scheme of irrigation, from the Nellore Anicut, than was provided for in the Sungum project, as the area under the former (inclusive of the land commanded by the old river channels) is 2,654 acres less than the tract to be watered by the latter.

6. The details of the present and proposed irrigation are given in Appendix D, and it will be gathered from that document that 91,346 acres,* on the northern flank of the Nellore Anicut, are available for wet cultivation and have, therefore, a decided claim to be supplied with water before the Pennair is tapped for the benefit of lands not under the influence of the existing works on that river.

	Acres.
* New cultivation	43,791
Old do.	47,555
	91,346

7. It will be seen from the papers now submitted that the existing river channels and the Nellore Anicut are capable of watering an area closely approximating to that commanded by the projected Sungum works, and that by far the greater proportion of the irrigable area, on the left bank of the Pennair, could be watered as well from the existing as from the proposed sources of supply. This being the case the point from which the supply will be drawn from the Pennair is immaterial to the general public; but, in the interests of Government and the Indian public, the most desirable site should undoubtedly be selected to guard against failure and consequent disappointment. With this object the Sungam scheme was planned, and for no other was the head of the main feeder fixed at Sungum, and, I think, I may safely assert it will not *in any way* interfere with the rights of the Madras Irrigation and Canal Company.

8. With reference to paragraph 7 of the despatch* from the Right Honourable the Secretary of State, I beg to explain that I approved of Mr. Chenchalrow's application for a farm under the Sungam channels as he was willing to take up *waste* land and to pay the ordinary dry assessment on it, while the works were in progress. This would have been an increase of revenue at the outset, which I thought very desirable, and on the completion of the channels to his holding the full water-rate, in addition to the dry assessment referred to, would be chargeable on the whole area, according to the terms of the agreement he was prepared to enter into.

* Dated 31st July 1872.

9. No provision, it is true, was made in the estimate to cover the interest on capital during the construction of the works; but, on the other hand, no credit was taken for the returns that will be realized during that period, and, in reviewing the estimates, I trust the circumstance of my having allowed for the requisite establishment to superintend the works will not be overlooked, and particularly so as the Madras Government* seem doubtful of the necessity of entertaining a district staff for this special work.

* *Vide* paragraph 6 of G. O., No. 1,818, dated 28th July 1870.

10. The expenditure incurred on the preliminary investigation and preparation of the Sungam scheme, under all heads, was Rupees 46,698.

11. The enclosures that accompanied Captain Smith's letter are herewith returned.*

* By banghy.

Enclosures 61.

1 copy of Despatch from Secretary of State.
1 G. O., No. 1,511-1872.
1 Letter to Government of India, No. 819-1871.
1 G. O., No. 818-1871.
1 " " 1,818-1870.
1 " " 260-1870.
55 Tracings.

Appendix A.

Statement showing the irrigable area, the average area under wet cultivation for five consecutive years, and the additional area available for wet cultivation in the tract of country coloured yellow on the accompanying Sketch Map.

No.	Names and Villages.		EXTENT OF LAND THAT CAN BE CULTIVATED BY THE PROPOSED CHANNEL.			Extent in acres of dry and wet lands now under cultivation.	Amount of revenue raised by cultivation on dry and wet lands, on pasturage and jungle, on average for the last five years.	EXTENT UNDER RIVER CHANNEL AND TANKS IN THE LINE OF THE PROPOSED CHANNEL.		REJECTED TANKS.		Remarks.
			Number of acres that can be easily cultivated.	Number of acres of jungle tract which can be cultivated at the expense of labour.	Total amount of acres.			Extent of irrigable area.	Number of acres under cultivation on average for five years.	Number.	Extent.	
							RS.					
1	Thalamanchi...	...	4,426	932	5,358	1,136	2,780	1,314	841	......	......	This statement is an extract of the return of cultivation, etc., furnished by the Collector when the project was under preparation.
2	Alluru ...	...	17,169	......	17,169	6,903	21,734	9,673	5,289	......	......	
3	Beerangunta	...	481	......	481	233	893	219	217	......	......	
4	Damegunta ...	...	637	......	637	421	981	409	305	......	......	
5	Chavukacherla	...	1,452	......	1,452	983	3,480	1,053	793	......	......	
6	Venkannapalem	...	331	......	331	207	628	319	122	......	......	
7	Basavapalem	...	567	......	567	353	1,409	471	267	......	......	
8	Gundalamapalem	...	505	......	505	352	1,389	441	294	......	......	
9	Kodavaluru ...	...	1,396	......	1,396	916	2,870	1,095	641	......	......	
10	Parlapally ...	...	1,782	......	1,782	995	2,802	1,229	690	1	362	
11	Viddavaluru ...	...	3,401	......	3,401	2,162	7,988	2,405	1,568	......	......	
12	Allurupad ...	...	267	......	267	155	597	242	149	1	23	
13	Maneeguntapadu	...	490	......	490	268	1,444	469	248	......	......	
14	Modigunta ...	..	540	......	540	491	1,994	534	391	......	......	
15	Viguru ...	...	3,950	......	3,950	2,068	8,985	2,383	1,648	......	......	
16	Ramanapalem	...	635	......	635	297	1,057	513	249	......	......	
17	Reddipalem ...	...	293	......	293	139	659	233	133	......	......	
18	Legantapad ...	...	896	......	896	545	2,532	649	444	......	......	
19	Inamadugu ...	...	1,149	......	1,149	718	3,317	810	630	......	......	
20	Isukapilly ...	...	2,919	......	2,919	846	2,499	757	785	......	......	
21	Gogulapally ...	...	4,817	......	4,817	762	2,442	759	559	......	......	
22	Indupuru ...	...	990	......	990	702	3,755	722	596	......	......	
23	Purni ...	...	2,214	......	2,214	1,342	4,272	1,562	982	......	......	
24	Pannapudi ...	...	1,376	......	1,376	164	542	190	131	......	......	
25	Mamidigunta	...	516	......	516	289	585	174	179	......	......	

Statement showing the irrigable area, the average area under wet cultivation for five consecutive years, etc.—(Concluded.)

No.	Names and Villages.	EXTENT OF LAND THAT CAN BE CULTIVATED BY THE PROPOSED CHANNEL. Number of acres that can be easily cultivated.	Number of acres of jungle tract which can be cultivate at the expense of labour.	Total amount of acres.	Extent in acres of dry and wet lands now under cultivation.	Amount of revenue raised by cultivation on dry and wet lands, on pasturage and jungle, on average for the last five years.	EXTENT UNDER RIVER CHANNEL AND TANKS IN THE LINE OF THE PROPOSED CHANNEL. Extent of irrigable area.	Number of acres under cultivation on average for five years.	REJECTED TANKS. Number.	Extent.	Remarks.
						RS.					
26	Varni	5,329	.	5,329	1,427	4,268	1,654	1,134	......	......	
27	Thaudigunta... ...	831	. .	831	631	1,602	655	513	2	324	
28	Thampuru	1,772	......	1,772	988	3,073	1,099	706	......	... ..	
29	Vavilla	752	......	752	647	2,662	697	516	......	......	
30	Alaganipadu... ...	1,123	......	1,123	726	2,669	1,032	670	2	400	
31	Vutakuru	7,129	......	7,129	1,622	5,742	1,517	1,371	......	......	
32	Mudavarthi	3,942	......	3,942	1,622	5,895	2,067	1,333	1	544	
33	Jammalapalem ...	499	......	499	214	858	226	179	1	51	
34	Thumagunta ...	427	......	427	127	273	388	61	2	225	
	Total...	75,003	932	75,935	31,421	1,08,676	37,910	24,634	10	1,929	
	Deduct the area under River Channel including in the above ...	......	......	......	......	......	9,604	7,381	......	......	
		......	......	......	......	......	28,306	17,253	......	......	

NELLORE,
17th May 1873.

(Signed) R. SMITH,
District Engineer, Nellore.

APPENDIX B.

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.

No.	Names of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
1	Duvur Channel.	Duvur Tank ...	1. Padamatipolem ...	Government ... Inam ...	204 27	167 27	... ...
					231	194	...
			2. Siddepuram ...	Government ... Inam ...	189 83	161 78	11 ...
					272	239	11
			3. Vengareddipolem...	Government ... Inam ...	249 37	221 33	1 ...
					286	254	1
			4. Duvuru ...	Government ... Inam ...	1,449 556	1,155 493	23 ...
					2,005	1,648	23
			5. Annareddipolem ...	Government ... Inam ...	1,096 48	791 48	16 1
					1,144	849	17
			6. Kaligirekonduru ...	Government ... Inam ...	216 31	190 28	19 ...
					247	218	19
			7. Vangallu ...	Government ... Inam ...	696 210	613 176	68 ...
					906	789	68
			8. Lopolem ...	Government ... Inam ...	432 113	430 113	... ...
					545	543	...
			9. Kovalipolem ...	Shotriem ...	196	196	...
			Total... Total... Total...	Government ... Inam ... Shotriem	4,531 1,105 196	3,728 996 196	138 1 ...
					5,832	4,920	139
		Annareddipolem Village Tank.	Annareddipolem ...	Government ... Inam ...	303 35	124 35	... ...
					338	159	...
		Direct Irrigation.	1. Padamalipolem ...	Government ... Inam ...	307 50	199 45	... ...
					357	244	...
			2. Siddepuram ...	Government ... Inam ...	377 28	239 22	2 ...
					405	261	2
			3. Vengareddipolem...	Government ... Inam ...	247 17	89 14	3 ...
					264	103	3

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Continued.)

No.	Number of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
			4. Tarunivoya ...	Government ... Inam ...	379 94	205 62	24 ...
					473	267	24
			Total... Total...	Government ... Inam ...	1,310 189	732 143	29 ...
					1,499	875	29
			Total irrigable area under Duvuru Channel.	Government ... Inam ... Shotriem ...	6,144 1,329 196	4,584 1,174 196	167 1 ...
					7,669	5,954	168
2	Panchadu Channel.	Panchadu Tank.	1. Minagallu ...	Government ... Inam ...	140 59	106 39	... ...
					199	145	...
			2. Panchadu ...	Government ... Inam ...	737 74	552 74	3 2
					811	626	5
			3. Panchadu Kandriga	Government ... Inam ...	31 17	13 7	... ...
					48	20	...
			4. Pennballi ...	Government ... Inam ...	705 9	449 2	2 ...
					714	451	2
			5. Kavatipolem ...	Shotriem ...	86	86	...
			Total...	Government ... Inam ... Shotriem ...	1,613 159 86	1,120 122 86	5 2 ...
					1,858	1,328	7
		Direct Irrigation.	Minagallu ...	Government ... Inam ...	41 2	... ...	... ...
					43	...	...
			Total irrigable area under the Channel.	Government ... Inam ... Shotriem ...	1,654 161 86	1,120 122 86	5 2 ...
					1,901	1,328	7
3	Gandavaram Channel.	Kanigiri Tank.	1 Kalayakagullu ...	Government ... Inam ...	220 13	187 12	... ...
					233	199	...
			2. Panuballi ...	Government ... Inam ...	264 53	201 42	5 ...
					317	243	5
			3. Dasavadadinna ...	Government ... Inam ...	55 2	20 ...	... ...
					57	20	...

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Continued.)

No.	Names of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
			4. Vavaru ...	Government ... Inam ...	1,172 172	1,058 172	73 3
					1,344	1,230	76
			5. Iskapallem ...	Government ... Inam ...	107 13	89 12	9 ...
					120	101	9
			6 Pellapollem ...	Government ... Inam ...	273 39	215 39	... ...
					312	254	...
			7. Rabala ...	Government ... Inam ...	539 60	479 60	10 ...
					599	539	10
			8. Paturu ...	Government ... Inam ...	318 40	137 30	2 ...
					358	167	2
			9. Damaramadugu ...	Government ... Inam ...	714 89	448 76	... ...
					803	524	...
			10. Kovuru ...	Government ... Inam ...	1,634 259	1,370 252	9 ...
					1,893	1,622	9
			11. Yallayapollem ...	Government ... Inam ...	2,135 137	1,797 132	2 ...
					2,272	1,929	2
			12. Gandavaram ...	Government ... Inam ...	1,156 562	811 290	... ...
					1,718	1,101	...
			13. Nayudupollem ...	Government ... Inam ...	354 65	241 51	... ...
					419	292	...
			14. Nagamambapuram	Government ... Inam ...	289 23	259 15	2 ...
					312	274	2
			15. Bodduvaripollem ...	Government ... Inam ...	1,045 86	811 82	1 ...
					1,131	893	1
			16. Kodavaluru ...	Government ... Inam ...	354 13	204 13	... ...
					367	217	...
			17. Alurpaud ...	Government ... Inam ...	163 16	137 14	... ...
					179	151	...

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Continued.)

No.	Names of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
			18. Razupollem ... Taiamanchi ...	Government ... Inam ...	772 54	564 43	... ...
					826	607	...
			19. Mannguntapaud ...	Government ... Inam ...	446 44	404 41	... ...
					490	445	...
			20. Modagunta ...	Government ... Inam ...	472 66	412 65	... ...
					538	507	...
			21. Reddipollem ...	Government ... Inam ...	234 21	175 21	... ...
					255	196	...
			22. Ramanapollem ...	Government ... Inam ...	471 113	369 110	2 ...
					584	479	2
			23. Chintachalica ...	Government ... Inam ...	548 21	271 12	... ...
					569	283	...
			24. Gudipalli ...	Government ... Inam ...	73 9	70 9	... 2
					82	79	2
			25. Basavapollem ...	Government ... Inam ...	481 63	345 52	1 ...
					544	397	1
			26. Venkanapuram ...	Government ... Inam ...	269 52	205 47	... ...
					321	252	...
			27. Gundalummapollem	Government ... Inam ...	442 37	330 29	... ...
					479	359	...
			28. Damagunta ...	Government ... Inam ...	346 17	267 16	... ...
					363	283	...
			29. Strirangarazapuram 30. Chellayapollem ... 31. Gottapollem ...	Shotriem ... Do. ... Do. ...	46 293 62	46 293 62	... ...
					401	401	...
		Paturu Village Tank.	Paturu	Government ... Inam ...	502 89	276 84	... ...
					591	360	...
		Paturu Chinna Tank.	Do.	Government ... Inam ...	214 5	145 5	... ...
					219	150	...

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Continued.)

No.	Names of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
		Naidu Tank ...	Gandavaram ...	Government ... Inam ...	369 206	239 206	45 ...
					575	445	45
			Bodduvaripollem ...	Government ... Inam ...	163 80	137 66	... 6
					243	203	6
			Gotlapollem ...	Shotriem ...	124	124	...
			Total...	Government ... Inam ... Shotriem ...	532 286 124	376 272 124	45 6 ...
					942	772	51
		Kodavalur Village Tank.	Kodavalur ...	Government ... Inam ...	759 186	639 186	... ...
					945	825	...
			Parlapalli ...	Government ... Inam ...	56 18	49 18	... ...
					74	67	...
			Total...	Government ... Inam ...	815 204	688 204	... ...
					1,019	892	...
		Alurpaud Village Tank.	Alurpaud ...	Government ... Inam ...	48 16	46 16	... ...
					64	62	...
			Total irrigable area under the Channel.	Government ... Inam ... Shotriem ...	17,457 2,739 525	13,437 2,318 525	161 11 ...
					20,721	16,280	172
4	Kovuru Channel.	Kovuru Tank...	1. Kovuru ...	Government ... Inam ...	1,410 85	1,286 82	85 30
					1,495	1,368	65
			2. Inamadugu ...	Government ... Inam ...	9 ...	2 ...	... ...
					9	2	...
			3. Gangavaram ... 4. Padugupaud ...	Shotriem ... Do. ...	77 234	77 234	... ...
					311	311	...
			Total... Total... Total...	Government ... Inam ... Shotriem ...	1,419 85 311	1,288 82 311	35 30 ...
					1,815	1,681	65
		Direct Irrigation.	1. Kalayakagollu ...	Government ... Inam ...	91 8	56 8	... ...
					99	64	...

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Continued.)

No.	Names of River Channels.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
			2. Damaramadugu ...	Government ... Inam ...	148 ...	121 ...	3 ...
					148	121	3
			3. Gangavaram ...	Shotriem ...	71	71	...
			Total...	Government ... Inam ... Shotriem ...	239 8 71	177 8 71	3 ... ...
					318	256	3
			Total area under Kovuru Channel.	Government ... Inam ... Shotriem ...	1,658 93 382	1,465 90 382	38 30 ...
					2,133	1,937	68
5	Vaguru Channel.	Vaguru Tank...	1. Vaguru ...	Government ... Inam ...	1,195 201	1,018 197	1 4
					1,396	1,215	5
			2. Vadavalur ...	Government ... Inam ...	413 ...	268 ...	... ...
					413	268	...
			3. Lagondapaud ...	Government ... Inam ...	66 5	46 5	1 ...
					71	51	1
			Total... Total...	Government ... Inam ...	1,674 206	1,332 202	2 4
					1,880	1,534	6
		Vaguru Small Tank.	1. Vaguru ...	Government ... Inam ...	465 53	455 53	... ...
					518	508	...
		Inamadugu Village Tank.	Inamadugu ...	Government ... Inam ...	347 35	262 30	12 ...
					382	292	12
		Jammipollem Village Tank.	Jammipollem ...	Government ... Inam ...	168 16	136 16	7 ...
					184	152	7
		Vidavaluru Village Tank.	Parlapalli ...	Government ... Inam ...	104 3	94 3	... ...
					107	97	...
			Total... Total...	Government ... Inam ...	1,084 107	947 102	19 ...
					1,191	1,049	19
		Direct Irrigation.	1. Parlapalli ...	Government ... Inam ...	33 ...	19 ...	... ...
					33	19	...

Statement showing the irrigable area under the Duvur, Gandavaram, Panchadu, Kovoor, and Vaguru Channels, Nellore Taluq.—(Concluded.)

No.	Names of River Channel.	Names of Tanks to which they flow.	Names of Villages irrigated under the Tanks.	Description.	Area that has been irrigated.	Area under Cultivation.	Wet Cultivation in dry lands.
			2 Vaguru ...	Government ... Inam ...	544 7	300 7	2 ...
					551	307	2
			3. Reddipollem ...	Government ... Inam ...	38 ...	10 ...	... ...
					38	10	...
			4. Inamadugu ...	Government ... Inam ...	407 64	351 61	4 22
					471	412	26
			5. Lagondapaud ...	Government ... Inam ...	346 20	306 20	... ...
					366	326	...
			Jammipollem ...	Government ... Inam ...	124 4	2 ...	... ...
					128	2	...
			Padugupaud ...	Shotriem ...	90	90	...
			Total area under the Channel.	Government ... Inam ... Shotriem ...	4,250 408 90	3,267 392 90	27 26 ...
					4,748	3,749	53
			Grand Total exclusive of Maldavy.	Government ... Inam ... Shotriem ...	31,163 4,730 1,279	23,873 4,096 1,279	398 70 ...
					37,172	29,248	468
	Malidavy ...	Supplied by the Kaligiri Tank watered by Gandavaram Channel.	1. Parlapalli ...	Government ... Inam ...	162 127	149 74	... ...
					289	223	...
			2. Vidavaluru ...	Government ...	6	1	...
			3. Mudiverti ...	Government ... Inam ...	612 15	350 12	... ...
					627	363	...
			4. Vutukoor ...	Government ...	24	...	...
			Total...	Government ... Inam ...	804 142	500 86	... ...
					946	586	...
			Grand Total including Maldavy.	Government ... Inam ... Shotriem ...	31,967 4,872 1,279	24,373 4,182 1,279	398 70 ...
					38,118	29,834	468

The area to which Government are bound to supply water is 38,118 acres classed as wet, besides water has to be supplied for 468 acres classed as dry, and which has been usually irrigated.

(Signed) V. T. DORAISSAMI,
Acting Tahsildar.

(Signed) G. VANSAGNEW,
Collector.

APPENDIX C.

Statement showing the approximate area available, for the extension of wet cultivation, in the tract of country colored yellow on the accompanying Sketch Map, and the area proposed to be brought under cultivation

Names of Villages.	Area that can be easily cultivated, *vide* Collector's Return.	Land now classed as Wet.	Land now classed as "dry" or "waste" to be converted into Wet Cultivation.	Total of Columns 3 and 4.	Difference between Columns 5 and 2.
1	2	3	4	5	6
	Acres.	Acres.	Acres.	Acres.	Acres.
Thalamanachi	4,426	1,314	500	1,814	2,612
Alluru	17,169	9,673	5,000	14,673	2,496
Beerangunta	481	219	120	339	142
Damegunta...	637	409	130	539	98
Chavukacherla	1,452	1,053	300	1,353	99
Kodavaluru	1,396	1,095	100	1,195	201
Parlapally	1,782	1,229	400	1,629	153
Viddavaluru	3,401	2,405	600	3,005	396
Viguru	3,950	2,383	1,300	3,683	267
Ramanapalem	635	513	25	538	97
Legantapad	896	649	100	749	147
Inamadugu...	1,149	810	100	910	239
Isukapilly	2,919	757	1,600	2,357	562
Gogulapally	4,817	759	2,000	2,759	2,058
Indupuru	990	722	50	772	218
Purni	2,214	1,562	500	2,062	152
Pannapudi	1,376	190	300	490	886
Mamidigunta	516	174	250	424	92
Varni	5,329	1,654	3,000	4,654	675
Thaudigunta	831	655	50	705	126
Thampuru	1,772	1,099	500	1,599	173
Vutakuru	7,129	1,517	4,200	5,717	1,412
Mudavarthi	3,942	2,067	1,300	3,367	575
Jammalapalem	499	226	100	326	173
Venkannapalem	331	319	......	319	12
Basavapalem	567	471	......	471	96
Gundalamapalem	505	441	......	441	64
Allurupad...	267	242	......	242	25
Maneeguntapadu	490	469	......	469	21
Modugunta...	540	534	......	534	6
Reddipalem	293	233	......	233	60
Vavilla	752	697	......	697	55
Alaganipadu	1,123	1,032	......	1,032	91
Thumagunta	427	338	......	338	89
Total...	75,003	37,910	22,525	60,435	14,568

NELLORE,
17th May 1873.

(Signed) R. SMITH,
District Engineer, Nellore.

APPENDIX D.

Abstract Statement showing the area under wet cultivation on the left bank of the Pennair, the additional area to be supplied before the Madras Irrigation Company could divert any of the Pennair water, and the area of dry or waste land that would be commanded by a high level channel, from the Northern flank of the existing Nellore Anicut.

Sub-Division.	Area now under cultivation.	Area under existing river channels and tanks.	Dry or waste land to be converted into wet cultivation and to be watered by high level channel from Nellore Anicut.	Total of Columns 3 and 4.	Difference between columns 2 and 5 or the area available for the extension of irrigation from the existing sources of supply.
1	2	3	4	5	6
	Acres.	Acres.	Acres.	Acres.	Acres.
As per Statement A. ...	17,253	28,306	......	28,306	11,053
,, ,, B. ...	30,302	38,586	......	38,586	8,284
,, ,, C. ...	...	...	22,525	22,525	22,525
Land in beds of tanks to be reclaimed, *vide* Statement A.	...	...	1,929	1,929	1,929
Total...	...	...	......	91,346	43,791*

NELLORE,
17th May 1873.

(Signed) R. SMITH,
District Engineer, Nellore.

From Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to R. SMITH, Esq., District Engineer, Nellore, dated 11th June 1873, No. 363.

I HAVE the honour to acknowledge the receipt of your letter No. 28 of the 17th ultimo, with its enclosures, and, in reply, to request information on the following points:—

1st.—In paragraph 3 of your letter, alluding to the tract commanded by the supposed anicut channel, and that can be easily cultivated, by which in this connection irrigation is meant, it is said that 75,003 acres are the area so commanded. What is the gross area of this tract? Judging from the sketch map the gross area is not more than about 75,000 acres, and, if so, it appears to be certain that at least one-third, if not more, must be deducted for village sites, tanks, roads, etc.

2nd.—In paragraph 1 it is said that there are 52,760 acres to be irrigated from the Nellore Anicut before the Madras Irrigation and Canal Company have any claim to the flood-waters of the Pennair; it is not clear how these figures are obtained.

2. What has to be shown is that the 94,000 acres to be irrigated by the Sungum project are entitled to water. Appendix A. shows that there are 37,910 acres of land classed as wet which could be commanded by a channel from the

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* The volume of water required for the irrigation of this area and for the existing cultivation must be allowed to pass the Irrigation Company's works.

anicut, but of these 9,604 are included in Appendix B., leaving	28,306 Acres.
Appendix B. shows that under the existing five river-channels the area entitled to water is	38,118 ,,
And also	468 ,,
It is also reported in Appendix C. that the dry and waste lands irrigable by an anicut channel are	22,525 ,,
And in Appendix A. lands in the beds of tank similarly commanded are entered at	1,929 ,,
	91,346 ,,

If this area be correct the infringement of the rights of the Company involved in carrying out the project would be to the extent of the irrigation of 94,000 — 91,346 = 2,654 acres. The answer to the question put in paragraph 1 above, as to the gross area of the tract of country coloured yellow on the sketch map, will show tolerably clearly whether there is room for an extension of irrigation there to 22,525 acres hitherto not classed as wet. I do not know how the figures shown in column 4 of Appendix C. were obtained, but it is of much importance that the real facts and circumstances should be clearly laid before Government.

3. I would further remark that 2 inches a mile should not be taken as the fall of a channel from the Nellore Anicut on the north bank of the river. The supply of water required could not be economically carried with a channel so arranged, and so far as I am aware the idea of projecting a channel with such a fall has not been entertained; 6 or 8 inches a mile fall would probably be adopted in practice, and, allowing the former, some additional deduction from the area commanded will be required.

No. 209A. From R. SMITH, Esq., District Engineer, Nellore, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Camp at Ongole, 28th June 1873, No. 45.

WITH reference to your letter, No. 363, of 11th instant, calling for further information regarding the proposed extension of irrigation in the northern delta of the Pennair, I have the honour to submit the following particulars :—

2. According to the Ordnance Map the gross area of the tract coloured yellow on the Sketch Map forwarded with my No. 28, dated 28th May last, is 84,480 acres, or 9,477 acres in excess of the area shown in the return furnished by the late Mr. Boswell as available for cultivation. As the difference between this area and the gross acreage is much less than the proportion that is generally deducted from the latter for villages, tanks, and roads, I left a fair margin for contingencies in estimating the area that could be watered by a high level channel from the Nellore Anicut.

3. With reference to your observation, "that at least one-third, if not more, must be deducted for village sites, tanks, roads, etc.," from the gross area, I would draw your attention to the tract north of Alluru, where the irrigable area will certainly be at the rate of 550 acres per square mile; to the land between the Pennair and the Moldavy on the east of the Vagoor Tank, as I believe 550 acres per square mile may also be fairly assumed as the proportion suitable for wet cultivation there; and to the country between Alluru and the Pydaru, as it seems that a deduction of 140 acres from each square mile in that part of the delta, would more than cover the area occupied by villagers, tanks, etc. Should you however still consider that a deduction of one-third must be made from the gross acreage, the result would not differ very materially from my estimate of the available land; but I must add, and I trust you will kindly excuse my doing so, that, from what I know of the country, I consider a less per-centage would suffice.

4. Adverting to your query regarding the 52,760 acres to be watered from the Nellore Anicut, before the Madras Irrigation Company have any claim to the flood-waters of the Pennair, I have to explain that from Appendix C. it will be seen 60,435 acres of the present cultivable land are proposed to be brought under wet cultivation, and from Appendix A. it will be observed that 1,929 acres have to be added to the above on account of the land to be reclaimed from tanks. The total area would therefore be 62,364 acres. From this, however, the area (9,604 acres) under the river channels* has to be deducted as annexed :—

62,364 — 9,604 = 52,760 acres, the area to be irrigated from the northern flank of the Nellore Anicut.

* *Vide* Appendix A.

5. The area to be converted into wet cultivation, as shown in column 4 of Appendix C., was fixed partly with reference to the available land shown in the return received from the Collector when the Sungum Project was under investigation, and partly from my knowledge of the country traversed by the proposed channels. The extent entered opposite each village is necessarily approximate, as no accurate information can be obtained at this stage regarding the additional land that will ultimately be brought under rice cultivation in those parts.

6. If the fall in the high level channel is increased, as suggested in paragraph 3 of your letter under notice, the area commanded by it would be reduced about 1,025 acres, and the revenue would suffer to the extent of Rupees 4,100 annually.

No. 422A.

No. 209B. *Note by the Chief Engineer for Irrigation.*

THE Secretary of State in the despatch communicated with G. O., of the 9th January 1873, No. 69, called for certain additional information regarding the Sungum project. The most important point raised was whether the Government are in a position to take water from the Pennair without infringing the rights of the Madras Irrigation and Canal Company under their contract with the Secretary of State, and, in order to show how the project was in this respect circumstanced, a report was called for from the officer who prepared the project.

2. The contract with the Madras Irrigation and Canal Company reserved the rights of all existing irrigation in Nellore, as well as of prospective irrigation under the Nellore Anicut across the Pennair. It was originally intended to carry a channel from the anicut on the north bank of the river, but the large amount of drainage to be crossed rendered it doubtful whether such an extension of irrigation could be economically carried out. The necessity also for improving the means

of irrigation under the existing river channels having their heads at Sungum* and between that† and the Nellore Anicut, led to the proposal to substitute for the northern channel from the Nellore Anicut, and for the improvement of the five channels to the westward, on the north bank above mentioned, a complete system of irrigation, having its head at Sungum. This project, as submitted for sanction and approved by this Government and the Government of India, provided for irrigating 94,000 acres, as noticed in paragraph 3 of the Secretary of State's despatch.

* Duvuru, Gundaveram.
† Punchedu, Kovur, Veguru.

3. If the contract with the Madras Irrigation and Canal Company is to be so interpreted as to admit of the Government taking water from the Pennair, only in the precise way in which it was contemplated by the framers of the contract that it would be drawn from that river for existing and prospective irrigation, it would follow of course that the Sungum project, which provides for taking a supply from a different point of the river for the lands commanded by the Pennair Anicut at Nellore, is not, so far as these lands are concerned, within the reservation allowed; if, on the other hand, the reservation should be interpreted to allow of certain lands being supplied in the manner most convenient instead of in a particular way, the Sungum project may be carried out almost as projected without infringing the rights of the Company.

4. From Mr. R. Smith's Report, No. 28, dated 17th May 1873, and its Appendices, and from the subsequent correspondence* with that officer, it will be seen that nearly the whole of the lands included in the 94,000 acres, the irrigation of which is contemplated, are entitled to water. With a main feeder from the northern flank of the Pennair Anicut at Nellore, laid out with a fall of two inches a mile, it was shown by Mr. R. Smith, as summarized from the Appendices to his Report in paragraph 2 of my letter No. 363, that the total area which could be irrigated, without any infringement of the agreement with the Company, is 91,346 acres, made up as follows:—

* To No. 363, 11th June.
From ,, 45, 28th June.

	Acres.	
Area under the five existing river channels*	38,586	
Area of land classed as wet capable of being irrigated by an anicut channel. This is under rain-fed tanks or tanks fed by minor streams	28,306	52,760
Area of dry and waste lands irrigable by an anicut channel ...	22,525	
Area of lands in the beds of tanks to be abandoned as reservoirs do. do.	1,929	
Total...	91,346	

It appeared to me however that, as it was improbable that a channel from the Nellore Anicut having so small a fall as two inches a mile would be contemplated, it would be better to reduce the area irrigable from this source to that commanded by a canal having the more reasonable fall, for this part of the country, of six inches a mile, and the District Engineer of Nellore reports that this alteration would strike out 1,025 acres from the area, thereby reducing the total area to 90,321 acres, or, say, in round numbers 90,000 acres.

---

* Duvaru, Gandaveram, Puncheda, Kovur, Vegura.

5. It will likewise be seen that the gross area of the tract of country coloured yellow on the Sketch Map is 84,480 acres, from which deducting 1,025 acres, as above, 83,455 remain, and that the area to be irrigated within this tract is

	Acres.	Acres.
That under existing channels	......	9,604
,, irrigable by an anicut channel	52,760	......
Deducting the difference for a canal with a 6″ fall ...	1,025	......
		51,735
Total		61,339

equivalent to 73½ per cent. of the area commanded, or acres 470 to the square mile. Whether this estimate would be confirmed or not by a detailed investigation I cannot say, but it will be noticed that Mr. R. Smith's attention has been specially called to the point, and he is of opinion that the proportion of land to be irrigated to gross area is not too high, and that in certain parts of this tract of country the proportion may be expected to exceed the above average very considerably.

6. I do not think that anything more can be usefully said on this question of the connection between the project and the claims of the Madras Irrigation and Canal Company, upon the waters of the Pennair. It is possible that a more detailed investigation might show that the Government are entitled to take water for the whole of the 94,000 acres, on the other hand it has been shown, on data which appear to be reasonable, that at any rate 90,000 acres are entitled to water.

7. Paragraph 5 of the Secretary of State's despatch points out that the estimates do not include the preliminary expenditure on the investigation of the project. These, under all heads, are reported to have amounted to Rupees 46,698. It is noticed also that allowance has not been made for the accumulation of interest during the five years that the works are expected to be under construction, and that the returns of revenue have been calculated as if the whole irrigable area would at once become fully profitable on the opening of the canals.

With regard to the accumulation of interest, it would of course be easy to fix arbitrarily the yearly expenditure, and to show to what the interest thereon would amount. The total of the estimates is Rupees 25,83,800, and, at a rough guess, the expenditure might be expected to be as follows:—

	RS.
1st year	1,83,800
2nd ,, ...	6,00,000
3rd ,, ...	8,00,000
4th ,, ...	8,00,000
5th ,, ...	2,00,000

and the corresponding interest at 4½ per cent. per annum would be—

1st year $\frac{1,83,800}{2} + \frac{4\frac{1}{2}}{100}$ = Rupees 4,135

2nd ,, $(1,83,800 + \frac{6,00,000}{2}) \times \frac{4\frac{1}{2}}{100} =$,, 21,771

3rd ,, $(7,83,800 + \frac{8,00,000}{2}) \times \frac{4\frac{1}{2}}{100} =$,, 53,271

4th ,, $(15,83,800 + \frac{8,00,000}{2}) \times \frac{4\frac{1}{2}}{100} =$,, 89,271

5th ,, $(23,83,800 + \frac{2,00,000}{2}) \times \frac{4\frac{1}{2}}{100} =$,, 1,11,771

Total Interest Rupees 2,80,219

on the other hand, as a set off against this interest, must be taken the increase of revenue to be derived from the works during the five years. It is impracticable to show clearly what this will be, but, as regards the compensation for interest on capital outlay, it will suffice if in the first year irrigation be extended to about 1,000 acres, in the second year to about 5.500 acres, in the third year to 13,300 acres, in the fourth year to 22,500 acres, and in the fifth year to 28,000 acres. This calculation is based on the estimate of the Board of Revenue that the net return on 49,947 acres of additional irrigation will be Rupees 2,03,800, or a little more than 4 Rupees an acre, and it does not seem unreasonable to expect that such a rate of extension will be realized. Any attempt at a more accurate estimate might only mislead, for, as I have before said, the success and the results of such a project as this will depend in a great measure upon the executive agency employed to carry it out. Provision has been made in the estimates for an ample establishment, but at the present moment it would be impossible to organize the staff out of the existing Public Works Establishment, and, in my opinion, the works in progress in the Northern Deltas and Tanjore, as also in the southern part of this Pennair Delta are being carried out under very inadequate supervision, and, as a consequence, the results anticipated when expenditure was sanctioned will either not be realized at all, or the time of realization will be postponed.

8. The proposals made for the abandonment of certain tanks as reservoirs, and for the sale and cultivation of their beds, were based upon a careful consideration of the circumstances of the water supply. Paragraph 10 of my Note printed in Proceedings, Madras Government, of the 28th July 1870, No. 1,818, shows that for the existing irrigation of 44,053 acres, with a very inefficient supply from the Pennair to only a part of this area, the storage amounts to 152·50 millions of cubic yards, while for the full area of 94,000 acres 320·59 millions will be stored, the sources of supply being at the same time greatly improved. Experience has been thus very closely followed as a guide.

9. The question of allowing holders of Inam lands to irrigate all such lands without any charge, although not more than 6,056 acres out of 8,854 acres have hitherto been cultivated, was referred to the Revenue Department for consideration, and Government have decided* that under Standing G. O., No. 1,871, of the 11th August 1865, which was reiterated in G. O., 1st September 1870, No. 1,375, no charge can be made.

10. Paragraph 8 of Mr. R. Smith's letter, No. 28, of the 17th May last, explains what the circumstances of the application for land, referred to in paragraph 102 of that officer's report of 30th October 1869, and noticed in paragraph 7 of the Secretary of State's despatch, were. These proposals were rejected by the Collector of Nellore, but it will be seen they involved no loss of revenue, but rather an immediate gain of some small dry assessment to which would have been added, in due course, the water-rate.

Proceedings, Madras Government, 28th July 1870, No. 1,818.

11. In conclusion, I would mention the importance of an early decision as to whether this project is to be carried out; because, for many years past all improvements of the present Sungum channels have been put aside, lest they should be superseded, and waste of money be thus incurred. When I was District Engineer of Nellore in 1856—61 the need of radical improvements to the Duvur and Gundaveram channels was ascertained; and, if the execution of the larger project be finally negatived, it will be advisable that no time should be lost in taking in hand the reformation of the old channels to the extent to which they may be capable of being improved.

Ootacamund, (Signed) J. MULLINS, Lieut.-Colonel, R.E,
12*th July* 1873. *Chief Engineer for Irrigation.*

No. 210. Order thereon, 13th August 1873, No. 2,015.

IRRIGATION, No. 11.

Ordered that these papers be communicated to the Government of India, with reference to their Proceedings, No. 835-I, dated 26th September 1872.

2. His Excellency the Governor in Council is of opinion that the information contained in the Note by the Chief Engineer for Irrigation shows that the carrying out of the Sungum project in its entirety would not involve any real infringement of the contract rights of the Madras Irrigation and Canal Company, unless those rights be interpreted in a manner purely technical, which probably the Company itself would not at all desire; while, were the proposed extent of irrigation reduced from 94,000 acres to 90,000 acres no land in excess of the area for which the State is entitled to appropriate water would be irrigated.

3. His Excellency concurs with the Chief Engineer for Irrigation in considering it to be desirable that it should be settled at an early date whether the execution of this project is to be sanctioned, or negatived, in order that, in the latter case, such improvements to existing channels, as may be practicable and necessary, may at once be carried out.

Ordered that the following letter be sent:—

(Here enter No. 2,016, dated 13th August 1873.)

(True Extract.)

(Signed) J. MULLINS, Lieut.- Colonel, R.E.,
Joint Secretary to Government.

To the District Engineer, Nellore.
,, Chief Engineer for Irrigation.
,, Revenue Department.

Exd. S. T. Austin.

Spare Copies.

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* G. O., Revenue Department, No. 119, 29th January 1873.

No. 363 To D.E. Nellore

I have the honour to acknowledge the receipt of your letter No. 25 of the 17 ~~instant~~ ultimo with its enclosures and in reply to request information on the following points

1st. In para 3 of your letter, alluding to the tract commanded by the supposed ancient channel and that can be easily cultivated by which in this connection irrigated is meant, it is said that 75,003 acres are the area so commanded. What is the gross area of this tract? Judging by the sketch map the gross area is not more than about 75,000 acres and if so it appears to be certain that at least one third if not more must be deducted for village sites, tanks, roads &c. &c.

2nd In para 1 it is said that 52,760 acres to be irrigated from the Nellore Ancient [illegible] 266 have any claim to the flood waters of the Pennair; it is not clear how these figures are obtained

2. What has to be shown is that the 94,000 ~~49,967~~ acres ~~[illegible]~~ to be irrigated by the Sangam project are entitled to water - Appendix

Coloured

A shows that there are 37910
acres of land classed as wet which
~~could~~ are commanded by a channel
from the anicut but of these 9604
are included in appendix B leaving 28306 acres

Appendix B shows that under the
existing 5 river channels the area
entitled to water is 38118
and also 468

It is also reported in appendix C..
that the dry and waste lands irrigable
by an anicut channel are 22525.
and in appendix A lands in the
beds of tanks similarly commanded
~~are estimated at~~ 1929

91346

If this area be correct the infringement
of the rights of the Company involved
in carrying out the ~~Company~~ project
would be to the extent of the irrigation
of 94000 — 91346 = 2654 acres.

The answer to the question put in
para 1 above as to the gross area of
the tract of country coloured yellow
on the sketch map will show tolerably
clearly whether there is room for
an extension of irrigation there to

22525 acres ~~in addi~~ hitherto not
classed as wet. I do not know how
the figures shown in column 4 of
Appendix C were obtained but ~~I am~~ it
~~at present~~ is of much importance that
the real facts and circumstances
should be clearly laid before Govern-
ment.

3. I would further remark that
2 inches a mile should not be
taken as the fall of a channel
from the Nellore Anicut on the
north bank of the river. The supply
of water required could not be econo-
mically carried with a channel so
arranged & so far as I am aware
the idea of projecting a channel
with such a fall has not been
entertained. 6 or 8 inches a mile
fall would probably be adopted
in practice & allowing the former
some additional deduction from
the area commanded will be
required

11/6/73.

Coloured

From D. E. Nellore 728
June 73 R. No. 1031.

713

No. 363

For
The District Engr.
Nellore

Dated 11th } June
Dispd 17th } 1873.

Requests information on certain points connected with the extent of Irrigation likely to be commanded by the Pen Sungam Project.

P. 171

District Engineer's Office
Camp Ongole
28th June 1873

No. 45

From

R. Smith Esquire
District Engineer
of Nellore

To

Lieutenant Colonel J. Mullins R.E.
Chief Engineer for Irrigation
Fort Saint George

Sir

With reference to your letter, No. 363 of 11th instant, calling for further information regarding the proposed extension of irrigation in the Northern Delta of the Pennair, I have the honor to submit the following particulars.

2. According to the ordnance Map the gross area, of the tract

Coloured yellow on the sketch map forwarded with my No 28 dated 28th May last, is 84,480 acres, or 9477 acres in excess of the area shown in the return furnished by the late Mr Boswell, as available for Cultivation. As the difference between this area and the gross acreage is much less than the proportion that is generally deducted from the latter for villages, tanks, and roads I left a fair margin for Contingencies in estimating the area that Could be watered by a high level Channel from the Nellore Anicut.

3 With reference to your observation "that at least one third if not more must be deducted for village sites, tanks,

roads &ca" from the gross area I would draw your attention to the tract North of Alluru where the irrigable area will certainly be at the rate of 550 acres per square mile; to the land between the Pennair and the Moldavy, on the East of the Vagoor Tank, as I believe 550 acres per Square Mile may also be fairly assumed as the proportion suitable for wet cultivation there; and to the Country between Alluru and the Pydaru as it seems that a deduction of 140 acres from each square mile in that part of the Delta, would more than cover the area occupied by villages, tanks etc. Should you however still Consider that a deduction of One third must be made, from the gross acreage, the result would not differ very materially from my estimate of the available land; but I must add, and I trust you will kindly excuse my doing so, that, from what I know of the Country, I consider a less percentage would suffice.

4 Adverting to your query regarding the 52760 acres to be watered from the Nellore Anicut before the Madras Irrigation Company have any claim to the flood waters of the Pennair, I have to explain that from Appendix C it will be seen 60435 acres of the present Cultivable land are proposed to be brought under wet cultivation, and from Appendix A it will be observed that 1929 acres have to be added, to the above, on account of the land to be reclaimed from Tanks. The total area would therefore be 62,364 acres. From this, however, the area (9604 acres) under the river channels× has to be deducted as annexed.

× Vide Appendix A.

62,364 − 9604 = 52760 acres

the area to be irrigated from the Northern flank of the Nellore Anicut.

5 The area to be converted into wet cultivation, as shown in Column 4 of Appendix C, was fixed partly with reference to the available land shown in the return received from the Collector when the Sangam Project was under investigation.

and partly from my knowledge of the Country traversed by the proposed Channels. The extent entered opposite each village is necessarily approximate as no accurate information can be obtained at this stage regarding the additional land that will ultimately be brought under rice cultivation in those parts.

6 If the fall in the high level Channel is increased as suggested in paragraph 3 of your letter under notice, the area commanded by it would be reduced about 1025 acres and the Revenue would suffer to the extent of Rs 4,100 annually

J.

No. 422 A. P. 28

Note by the Chief Engineer for Irrigation

I have the honor to be
Sir
Your most Obedt. Servt.
J Smith
District Engineer
Nellore

R.H.

From [illegible] No. 1031.
Reg.
The District Engineer,
Nellore
To
The Chief Engineer for
Irrigation.
Madras.
Dated. 28 June 1873
Camp. Ongole
~~Read~~
Desp. 1 July/73.
Recd 5 " "
Furnishing further information regarding the proposed extension of Irrigation in the Northern Delta of the Pennair as called in the Chief Engrs letter No 1363. dated 11 June 1873

P. W. 4259/73.

No. 422 A.

Note by the Chief Engineer for Irrigation

The Secretary of State in the despatch communicated with G.O. of the 9th January 1873 No. 69 called for certain additional information regarding the Sangum project. The most important point raised was whether the Government are in a position to take water from the Pennair, without infringing the rights of the Madras Irrigation Canal Company under their contract with the Secretary of State, and, in order to show how the project was in this respect circumstanced, a report was called for from the officer who prepared the project.

2. The contract with the Madras Irrigation Canal Company reserved the rights of all existing irrigation in Nellore, as well as of prospective irrigation under the Nellore anicut across the Pennair. It was originally intended to carry a channel from the anicut on the North bank of the river, but the large amount of drainage to be crossed rendered it doubtful whether such an extension of irrigation could be economically carried out. The necessity also for improving the means of irrigation under the existing river channels having their

× Duvvuru
Gundaveram

‡ Pinchedu
Kovur,
Veguru.

heads at Sungum× and between that‡ and the Nellore anicut, led to the proposal to substitute for the Northern channel from the Nellore anicut and for the improvement of the 5 channels to the westward, on the North bank, above mentioned, a complete system of irrigation, having its head at Sungum. This project, as submitted for sanction and approved by this Government and the Government of India, provided for irrigating 94,000 acres, as noticed in para 3 of the Secretary of State's Despatch

3. If the contract with the Madras Irrigation Canal Company is to be so interpreted as to admit of the Government taking water from the Pennair, only in the precise way in which it was contemplated by the framers of the contract that it would be drawn from that river for existing and prospective irrigation, it would follow of course that the Sungum project, which provides for taking a supply from a different point of the river for the lands commanded by the Pennair anicut at Nellore, is not, so far as these lands are concerned, within the reservation allowed; if on the other hand the reservation should be interpreted to allow of certain lands being supplied in the manner most convenient instead of in a particular way, the Sungum project may be carried out almost as projected without infringing the rights of the Company.

4. From Mr R. Smith's report, No 28 dated 17 May 1873, and its appendices, and from the subsequent correspondence with that officer it will be seen that nearly the whole of the lands included in the 94,000 acres, the irrigation of which is contemplated are entitled to water. With a main feeder from the Northern flank of the Pennair anicut at Nellore, laid

*To No 363 - 11 June
Fm - 45 - 20th do

laid out with a fall of 2 inches a mile, it was shown by Mr R. Smith, as summarized from the appendices to his report in para 2 of my letter No 363, that the total area which could be irrigated, without any infringement of the agreement with the Company, is 91,346 acres; made up as follows

Area under the 5 existing river channels	Acres	38,586
" of land classed as wet capable of being irrigated by an anicut channel. This is under rainfed tanks or tanks fed by minor streams	"	28,306
" of dry & waste lands irrigable by an anicut channel	"	22,525
" of lands in the beds of tanks to be abandoned as reservoirs do do	"	1,929
Total acres		91,346

52,760

× Survern
Gundavaram
Pemchedu
Kovur
Yeguru

It appeared to me however that, as it was improbable that a channel from the Nellore anicut

having so small a fall as 2 inches a mile would be contemplated, it would be better to reduce the area irrigable from this source to that commanded by a Canal having the more reasonable fall, for this part of the Country, of 6 inches a mile, and the District Engineer of Nellore reports that this alteration would strike out 1025 acres from the area, thereby reducing the total area to 90,321 acres or say in round numbers 90,000 acres.

5. It will likewise be seen that the gross area of the tract of country coloured yellow on the sketch map is 84,480 acres from which deducting 1025 acres

as above 83,455 remain & that the area to be irrigated within this tract is,

That under existing channels acres 9,604
irrigable by an ancient channel ——— 52760.
deducting the difference for a canal with a 6" fall —— 1025 51,735
Total acres 61,339

equivalent to 73½ per cent of the area commanded, or acres 470 to the square mile. Whether this estimate would be confirmed or not by a detailed investigation I cannot say but it will be noticed that Mr. R. Smith's attention has been specially called to the point, and he is of opinion that the proportion of Land to be irrigated to gross area

is not too high, and that in certain parts of this tract of country the proportion may be expected to exceed the above average very considerably

6. I do not think that anything more can be usefully said on this question of the connection between the project and the claims of the Madras Irrigation Canal Company upon the waters of the Pennair. It is possible that a more detailed investigation might shew that the Government are entitled to take water for the whole of the 94,000 acres on the

other hand it has been shown on data which appear to be reasonable that at any rate 90,000 acres are entitled to water.

7. Paragraph 5 of the Secretary of States Despatch points out that the estimates do not include the preliminary expenditure on the investigation of the project. These under all heads are reported to have amounted to Rupees 46,698. It is noticed also that allowance has not been made for the accumulation of interest during the 5 years that the works

are expected to be under construction, and that the returns of revenue have been calculated as if the whole irrigable area would at once become fully profitable on the opening of the Canals.

With regard to the accumulation of interest, it would of course be easy to fix arbitrarily the yearly expenditure, and to show to what the interest thereon would amount. The total of the estimates is Rupees 25,03,000 and, at a rough guess, the expenditure might be expected to be as follows:

1st year	Rupees 183,000
2nd "	6,00000
3rd "	9,00,000
4th "	8,00,000
5th "	2,00,000

and the corresponding interest at 4½ per cent per annum would be

1st Year $\frac{183800}{2} \times \frac{4\frac{1}{2}}{100}$ = Rupees 4,135

2nd " $\left(183800 + \frac{600000}{2}\right) \times \frac{4\frac{1}{2}}{100}$ = " 21,771

3rd " $\left(783800 + \frac{800000}{2}\right) \times \frac{4\frac{1}{2}}{100}$ = " 53,271

4th " $\left(1583800 + \frac{800000}{2}\right) \times \frac{4\frac{1}{2}}{100}$ = " 89,271

5th " $\left(2383800 + \frac{200000}{2}\right) \times \frac{4\frac{1}{2}}{100}$ = " 111,771

Total Interest Rupees 280,219

On the other hand, as a set off against this interest, must be taken the increase of Revenue to be derived from the works during the 5 years. It is impracticable to show clearly what this will be, but, as regards the compensation for interest on Capital outlay it will suffice if in the 1st year irrigation be extended

extended

extended to about 1900 acres; in the 2nd year to 5,500 acres: in the 3rd year to 13,300 acres, in the 4th year to 22,500 acres and in the 5th year to 28,000 acres. This calculation is based on the estimate of the Board of Revenue that the net return on 49,947 acres of additional irrigation will be Rupees 203,800 or a little more than 4 Rs. an acre, and it does not seem unreasonable to expect that such a rate of extension will be realized. Any attempt at a more accurate estimate might only mislead, for as I have before said, the success and the results of such a project as this will depend in a great measure upon the

Executive agency employed to carry it out. Provision has been made in the estimates for an ample establishment, but at the present moment it would be impossible to organize the staff out of the existing P.W. establishment, and in my opinion the works in progress in the Northern Deltas & Tanjore, as also in the Southern part of this Pennair Delta are being carried out under very inadequate supervision, and as a consequence the results anticipated when expenditure was sanctioned will either not be realized at all, or the time of realization will be postponed.

11. The proposals made for the abandonment of certain tanks as reservoirs, and for the sale & cultivation of their beds, were based upon a careful consideration of the the circumstances of the water supply. Para 10 of my note printed in P.M.G. No 1018 of the 20th July 1870, shows that for the existing irrigation of 44.053 acres, with a very insufficient supply from the Pennair to only a part of this area, the storage amounts to 152.50 millions of cubic yards, while for the full area of 94000 acres 320.59 millions will

be stored, the sources of supply being at the same time greatly improved. Experience has been thus very closely followed as a guide.

9. The question of allowing holders of Inam lands to irrigate all such lands without any charge, although not more than 6,056 acres out of 8,054 acres have hitherto been cultivated, was referred to the Revenue Department for consideration, and ~~the~~ Government have decided× that under Standing G.O. No 1071 of the 11th August 1865, & which was reiterated in G.O.

× G.O. R.D. No 119 29 Jany 1871

1st

1st September 1870 No 1375, no charge can be made.

10. Para 8 of Mr R. Smith's letter No 28 of the 17th May last, explains what the circumstances of the application for land, referred to in para 102 of that officer's report of 30th October 1869, & noticed in para 7 of the Secretary of State's despatch, were. These proposals were rejected by the Collector of Nellore, but it will be seen they involved no loss of Revenue, but rather an immediate gain of some small dry assessment to which would

P.W.G. 20th July 70. No 1818

would have been added, in due course, the water rate.

11 In conclusion I would mention the importance of an early decision as to whether this project is to be carried out; because, for many years past all improvements of the present Sangam channels have been put aside, lest they should be superseded, & waste of money be thus incurred. When I was District Engineer of Nellore in 1856-61 the need of radical improvements to the Duvoor and

and Gundaveram channels was ascertained; and, if the execution of the larger project be finally negatived, it will be advisable that no time should be lost in taking in hand the reformation of the old channels to the extent to which they may be capable of being improved.

Ootacamund }
12th July 1873 }

John Mullins Lt Col RE
Chief Engr for Irrigation

To
The Secretary to Govt P.W.D.

Sungum Pub: Works Department

P. W. 1873 Department.
Pro. of Fort St. George.
No. 4259.

From
The Chief Engineer for Irrigation.

To
The Secretary to the Govt.
P. W. Depart.

Dated 12th } July 1873.
Recd. 30th }

No. 422 A
Enclosures. 8.

Note
regarding the
Sungam Project.

No. ~~2015~~ 2016 : 13 Aug/6/73.

No 209

Sungum Project note of Chief Engineer for Irrigation dated 12 July 73

Papers to be printed in the following order—

1 – Mr Smith's to 28 & its appendices
2 – No 363 to Dept Engineer 1109/[illegible]
3 – " – 45 from – do – do
4 – Note by Chief Engr for Irrigation dated 12 July 73 —

Sent to the press on the 22 [illegible]
2nd [illegible]
22 July 73

Sangm Pub: Works Department

No. 2015.

Proceedings of the Madras Government

Under date the July 1873.

Read the following.

From the Chief Engr for Irrign (A.E. No. of 12 July/73)

Ordered that these papers be communicated to the Government of India with reference to their Proceedings No. 835 I, dated 26 September 1872.

2. His Excellency the Governor in Council is of opinion that the information contained in the note by the Chief Engineer for Irrigation shows that the carrying out of the Sungum Project in its

No 209

entirety would not involve any material infringement of the Contract rights of the Madras Irrigation and Canal Company, unless those rights be interpreted in a manner purely technical, which probably the Company itself would not at all desire; while were the proposed extent of irrigation reduced from 94,000 acres to 90,000 acres, no land in excess of the area for which the State is entitled to appropriate water would be irrigated.

3. His Excellency concurs with the Chief Engineer for Irrigation in considering it to be desirable that it should be settled at an early date whether the execution of this project is to be sanctioned, or negatived, in order that, in the latter case, such improvements

to existing channels, as may be practicable and necessary, may at once be carried out.

4. Ordered that the following letter be sent.

No. 2016

80/14

*D.E. Nelline
* Ch. Engr for Irrign
& Rev Deptt
S.C. desks to the R. Deptt 4/9/73
*S.C. " 4/9/73

To the Secretary to the
Government of India
P.W. Deptt

Sir, I am directed, with reference to the Proceedings of the Government of India No 835 I. dated 26th September 1872, to transmit for the information of the Right Honorable the Governor General in Council a copy of the Proceedings of this Government No. dated containing the information regarding the Sangum Project asked for by the Secretary of State, and I am to request that the decision of Her

Majesty's Government upon this project may be obtained as early as may be convenient, it being of considerable importance that in the event of the execution of the project being negatived no time should be lost in improving as far as may be practicable, the existing river channels, the present

condition of which has for several years been, and is now, very far from satisfactory.

Wm. 16/7/73

25/2

S.C. distd 11/9/73 with
25 Copies of the preceding No.

C 4259

Govt. of {1873} Madras

PUBLIC WORKS.

To The District Engr

Nellore

Dated

Recd, Encl. 8

G. O. 13th Augt No 2015-201

Nos: 209 & 210

Sangam Project,

Dt.- Papers [illegible]
Note by the Chief Er
for Irrigation affording
information reg.
the Sangam Pro

No 209-10.

Cir 18th July.

R- 30th July 1873