Govt. of {1891} Madras.

REVENUE.

1694 Proj 24-VI-91

Records.

A.S.

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Recd. Encl.

G.O., 26th May 1891, No. 454.

S. Engr
Ch. for I
Ch. for Rly

MAY.

Famine relief.

Ordered that the lists of Professional Agency works available for — in certain districts during the year 1891-92 be forwarded to the Government of India.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following :—

Letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 2nd March 1891, No. 243 :—

With reference to G.O., No. 472 W., dated 10th February 1888, I have the honour to forward, herewith, a statement showing quantities of earthwork at present available for execution by famine labour in certain districts of this Presidency.

2. Where a line traverses more than one district, the quantities have been distributed between the districts at the average mileage rate for the whole line, so that the figures for each district will not be strictly accurate although the totals will represent the quantities shown in the estimate for each line.

3. In addition to the earthwork, employment for a certain number of persons could be found in the collection of ballast, but as the quantity of this work which could be usefully done must depend on local circumstances, it is not possible to form an estimate thereof.

(Signed) SIDNEY SMITH, Major, R.E.,
for Offg. Consulting Engineer for Railways.

ENCLOSURE.

QUANTITIES of earthwork available for execution by famine labour in various districts of the Madras Presidency.

District.	Name of line.	Miles.	Cubic yards per mile.	Total.	Total in each district.
Malabar	Pálghat-Dindigul	14	33,600	470,400	470,400
Coimbatore	Do.	42	33,600	1,411,200	1,411,200
Madura	Do.	44	33,600	1,478,400	4,912,533
Do.	Madura-Pámban	91½	37,600	3,434,133	
Salem	Porto Novo-Salem	48½	29,400	1,425,900	1,425,900
South Arcot	Do.	68	29,400	1,999,200	1,999,200

From the Superintending Engineer, I Circle, to the Chief Engineer, Public Works Department, dated 20th February 1891.

I CIRCLE.

LIST No. 1.—Statement showing the Irrigation and connected works *available* in each district for the employment of famine labour during the year 1891-92—*Nil.*

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

List No. 2.—Statement showing the Irrigation and connected works *which may be made* available in each district for the employment of famine labour during the year 1891-92.

District.	Name of work.	Amount of estimate. Earth works.	Other works.	Total.	Number of coolies that can be employed.	Probable time required to complete earth works.	Remarks showing the scope of project.
		Rs.	Rs.	Rs.		Months.	
Ganjam.	Improving Battili-Hiramandalem road from 8th to 18th mile.	..	7,000	7,000	350	6	Handed over to the Local Fund Department.
	Completing Tekkali-Anantagiri road.	2,000	12,000	14,000	700	6	Do. do.
	Completing road from Bhagirathipur to Mookhalingam.	1,200	2,500	3,700	350	3	Estimates not yet sanctioned.
	Ichapur-Jarada road	17,000	..	17,000	850	6	....
	Kinchili-Jarada road	20,000	..	20,000	550	10	Estimates not yet sanctioned.
	Kallikota-Boirany road ..	27,000	..	27,000	700	10	Handed over to the Local Fund Department.

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

20th February 1891.

To the Chief Engineer, Public Works Department.

Abstract statement from lists Nos. 1 and 2 showing the works in each district and the labour they will absorb.

List No. 2.

No.	District.	Name of work.	Estimates for earth works.	Number of coolies.	Period.	Establishment required. Executive Engineers.	Asistant Engineers.	Subordinates.
			Rs.		Months.			
1	Ganjam.	Improving Battili-Hiramandalem road.	..	350	3	..	..	1
		Completing Tekkali-Anantagiri road.	2,000	700	6	..	..	1
		Completing road from Bhagirathipur to Mokhalingam.	1,200	350	3	..	..	1
		Ichapur-Jarada road.	17,000	850	6	..	..	2
		Kinchili-Jarada road.	20,000	550	10	..	..	2
		Kallikota-Boirany road.	27,000	700	10	..	..	2

List No. 1.

No.	District.	Name of work.	Estimates for earth works.	Number of coolies.	Period.	Establishment required. Executive Engineer.	Asistant Engineers.	Subordinates.
..	..	..	..	..	..	..	..	..

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

20th February 1891.

To the Chief Engineer, Public Works Department.

From the Chief Engineer for Irrigation, to the Joint Secretary to Government, Public Works Department, dated Ootacamund, 20th April 1891, No. 18-W.

LIST No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92.

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete.	Remark
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Ganjam	1. Ganjam-Gopálpur canal	2,09,630	41,800	2,51,430	8,000	5	Excavation of this canal was taken up as a famine relief work in 1889 and about three-tenths of the work was done. Further progress was stopped after cessation of the famine, the completion of the canal having, in G.O., No. 598 I., dated 4th December 1889, been considered unnecessary as the proposed East Coast Railway will run close to the line of the canal.
.. ..	2. Rushikulya project	2,67,361	14,80,961	17,48,322	10,000	5½	Estimates sanctioned by the Secretary of State and work in progress. The sanctioned rates being insufficient and certain alterations being found necessary in the designs for works, revised estimates have been submitted to the Secretary of State for sanction.
Kistna	Tungabhadra drain	41,355	..	41,355	1,200	6	These are parts of the completion estimates sanctioned for the Kistna delta—*vide* Proceedings of Madras Government, No. 62 I., dated 11th February 1889.
	Nallamada affluent	61,574	..	61,574	2,000	6	
	Main canal, Western delta	1,82,275	..	1,82,275	16,000	3	
	Bank canal, Eastern delta	2,04,215	..	2,04,215	5,000	8	
	Lazabanda drain	3,607	..	3,607	2,000	2	
	Romperu drain and affluents	1,22,679	..	1,22,679	5,000	5	
	Répalle drain and affluents	58,232	..	58,232	2,500	5	
	Inampudi drain	5,298	..	5,298	300	4	
	Kanakolu drain	14,687	..	14,687	700	4	
	Teleru drain	16,667	..	16,667	800	4	
	Gudimotu drain	4,500	..	4,500	200	4	
	Pedalanka drain and affluents	29,971	..	29,971	1,500	4	
	Sultanagaram drain	2,415	..	2,415	100	4	
	Bank canal, Western delta	58,232	..	58,232	2,400	5	
	Bhatiprole drain	28,166	..	28,166	1,400	4	
	Nizampatam drain	6,801	..	6,801	300	4	
	Bantumilli canal extension	56,344	..	56,344	2,800	4	
Nellore	Buckingham canal diversion near Kundaleru between 89 1/16 and 89 7/8 miles.	15,700	..	15,700	800	4	G.O., No. 648 I., dated 8th November 1890.
	Buckingham canal diversion at Dugarázpatnam.	21,500	..	21,500	1,100	4	G.O., No. 206 I., dated 4th March 1891.
	Buckingham canal, Pennér south diversion.	22,500	..	22,500	1,100	4	G.O.. No. 504 I., dated 11th September 1890.
	Griddalore tank, improvements	5,833	..	5,833	300	4	G.O., No. 277 I., dated 21st March 1891.
	Madamanur do.	12,929	..	12,929	600	4	Estimate has been prepared.
	Irakam island embankment in the Pulicat lake.	17,800	..	17,800	900	4	G.O., No. 563 I., dated 8th October 1890.

List No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Anantapur ..	5. Roddam project	48,280	54,940	1,03,220	2,400	4	This project provides for an anicut across the Pennér to supply Roddam large tank. Preliminary investigation of this project was made by Mr. Garrett when he was in charge of the "C" Project division. The estimates for masonry works may be allowed to stand, but the channel portion will require revision. The Superintending Engineer, III Circle, estimates the net return at a little over 2 per cent. If required, it could be submitted in a complete shape in about three months.
Coimbatore ..	Kalingaroyen channel improvements ..	1,60,800	1,26,000	2,86,800	3,500	9	The proposal is to improve bed-fall, provide efficient sluices and reduce the existing number of sluices and extend the channel about 33 miles so as to bring about 15,000 acres of land under wet cultivation, including 5,000 acres now irrigated by the Pugalúr channel. Estimates have been sanctioned by the Secretary of State—*vide* Proceedings of Madras Government, No. 279 I., dated 21st March 1891.
	Do. do. extension .. :	2,44,800	1,35,400	3,80,200	3,800	13	
Chingleput ..	Buckingham canal diversion from Chintamoney backwater to Pulicat lake	37,200	5,400	42,600	1,200	6	Estimate has been received and will be dealt with shortly.
Chingleput (Tiruvallur taluk).	Varadiapalliam tank	430	220	650	84	1	Available for departmental work. It is close to Kadur and Kambakam tanks.
	Uttookottai tank	3,800	..	3,800	250	3	These tanks need repairs.
	Pallarambakam tank	2,168	2,437	4,605	220	2	
	Vadamadurai tank	2,410	..	2,410	240	2	
North Arcot ..	Cheyár main channel	75,000	15,000	90,000	5,000	8	Muck of the earthwork is rock and hard gravel unsuited for famine labour. The work is in progress.
South Arcot ..	Chidambaram taluk drainage scheme ..	..	..	2,09,000	..	..	Estimates will be sanctioned shortly.
Do. ..	Buckingham canal diversion south of Madras from 18th to 30th mile.	93,345	..	93,345	1,600	12	G.O., No. 169 I., of 25th March 1889.
Trichinopoly ..	Coleroon left bank from the bridge to Nandiyar anicut.	28,270	11,568	39,838	1,100	5	Estimate of Rs. 89,500 sanctioned in G.O., No. 557 I., dated 7th October 1890. Work is now being done on contract.
	Cauvery right bank from Cauvery bridge at Trichinopoly to the old Vennar head, raising and strengthening.	4,000	..	4,000	800	1	G.O., No. 72 I., dated 7th February 1890.
	Agunda-Cauvery R.B. from Amarávati junction to 11½ mile, raising.	7,270	5,730	13,000	480	3	G.O., No. 439 I., dated 13th August 1890. Work on contract.
	Nandiyar channel, extension	23,100	3,700	26,800	1,150	4	G.O., No. 245 I., dated 13th March 1891.
	Ponnéri leading channel, excavating the—	8,543	..	8,555	850	2	Estimate ready.
Tinnevelly ..	Srívilliputúr-Periyakulam, repairs	2,875	300	3,175	300	2	Estimate sanctioned under Tank Restoration Scheme.
	Melamadai-Periyakulam and its supply channel repairs.	4,130	440	4,570	300	3	Do. do. do.

List No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Tinnevelly—*cont.*	Nathampatti-Periyakulam improvements ..	5,230	..	5,230	350	3	Estimate sanctioned under Tank Restoration Scheme.
	Kristnaperiakulam repairs	1,570	145	1,715	150	2	Do. do. do.
	Pallikottai channel, improving	10,138	13,782	23,920	500	4	Estimate under reference with the Executive Engineer.
	Támbraparni river left bank below Srívaikuntham anicut, diversion.	11,000	..	11,000	700	3	G.O., No. 574, I., of 23rd November 1889.
	Vellur tank, repairing	1,500	4,300	5,800	150	2	Estimate is ready.
	Naranaperi tank and Puli Odai scheme, improving.	1,870	4,510	6,380	200	2	Do.
	Sivalaperi channel and tank, improving ..	4,514	8,116	12,680	300	3	Do.
	Perinjeri channel, improvements	2,287	2,743	5,000	200	2	Estimate under preparation.
	Authur channel, cutting	2,000	..	2,000	200	2	Do.
Madura	Periyár project	3,37,000	5,08,900	8,45,900	5,600	12	In progress.

N B.— The number of coolies entered in column 6 has been arrived at by dividing the amounts of estimates for earthwork by five times the number of months in column 7, assuming an average rate of Rs. 5 a month for each cooly. The results have been rounded off.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92.

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Ganjam	Repairs to tanks and channels	30,000	..	30,000	1,600	4	
	Do. do.	9,000	..	9,000	200	9	
	Bahuda river, embankment	7,000	..	7,000	300	6	Approximate estimates.
	Jayamangalam channel, improvements ..	3,000	2,000	5,000	400	1½	
	Irrigation works in estates	31,000	10,000	41,000	1,400	5	
Vizagapatam ..	Pálkonda irrigation works, river embankment.	6,000	8,000	14,000	1,000	1	
Godávari ..	Canal from Sámalkót towards Tuni (37 miles long).	4,00,000	..	4,00,000	10,000	8	The project was partially investigated by the "A" Project division and further investigation was stopped on the abolition of that division. It is not likely to be remunerative.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Godávari—*cont.*	Anumalanka project channels	Not known.		9,00,000	7,000	8	The number of coolies entered is exclusive of the great reservoir which, if carried on, would have to be constructed with greater care and skill than could be expected from famine labour. This project comprises the construction of a tank or reservoir with storage capacity, 4,420 millions of cubic feet, length 7½ miles, greatest width 4½ miles and area 9⅝ square miles, near the ruined village of Anumalanka in the Yernagúdem taluk. It is 6 miles north of Nallacheri, a large village on the trunk road between Ellore and Rajahmundry. The site is feverish in wet weather. It will be supplied from the Yerracalva, a river which gets its principal supply from the south-west monsoon. It has been suggested that the reservoir will act as a flood moderator to the drainage of the Yerracalva which enters the western section of the Godávari delta under the Nundamur aqueduct at the head of the Ellore canal and has several times endangered the safety of some of the delta canals. The reservoir is intended to irrigate 45,000 acres. The estimates for the project, which were prepared by Captain Dorward, R.E., in 1873, require revision.
	.. .. ..				13,000	8	No estimates have been prepared.
	Widening all Godávari river embankments to fit them for roads.	..	..	..			
	Bhádrachalam boat canal	2,89,150	1,66,150	4,55,300	7,200	8	In 1878 an estimate was sanctioned for this canal and in 1882 an alternative line was investigated, but the execution of work was condemned on either line except as a relief work in case of famine in the Bhádrachalam and Rékapalle taluks.
Kistna	Upputeru, widening for 2 miles from Kottadu weir.	1,00,000	..	1,00,000	4,000	5	Approximate estimate.
	Masulipatam canal from 1 to 5 miles—removing the spoil on the berms.	55,520	..	55,520	2,200	5	
	Fresh water canal from Bantumilli canal at Chinapandrakka, 52 miles 5 chains to Masulipatam.	66,000	..	66,000	3,300	4	This canal is for navigation only.
	Canal from tidal lock at Masulipatam to salt pans at Manginapudi.	56,600	..	56,600	2,800	4	Proposed chiefly to facilitate salt traffic.
	Ipur tank, Vinukonda taluk	5,000	..	5,000	250	4	Approximate estimates.
	Dondapad tank, Vinukonda taluk	10,000	..	10,000	500	4	
Nellore	Nellore tank supply channel from Sangam.	78,500	..	78,500	3,000	5	Estimate has been prepared.
	Removing island above and below Nellore anicut.	40,000	..	40,000	2,000	4	Approximate estimate.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Nellore—*cont.* ..	Moldevi drain, improvements	18,560	..	18,560	1,500	4	Estimate has been received.
	Chelva calva, embankment	20,000	..	20,000	1,000	4	Approximate estimates.
	Embankment to Swarnamukhi	30,000	..	30,000	1,500	4	Approximate estimates.
Anantapur ..	Bookacherla project	13,98,560	1,96,440	15,95,000	12,000	24	This project is for feeding the Bookacherla, Singanamalla and Anantapur tanks from the Pennér river. This project needs revision; it is thought it is far from being one likely, even if practicable, to give any return to speak of.
	Potalakonta project	12,000	4,000	16,000	600	4	This project is to store water for irrigating 600 acres of land; partially investigated prior to 1877, and now under revision.
Cuddapah ..	Suggaliar project	2,59,290	2,89,840	5,49,130	4,300	12	To supply Porumamilla and Badvél tanks from an anicut across the Suggaliar. Plans and estimates have been prepared, but will require considerable revision.
	Kanchalamma tank	..	..	..	..	..	Ruined tank. Under investigation.
	Patnam-Rungaraju tank	..	..	..	..	..	Under investigation.
	Chelamreddi-Vontimitta tank	..	..	..	..	..	Do.
	Kurnool-Cuddapah canal from lock No. 31 to near Vaikl.ir aqueduct.	45,000	..	45,000	1,500	6	Estimate under preparation in the Executive Engineer's office.
	Patha Cuddapali project with extension to Pennér river.	70,000	30,000	1,00,000	3,000	5	No levels ready. This will be a modification of the late Madras Irrigation and Canal Company's proposed extension of the canal, 11th and 12th sections.
Kurnool ..	Yelgode project	1,50,000	1,50,000	3,00,000	4,000	8	Being investigated. These are branch channels from the Kurnool-Cuddapah canal.
	Maidkoor do.	1,50,000	50,000	2,00,000	6,000	5	Being investigated. These are branch channels from the Kurnool-Cuddapah canal.
	Márkápur tank	..	..	..	..	..	Being investigated.
	Duvulair project	..	..	..	1,000	5	This will be required if the Yelgode project be taken in hand.
	Kurnool-Cuddapah canal between Sunkesala and Kurnool—widening.	25,000	..	25,000			
Salem	Krishnagiri reservoir	7,80,000	22,20,000	30,00,000	3,700	42	This project is a scheme to extend irrigation in the Krishnagiri taluk by means of a large reservoir to be supplied from the Pennér. A preliminary report was made and the project was roughly estimated to yield a return of 5 per cent. on direct charges by irrigating 50,000 acres. The preparation of detailed plans and estimates was authorized, but no progress has been made as the "B. Project" division was abolished.
	Goodamally reservoir	1,50,000	2,00,000	3,50,000	3,750	8	The site selected is on the Swathanadi river, a short distance above the village of Goodamally, Atúr taluk. At the site proposed for the dam the river drains 150 square miles. Site examined and favourably reported on in 1878; nothing done since.

List No 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Salem—*cont.* ..	Malapady tank restoration	44,000	23,000	67,000	2,200	4	This tank was ruined a very long time ago. It was inspected early in 1875 and its circumstances ascertained and it was considered that Mr. Blacker's project for its restoration, the only one it is believed in existence, required to be recast. The ground which this tank, if restored, would occupy, is much of it irrigated from the river and most of the remainder is under dry cultivation. This project was examined and set aside some years ago as unremunerative.
	Badataloo project	38,000	75,000	1,13,000	1,500	5	This project provides for the enlargement of the tank from a capacity of 4·815 millions of cubic yards to 16¾ millions and for supplementing its supply from a drainage basin of between 20 and 28 square miles by cutting a supply channel 11½ miles in length from the Kurumbapally river which drains 650 square miles of country; also of constructing distributary channels under the tank. The increase of revenue was estimated at Rs. 11,000 per annum. This project was examined and set aside as it was considered unremunerative
	Vaniar reservoir	5,54,000	5,06,000	10,60,000	3,700	30	The site proposed for this reservoir is situated at the foot of the Shevaroy Hills in Uttankarai taluk, Salem district. It is estimated that the proposed reservoir will irrigate about 8,700 acres. The project is not likely to prove remunerative, but it may be put in hand if the necessity for famine relief arises. Plans and estimates have, it is said, been prepared, but have not been forwarded for sanction.
Coimbatore ..	Calinjinadi channel extension	33,000	67,000	1,00,000	3,300	2	The proposal is to extend the channel to irrigate more lands and to also improve its alignment.
	Bhaváni reservoir project	16,00,000	28,50,000	44,50,000	4,000	80	The proposal is to form a reservoir by damming the Bhaváni river; from this reservoir, channel will be led commanding all the land now irrigated by the channels from the Satyamangalam and Bhaváni anicuts and a considerable area in addition. The reservoir would also be useful in supplementing the supply to the Cauvery so as to prevent loss in the Tanjore delta during the interval between the two monsoons. Project partially worked out.
Chingleput ..	Kortalayar river embankment below the anicut.	8,100	..	8,100	1,000	1½	To prevent the river, when in high flood, overflowing its banks, destroying crops and breaching Local Fund roads.
	Vayalur project	24,737	12,263	37,000	1,000	5	This project is for a channel to be taken off from the Kortalayar river at 12¼ miles below the northern trunk road. The channel is to supply 18 tanks on the left bank of the river and it will finally enter the Vayalur large tank. In many years there would be no water to speak of to be spared from the river which supplies the Red Hills tank system.
	Uttramerur tank supply channel—widening and deepening.	20,000	31,000	51,000	1,500	3	To ensure an efficient supply.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Chingleput—*cont.*	Narayanavaram river embankments and irrigation extension.	1,71,762	62,348	2,34,110	4,000	8	In 1869-70 an Assistant Engineer was employed to investigate the capabilities of this river. The water-supply was found precarious and none of the projects proposed in connection with it were likely to be remunerative. The projects were therefore laid aside until some officer might be available to see whether any alternative arrangements were feasible.
	Tennéri tank project	10,000	10,000	20,000	1,000	2	The project is to improve the existing irrigation distributary channels and requires to be investigated.
	Kuvam tank improvements	6,640	4,810	11,450	1,000	1	The outlay is likely to be beneficial in increasing the revenue.
	Edaimichi channel	30,000	30,000	60,000	2,000	3	To supply 70 tanks with distributaries.
	Pálár flood bank improvements	20,000	9,600	29,600	2,000	2	To prevent serious flood damages to villages and fields.
North Arcot ..	Pálár anicut channels—removing deposit of sand at head.	..	..	..	2,000	7	The silt which is annually removed from the channels is deposited on high banks at the head of the channels. The proposal is to remove it to the river bed.
	Poiney anicut channels—removing deposit of sand at head.	..	..	..	1,000	6	
	Rajakal channel—clearing prickly-pear ..	4,000	..	4,000	200	4	The channel banks are now impassable.
	Munjalar embanking	5,000	2,000	7,000	200	6	This hill stream supplies the Pólúr tank during floods. Water spills over the bank where it is low. To prevent this the bank should be raised on both sides where necessary.
	Channel from Tholapudu to Kulathur tank.	1,500	..	1,500	100	3	To supply tanks.
	Do. from Chengodu Vellary to Thatchangal tank.	500	..	500	50	2	
South Arcot ..	Gadilam-Athur anicut project	30,000	21,728	51,728	500	12	This is a small project for which surveys and levels were taken some years ago. The estimate was returned to the District Engineer in 1873, but nothing has been done since.
	Second anicut across the Ponniar near Pattambakam.	40,000	51,270	91,270	500	16	For the supply of tanks on the north bank of the Ponniar below site of the proposed anicut. The plans and estimates prepared in 1871 require revision. Surveys are in progress.
	Reddikuppam anicut project	10,000	16,100	26,100	500	4	The project was investigated in 1870-71 for constructing an anicut across the Periyár or Varahanady for the supply of about 12 villages and is now again being looked into. An estimate for survey establishment required to investigate the project has been sanctioned.
	Channels from the Ponniar to Villupuram..	20,000	30,000	50,000	500	8	The channels are intended for the better supply of tanks in the Villupuram taluk. The channels are being surveyed by the Tank Restoration Party.
	Vathanur channel project	..	..	..	..	..	The channel was excavated many years ago to supply six tanks whose total ayacut is 1,553 acres and assessment Rs. 8,809. The length of the channel is 9 miles and it branches from the Pombay river three-fourths of a mile east of trunk road No. 8. The channel is much silted and very irregular.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
South Arcot—*cont.*	Pallagacherry anicut project	..	..	..	..	..	Levels taken and plans prepared, both incompletely. The project is divided into two parts, the first comprises an anicut over the Trimanumoothanady with two main channels, one on the north bank, 7½ miles long, supplying six tanks, another on south bank, 3¼ miles in length, for direct irrigation, there being no tanks or other means of supply. The second part of the project is the extension of the channel on the north bank, 7½ miles long, to supply eight tanks, bringing under cultivation 1,000 cawnies of punjah and waste land which will yield a revenue of Rs. 5,000, but the extension is expected to be very expensive and quite unremunerative—see Proceedings of Madras Government, No. 2416, dated 2nd October 1873.
	Yenthal anicut project	..	..	..	..	..	The project was ordered to be carried out by a palayagar—*vide* Proceedings of the Board of Revenue, No. 113, of 4th February 1888. This project is for constructing an anicut across the Mayurvadi, a minor tributary of the Vellar, for supplying the tank of the Yenthal village belonging to the palayagar. An estimate of Rs. 17,250 for constructing the anicut and digging a new channel from it to the tank was prepared.
	Extension of Vriddhachalam anicut channel.	..	..	..	..	..	Surveys and levels, plans and estimates prepared, but considered unreliable. It provides for the improvement of the northern main channel for supply of water to six more villages. Surveys taken and the project is under reinvestigation.
	Alathur anicut main channel	..	..	..	..	..	Survey and levels for a portion of the channel were taken, but not checked. The project will have to be investigated again. The channel is intended for a better supply of water.
	Restoration of the Nandan voikal from the Thurinjalar anicut.	..	..	..	..	..	The Nandan voikal received its supply by the diverting of the waters of the Thurinjalar river at a place about half a mile of Tindivanam-Tiruvannámalai road. It is a very old channel and much silted and overgrown with jungle scrub, &c. It is proposed to restore it for the supply of water to certain tanks.
	Buckingham canal extension, Thambakkam to Kattukuppam and in the French territory between 16¾ and 19½ miles.	4,16,022	1,47,200	5,63,222	6,250	12	The line was surveyed and estimated for before 1879. The plans and estimates require to be checked and put into shape. The work would be quite unremunerative.
Tanjore and South Arcot.	Colereon embankment, improvements ..	5,67,353	5,69,712	11,37,065	18,900	6	Plans and estimates prepared by the Executive Engineer, Mr. Lobb, are under consideration by the Chief Engineer for Irrigation.
Tanjore	Vettar, straightening the course of the — ..	95,600	27,000	1,22,600	3,200	6	For straightening the river from Tiruvallúr to the sea.
	Corayaur do. do. ..	95,600	27,000	1,22,600	3,200	6	Rough estimate. River not yet surveyed.
	Palavar do. do. ..	1,00,000	..	1,00,000	5,000	4	Rough estimate.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Trichinopoly ..	Wyacondan channel—clearing the bed and raising the bank, &c., of the —.	20,000	..	20,000	1,000	4	Approximate estimate.
Tinnevelly ..	Tiruchendur drainage channel, clearing ..	4,000	1,000	5,000	300	3	Do. do.
	Otapidáram-Periyakulam new supply channel, cutting.	15,000	15,000	30,000	600	5	The work will be given to the Tank Restoration Scheme for investigation when the party is moved to the neighbourhood.
	Tambraparni river, widening	89,000	..	89,000	4,500	4	The work would prevent scour along right bank above Athur in 12th mile below Srívaikuntham anicut. Approximate estimate.
	Kollangundam-Periyakulam, improving ..	1,500	2,500	4,000	1,000	3	Approximate estimate.
	Elandavakondan old supply channel, improving.	2,500	2,000	4,500	150	3	Do. do.

N.B.—The number of coolies entered in column 6 has been arrived at by dividing the amounts of estimates for earthwork by five times the number of months in column 7, assuming an average rate of Rs. 5 a month for each cooly. The results have been rounded off.

No. 18 W.

Forwarded to the Joint Secretary to Government, Public Works Department, General Branch, with reference to G.O., No. 472 W., dated 10th February 1888.

OOTACAMUND,
20th April 1891.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

No. 154 D.

MEMORANDUM.

Forwarded to the Revenue Department with reference to G.O., No. 472 W., dated 10th February 1888.

2. The returns under Buildings and roads received from Superintending Engineers other than the Superintending Engineer, I Circle, are nil.

OOTACAMUND,
6th May 1891.

(Signed) A. C. SMITH, Lieut.-Col., R.E.,
Ag. Joint Secretary to Govt., P.W.D.

To the Revenue Department, with papers in original.

ORDER—dated 26th May 1891, No. 454, Revenue.

Miscellaneous.

Ordered that the lists of Professional Agency works received with the memorandum read above be forwarded to the Government of India.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Public Works Department.
" the Commissioner of Revenue Settlement, Land Records and Agriculture.
Copy to the Local and Municipal Department.

Exd. A. Aubert.

130 Copies.

Govt. of {1891} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 26th May 1891, No. 454.

No. 694 Wdy 24.6.91

MAY.

Recorded

No. 26

Famine relief.

Ordered that the lists of Professional Agency works available for — in certain districts during the year 1891-92 be forwarded to the Government of India.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ— the following :—

Letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 2nd March 1891, No. 243 :—

With reference to G.O., No. 472 W., dated 10th February 1888, I have the honour to forward, herewith, a statement showing quantities of earthwork at present available for execution by famine labour in certain districts of this Presidency.

2. Where a line traverses more than one district, the quantities have been distributed between the districts at the average mileage rate for the whole line, so that the figures for each district will not be strictly accurate although the totals will represent the quantities shown in the estimate for each line.

3. In addition to the earthwork, employment for a certain number of persons could be found in the collection of ballast, but as the quantity of this work which could be usefully done must depend on local circumstances, it is not possible to form an estimate thereof.

(Signed) SIDNEY SMITH, Major, R.E.,
for Offg. Consulting Engineer for Railways.

ENCLOSURE.

QUANTITIES of earthwork available for execution by famine labour in various districts of the Madras Presidency.

District.	Name of line.	Miles.	Cubic yards per mile.	Total.	Total in each district.
Malabar	Pálghat-Dindigul	14	33,600	470,400	470,400
Coimbatore	Do.	42	33,600	1,411,200	1,411,200
Madura	Do.	44	33,600	1,478,400	4,912,533
Do.	Madura-Pámban	91½	37,600	3,434,133	
Salem	Porto Novo-Salem	48½	29,400	1,425,900	1,425,900
South Arcot	Do.	68	29,400	1,999,200	1,999,200

From the Superintending Engineer, I Circle, to the Chief Engineer, Public Works Department, dated 20th February 1891.

I CIRCLE.

LIST No. 1.—Statement showing the Irrigation and connected works *available* in each district for the employment of famine labour during the year 1891-92—*Nil.*

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

List No. 2.—Statement showing the Irrigation and connected works *which may be made* available in each district for the employment of famine labour during the year 1891-92.

District.	Name of work.	Amount of estimate.			Number of coolies that can be employed.	Probable time required to complete earth works.	Remarks showing the scope of project.
		Earth works.	Other works.	Total.			
		RS.	RS.	RS.		MONTHS.	
Ganjam.	Improving Battili-Hiramandalem road from 8th to 18th mile.	..	7,000	7,000	350	6	Handed over to the Local Fund Department.
	Completing Tekkali-Anantagiri road.	2,000	12,000	14,000	700	6	Do. do.
	Completing road from Bhagirathipur to Mookhalingam.	1,200	2,500	3,700	350	3	Estimates not yet sanctioned.
	Ichapur-Jarada road	17,000	..	17,000	850	6	....
	Kinchili-Jarada road	20,000	..	20,000	550	10	Estimates not yet sanctioned.
	Kallikota-Boirany road ..	27,000	..	27,000	700	10	Handed over to the Local Fund Department.

20th February 1891.

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

To the Chief Engineer, Public Works Department.

Abstract statement from lists Nos. 1 and 2 showing the works in each district and the labour they will absorb.

List No. 1.									List No. 2.								
No.	District.	Name of work.	Estimates for earth works.	Number of coolies.	Period.	Establishment required. Executive Engineer.	Assistant Engineers.	Subordinates.	No.	District.	Name of work.	Estimates for earth works.	Number of coolies.	Period.	Establishment required. Executive Engineers.	Assistant Engineers.	Subordinates.
												RS.		MONTHS.			
..	..	..	..	..	..	..	..	..	1	Ganjam.	Improving Battili-Hiramandalem road.	..	350	3	..	..	1
											Completing Tekkali-Anantagiri road.	2,000	700	6	..	..	1
											Completing road from Bhagirathipur to Mokhalingam.	1,200	350	3	..	..	1
											Ichapur-Jarada road.	17,000	850	6	..	..	2
											Kinchili-Jarada road.	20,000	550	10	..	..	2
											Kallikota-Boirany road.	27,000	700	10	..	..	2

20th February 1891.

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

To the Chief Engineer, Public Works Department.

From the Chief Engineer for Irrigation, to the Joint Secretary to Government, Public Works Department, dated Ootacamund, 20th April 1891, No. 18-W.

LIST No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92.

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Ganjam	1. Ganjam-Gopálpur canal	2,09,630	41,800	2,51,430	8,000	5	Excavation of this canal was taken up as a famine relief work in 1889 and about three-tenths of the work was done. Further progress was stopped after cessation of the famine, the completion of the canal having, in G.O., No. 598 I., dated 4th December 1889, been considered unnecessary as the proposed East Coast Railway will run close to the line of the canal.
.. ..	2. Rushikulya project	2,67,361	14,80,961	17,48,322	10,000	5½	Estimates sanctioned by the Secretary of State and work in progress. The sanctioned rates being insufficient and certain alterations being found necessary in the designs for works, revised estimates have been submitted to the Secretary of State for sanction.
Kistna	Tungabhadra drain	41,355	..	41,355	1,200	6	These are parts of the completion estimates sanctioned for the Kistna delta—*vide* Proceedings of Madras Government, No. 62 I., dated 11th February 1889.
	Nallamada affluent	61,574	..	61,574	2,000	6	
	Main canal, Western delta	1,82,275	..	1,82,275	16,000	3	
	Bank canal, Eastern delta	2,04,215	..	2,04,215	5,000	8	
	Lazabanda drain	3,607	..	3,607	2,000	2	
	Romperu drain and affluents	1,22,679	..	1,22,679	5,000	5	
	Répalle drain and affluents	58,232	..	58,232	2,500	5	
	Inampudi drain	5,298	..	5,298	300	4	
	Kanakolu drain	14,687	..	14,687	700	4	
	Teleru drain	16,667	..	16,667	800	4	
	Gudimotu drain	4,500	..	4,500	200	4	
	Pedalanka drain and affluents	29,971	..	29,971	1,500	4	
	Sultanagaram drain	2,415	..	2,415	100	4	
	Bank canal, Western delta	58,232	..	58,232	2,400	5	
	Bhatiprole drain	28,166	..	28,166	1,400	4	
	Nizampatam drain	6,801	..	6,801	300	4	
	Bantumilli canal extension	56,344	..	56,344	2,800	4	
Nellore	Buckingham canal diversion near Kundaleru between 89 1/16 and 89 3/4 miles.	15,700	..	15,700	800	4	G.O., No. 648 I., dated 8th November 1890.
	Buckingham canal diversion at Dugarázpatnam.	21,500	..	21,500	1,100	4	G.O., No. 206 I., dated 4th March 1891.
	Buckingham canal, Pennér south diversion.	22,500	..	22,500	1,100	4	G.O., No. 504 I., dated 11th September 1890.
	Griddalore tank, improvements	5,833	..	5,833	300	4	G.O., No. 277 I., dated 21st March 1891.
	Madamanur do.	12,929	..	12,929	600	4	Estimate has been prepared.
	Irakam island embankment in the Pulicat lake.	17,800	..	17,800	900	4	G.O., No. 563 I., dated 8th October 1890.

List No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Anantapur ..	5. Roddam project	48,280	54,940	1,03,220	2,400	4	This project provides for an anicut across the Pennér to supply Roddam large tank. Preliminary investigation of this project was made by Mr. Garrett when he was in charge of the "C" Project division. The estimates for masonry works may be allowed to stand, but the channel portion will require revision. The Superintending Engineer, III Circle, estimates the net return at a little over 2 per cent. If required, it could be submitted in a complete shape in about three months.
Coimbatore ..	Kalingaroyen channel improvements ..	1,60,800	1,26,000	2,86,800	3,500	9	The proposal is to improve bed-fall, provide efficient sluices and reduce the existing number of sluices and extend the channel about 33 miles so as to bring about 15,000 acres of land under wet cultivation, including 5,000 acres now irrigated by the Pugalúr channel. Estimates have been sanctioned by the Secretary of State—*vide* Proceedings of Madras Government, No. 279 I., dated 21st March 1891.
	Do. do. extension .. :	2,44,800	1,35,400	3,80,200	3,800	13	
Chingleput ..	Buckingham canal diversion from Chintamoney backwater to Pulicat lake	37,200	5,400	42,600	1,200	6	Estimate has been received and will be dealt with shortly.
Chingleput (Tiruvallúr taluk).	Varadiapalliam tank	430	220	650	84	1	Available for departmental work. It is close to Kadur and Kambakam tanks.
	Uttookottai tank	3,800	..	3,800	250	3	These tanks need repairs.
	Pallarambakam tank	2,168	2,437	4,605	220	2	
	Vadamadurai tank	2,410	..	2,410	240	2	
North Arcot ..	Cheyár main channel	75,000	15,000	90,000	5,000	8	Much of the earthwork is rock and hard gravel unsuited for famine labour. The work is in progress.
South Arcot ..		..	..	2,09,000	..	..	Estimates will be sanctioned shortly.
Do. ..	Buckingham canal diversion south of Madras from 18th to 30th mile.	93,345	..	93,345	1,600	12	G.O., No. 169 I., of 25th March 1889.
Trichinopoly ..	Coleroon left bank from the bridge to Nandiyar anicut.	28,270	11,568	39,838	1,100	5	Estimate of Rs. 89,500 sanctioned in G.O., No. 557 I., dated 7th October 1890. Work is now being done on contract.
	Cauvery right bank from Cauvery bridge at Trichinopoly to the old Vennar head, raising and strengthening.	4,000	..	4,000	800	1	G.O., No. 72 I., dated 7th February 1890.
	Agunda-Cauvery R.B. from Amarávati junction to 11¼ mile, raising.	7,270	5,730	13,000	480	3	G.O., No. 439 I., dated 13th August 1890. Work on contract.
	Nandiyar channel, extension	23,100	3,700	26,800	1,150	4	G.O., No. 245 I., dated 13th March 1891.
	Ponnéri leading channel, excavating the—	8,543	..	8,555	850	2	Estimate ready.
Tinnevelly ..	Srívilliputúr-Periyakulam, repairs	2,875	300	3,175	300	2	Estimate sanctioned under Tank Restoration Scheme.
	Melamadai-Periyakulam and its supply channel repairs.	4,130	440	4,570	300	3	Do. do. do.

List No. 1.—Statement showing the Irrigation and connected works available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Amount of estimates remaining to be worked out.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Tinnevelly—*cont.*	Nathampatti-Periyakulam improvements ..	5,230	..	5,230	350	3	Estimate sanctioned under Tank Restoration Scheme.
	Kristnaperiakulam repairs	1,570	145	1,715	150	2	Do. do. do.
	Pallikottai channel, improving	10,138	13,782	23,920	500	4	Estimate under reference with the Executive Engineer.
	Támbraparni river left bank below Srívaikuntham anicut, diversion.	11,000	..	11,000	700	3	G.O., No. 574, I., of 23rd November 1889.
	Vellur tank, repairing	1,500	4,300	5,800	150	2	Estimate is ready.
	Naranaperi tank and Puli Odai scheme, improving.	1,870	4,510	6,380	200	2	Do.
	Sivalaperi channel and tank, improving ..	4,514	8,116	12,680	300	3	Do.
	Perinjeri channel, improvements	2,287	2,743	5,000	200	2	Estimate under preparation.
	Authur channel, cutting	2,000	..	2,000	200	2	Do.
Madura	Periyár project	3,37,000	5,08,900	8,45,900	5,600	12	In progress.

N B.—The number of coolies entered in column 6 has been arrived at by dividing the amounts of estimates for earthwork by five times the number of months in column 7, assuming an average rate of Rs. 5 a month for each cooly. The results have been rounded off.

LIST No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92.

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Ganjam	Repairs to tanks and channels	30,000	..	30,000	1,600	4	
	Do. do.	9,000	..	9,000	200	9	
	Bahuda river, embankment	7,000	..	7,000	300	6	Approximate estimates.
	Jayamangalam channel, improvements ..	3,000	2,000	5,000	400	1½	
	Irrigation works in estates	31,000	10,000	41,000	1,400	5	
Vizagapatam ..	Pálkonda irrigation works, river embankment.	6,000	8,000	14,000	1,000	1	
Godávari ..	Canal from Sámalkót towards Tuni (37 miles long).	4,00,000	..	4,00,000	10,000	8	The project was partially investigated by the "A" Project division and further investigation was stopped on the abolition of that division. It is not likely to be remunerative.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Godávari—*cont.*	Anumalanka project channels	Not known.		9,00,000	7,000	8	The number of coolies entered is exclusive of the great reservoir which, if carried on, would have to be constructed with greater care and skill than could be expected from famine labour. This project comprises the construction of a tank or reservoir with storage capacity, 4,420 millions of cubic feet, length 7½ miles, greatest width 4½ miles and area 9½ square miles, near the ruined village of Anumalanka in the Yernagúdem taluk. It is 6 miles north of Nallacheri, a large village on the trunk road between Ellore and Rajahmundry. The site is feverish in wet weather. It will be supplied from the Yerracalva, a river which gets its principal supply from the south-west monsoon. It has been suggested that the reservoir will act as a flood moderator to the drainage of the Yerracalva which enters the western section of the Godávari delta under the Nundamur aqueduct at the head of the Ellore canal and has several times endangered the safety of some of the delta canals. The reservoir is intended to irrigate 45,000 acres. The estimates for the project, which were prepared by Captain Dorward, R.E., in 1873, require revision.
	Widening all Godávari river embankments to fit them for roads.	..	..	..	13,000	8	No estimates have been prepared.
	Bhádrachalam boat canal	2,89,150	1,66,150	4,55,300	7,200	8	In 1878 an estimate was sanctioned for this canal and in 1882 an alternative line was investigated, but the execution of work was condemned on either line except as a relief work in case of famine in the Bhádrachalam and Rékapalle taluks.
Kistna	Upputeru, widening for 2 miles from Kottadu weir.	1,00,000	..	1,00,000	4,000	5	Approximate estimate.
	Masulipatam canal from 1 to 5 miles—removing the spoil on the berms.	55,520	..	55,520	2,200	5	
	Fresh water canal from Bantumilli canal at Chinapandrakka, 52 miles 5 chains to Masulipatam.	66,000	..	66,000	3,300	4	This canal is for navigation only.
	Canal from tidal lock at Masulipatam to salt pans at Manginapudi.	56,600	..	56,600	2,800	4	Proposed chiefly to facilitate salt traffic.
	Ipur tank, Vinukonda taluk	5,000	..	5,000	250	4	Approximate estimates.
	Dondapad tank, Vinukonda taluk	10,000	..	10,000	500	4	
Nellore	Nellore tank supply channel from Sangam.	78,500	..	78,500	3,000	5	Estimate has been prepared.
	Removing island above and below Nellore anicut.	40,000	..	40,000	2,000	4	Approximate estimate.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Nellore—*cont.* ..	Moldevi drain, improvements	18,560	..	18,560	1,500	4	Estimate has been received.
	Chelva calva, embankment	20,000	..	20,000	1,000	4	} Approximate estimates.
	Embankment to Swarnamukhi	30,000	..	30,000	1,500	4	
Anantapur ..	Bookacherla project	13,98,560	1,96,440	15,95,000	12,000	24	This project is for feeding the Bookacherla, Singanamalla and Anantapur tanks from the Pennér river. This project needs revision; it is thought it is far from being one likely, even if practicable, to give any return to speak of.
	Potalakonta project	12,000	4,000	16,000	600	4	This project is to store water for irrigating 600 acres of land; partially investigated prior to 1877, and now under revision.
Cuddapah ..	Suggaliar project	2,59,290	2,89,840	5,49,130	4,300	12	To supply Porumamilla and Badvél tanks from an anicut across the Suggaliar. Plans and estimates have been prepared, but will require considerable revision.
	Kanchalamma tank	..	..	..	..	..	Ruined tank. Under investigation.
	Patnam-Rungaraju tank	..	..	..	..	..	Under investigation.
	Chelamreddi-Vontimitta tank	..	..	..	..	..	Do.
	Kurnool-Cuddapah canal from lock No. 31 to near Vaikuir aqueduct.	45,000	..	45,000	1,500	6	Estimate under preparation in the Executive Engineer's office.
	Patha Cuddapali project with extension to Pennér river.	70,000	30,000	1,00,000	3,000	5	No levels ready. This will be a modification of the late Madras Irrigation and Canal Company's proposed extension of the canal, 11th and 12th sections.
Kurnool ..	Yelgode project	1,50,000	1,50,000	3,00,000	4,000	8	} Being investigated. These are branch channels from the Kur-
	Maidkoor do.	1,50,000	50,000	2,00,000	6,000	5	} nool-Cuddapah canal.
	Márkápur tank	..	..	..	..	..	} Being investigated.
	Duvulair project	..	..	..	..	..	
	Kurnool-Cuddapah canal between Sunkesala and Kurnool—widening.	25,000	..	25,000	1,000	5	This will be required if the Yelgode project be taken in hand.
Salem	Krishnagiri reservoir	7,80,000	22,20,000	30,00,000	3,700	42	This project is a scheme to extend irrigation in the Krishnagiri taluk by means of a large reservoir to be supplied from the Pennér. A preliminary report was made and the project was roughly estimated to yield a return of 5 per cent. on direct charges by irrigating 50,000 acres. The preparation of detailed plans and estimates was authorized, but no progress has been made as the "B. Project" division was abolished.
	Goodamally reservoir	1,50,000	2,00,000	3,50,000	3,750	8	The site selected is on the Swathanadi river, a short distance above the village of Goodamally, Atúr taluk. At the site proposed for the dam the river drains 150 square miles. Site examined and favourably reported on in 1878; nothing done since.

List No 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Salem—*cont.* ..	Malspady tank restoration	44,000	23,000	67,000	2,200	4	This tank was ruined a very long time ago. It was inspected early in 1875 and its circumstances ascertained and it was considered that Mr. Blacker's project for its restoration the only one it is believed in existence, required to be recast. The ground which this tank, if restored, would occupy, is much of it irrigated from the river and most of the remainder is under dry cultivation. This project was examined and set aside some years ago as unremunerative.
	Badataloo project	38,000	75,000	1,13,000	1,500	5	This project provides for the enlargement of the tank from a capacity of 4·815 millions of cubic yards to 16¾ millions and for supplementing its supply from a drainage basin of between 20 and 28 square miles by cutting a supply channel 11½ miles in length from the Kurumbapally river which drains 650 square miles of country; also of constructing distributary channels under the tank. The increase of revenue was estimated at Rs. 11,000 per annum. This project was examined and set aside as it was considered unremunerative
	Vaniar reservoir	5,54,000	5,06,000	10,60,000	3,700	30	The site proposed for this reservoir is situated at the foot of the Shevaroy Hills in Uttankarai taluk, Salem district. It is estimated that the proposed reservoir will irrigate about 8,700 acres. The project is not likely to prove remunerative, but it may be put in hand if the necessity for famine relief arises. Plans and estimates have, it is said, been prepared, but have not been forwarded for sanction.
Coimbatore ..	Calinjinadi channel extension	33,000	67,000	1,00,000	3,300	2	The proposal is to extend the channel to irrigate more lands and to also improve its alignment.
	Bhaváni reservoir project	16,00,000	28,50,000	44,50,000	4,000	80	The proposal is to form a reservoir by damming the Bhaváni river; from this reservoir, channel will be led commanding all the land now irrigated by the channels from the Satyamangalam and Bhaváni anicuts and a considerable area in addition. The reservoir would also be useful in supplementing the supply to the Cauvery so as to prevent loss in the Tanjore delta during the interval between the two monsoons. Project partially worked out.
Chingleput ..	Kortalayar river embankment below the anicut.	8,100	..	8,100	1,000	1½	To prevent the river, when in high flood, overflowing its banks, destroying crops and breaching Local Fund roads.
	Vayalur project	24,737	12,263	37,000	1,000	5	This project is for a channel to be taken off from the Kortalayar river at 12½ miles below the northern trunk road. The channel is to supply 18 tanks on the left bank of the river and it will finally enter the Vayalur large tank. In many years there would be no water to speak of to be spared from the river which supplies the Red Hills tank system.
	Uttramerur tank supply channel—widening and deepening.	20,000	31,000	51,000	1,500	3	To ensure an efficient supply.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Chingleput—*cont.*	Narayanavaram river embankments and irrigation extension.	1,71,762	62,348	2,34,110	4,000	8	In 1869-70 an Assistant Engineer was employed to investigate the capabilities of this river. The water-supply was found precarious and none of the projects proposed in connection with it were likely to be remunerative. The projects were therefore laid aside until some officer might be available to see whether any alternative arrangements were feasible.
	Tennéri tank project	10,000	10,000	20,000	1,000	2	The project is to improve the existing irrigation distributary channels and requires to be investigated.
	Kuvam tank improvements	6,640	4,810	11,450	1,000	1	The outlay is likely to be beneficial in increasing the revenue.
	Edaimichi channel	30,000	30,000	60,000	2,000	3	To supply 70 tanks with distributaries.
	Pálár flood bank improvements	20,000	9,600	29,600	2,000	2	To prevent serious flood damages to villages and fields.
North Arcot ..	Pálár anicut channels—removing deposit of sand at head.	..	..	..	2,000	7	The silt which is annually removed from the channels is deposited on high banks at the head of the channels. The proposal is to remove it to the river bed.
	Poiney anicut channels—removing deposit of sand at head.	..	..	..	1,000	6	
	Rajakal channel—clearing prickly-pear ..	4,000	..	4,000	200	4	The channel banks are now impassable.
	Munjalar embanking	5,000	2,000	7,000	200	6	This hill stream supplies the Pólúr tank during floods. Water spills over the bank where it is low. To prevent this the bank should be raised on both sides where necessary.
	Channel from Tholapudu to Kulathur tank.	1,500	..	1,500	100	3	To supply tanks.
	Do. from Chengodu Vellary to Thatchangal tank.	500	..	500	50	2	
South Arcot ..	Gadilam-Athur anicut project	30,000	21,728	51,728	500	12	This is a small project for which surveys and levels were taken some years ago. The estimate was returned to the District Engineer in 1873, but nothing has been done since.
	Second anicut across the Ponniar near Pattambakam.	40,000	51,270	91,270	500	16	For the supply of tanks on the north bank of the Ponniar below site of the proposed anicut. The plans and estimates prepared in 1871 require revision. Surveys are in progress.
	Reddikuppam anicut project	10,000	16,100	26,100	500	4	The project was investigated in 1870-71 for constructing an anicut across the Periyár or Varahanady for the supply of about 12 villages and is now again being looked into. An estimate for survey establishment required to investigate the project has been sanctioned.
	Channels from the Ponniar to Villupuram..	20,000	30,000	50,000	500	8	The channels are intended for the better supply of tanks in the Villupuram taluk. The channels are being surveyed by the Tank Restoration Party.
	Vathanur channel project	..	..	..	..	..	The channel was excavated many years ago to supply six tanks whose total ayacut is 1,553 acres and assessment Rs. 8,809. The length of the channel is 9 miles and it branches from the Pombay river three-fourths of a mile east of trunk road No. 8. The channel is much silted and very irregular.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
South Arcot—*cont.*	Pallagacherry anicut project	..	..	..	..	..	Levels taken and plans prepared, both incompletely. The project is divided into two parts, the first comprises an anicut over the Trimanumoothanady with two main channels, one on the north bank, 7½ miles long, supplying six tanks, another on south bank, 3½ miles in length, for direct irrigation, there being no tanks or other means of supply. The second part of the project is the extension of the channel on the north bank, 7½ miles long, to supply eight tanks, bringing under cultivation 1,000 cawnies of punjah and waste land which will yield a revenue of Rs. 5,000, but the extension is expected to be very expensive and quite unremunerative—see Proceedings of Madras Government, No. 2416, dated 2nd October 1873.
	Yenthal anicut project	..	..	..	..	..	The project was ordered to be carried out by a palayagar—*vide* Proceedings of the Board of Revenue, No. 113, of 4th February 1888. This project is for constructing an anicut across the Mayurvadi, a minor tributary of the Vellar, for supplying the tank of the Yenthal village belonging to the palayagar. An estimate of Rs. 17,250 for constructing the anicut and digging a new channel from it to the tank was prepared.
	Extension of Vriddháchalam anicut channel.	..	..	..	..	..	Surveys and levels, plans and estimates prepared, but considered unreliable. It provides for the improvement of the northern main channel for supply of water to six more villages. Surveys taken and the project is under reinvestigation.
	Alathur anicut main channel	..	..	..	..	..	Survey and levels for a portion of the channel were taken, but not checked. The project will have to be investigated again. The channel is intended for a better supply of water.
	Restoration of the Nandan voikal from the Thurinjalar anicut.	..	..	..	..	..	The Nandan voikal received its supply by the diverting of the waters of the Thurinjalar river at a place about half a mile of Tindivanam-Tiruvannámalai road. It is a very old channel and much silted and overgrown with jungle scrub, &c. It is proposed to restore it for the supply of water to certain tanks.
	Buckingham canal extension, Thambakkam to Kattukuppam and in the French territory between 16¼ and 19½ miles.	4,16,022	1,47,200	5,63,222	6,250	12	The line was surveyed and estimated for before 1879. The plans and estimates require to be checked and put into shape. The work would be quite unremunerative.
Tanjore and South Arcot.	Coleroon embankment, improvements ..	5,67,353	5,69,712	11,37,065	18,900	6	Plans and estimates prepared by the Executive Engineer, Mr. Lobb, are under consideration by the Chief Engineer for Irrigation.
Tanjore	Vettar, straightening the course of the — ..	95,600	27,000	1,22,600	3,200	6	For straightening the river from Tiruvallúr to the sea.
	Corayaur do. do. ..	95,600	27,000	1,22,600	3,200	6	Rough estimate. River not yet surveyed.
	Palavar do. do. ..	1,00,000	..	1,00,000	5,000	4	Rough estimate.

List No. 2.—Statement showing the Irrigation and connected works which may be made available in each district for the employment of famine labour for 1891-92—*cont.*

District.	Name of work.	Probable amount of estimates.			Number of coolies that can be employed.	Probable time required to complete.	Remarks.
		Earth works.	Other works.	Total.			
1	2	3	4	5	6	7	8
		RS.	RS.	RS.		MONTHS.	
Trichinopoly ..	Wyacondan channel—clearing the bed and raising the bank, &c., of the —.	20,000	..	20,000	1,000	4	Approximate estimate.
Tinnevelly ..	Tiruchendur drainage channel, clearing ..	4,000	1,000	5,000	300	3	Do. do.
	Otapidâram-Periyakulam new supply channel, cutting.	15,000	15,000	30,000	600	5	The work will be given to the Tank Restoration Scheme for investigation when the party is moved to the neighbourhood.
	Tambraparni river, widening	89,000	..	89,000	4,500	4	The work would prevent scour along right bank above Athur in 12th mile below Srívaikuntham anicut. Approximate estimate.
	Kollangundam-Periyakulam, improving ..	1,500	2,500	4,000	1,000	3	Approximate estimate.
	Elandavakondan old supply channel, improving.	2,500	2,000	4,500	150	3	Do. do.

N.B.—The number of coolies entered in column 6 has been arrived at by dividing the amounts of estimates for earthwork by five times the number of months in column 7, assuming an average rate of Rs. 5 a month for each cooly. The results have been rounded off.

No. 18 W.

Forwarded to the Joint Secretary to Government, Public Works Department, General Branch, with reference to G.O., No. 472 W., dated 10th February 1888.

OOTACAMUND,
20th April 1891.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

26TH MAY 1891, No. 454, REVENUE.

No. 154 D.

MEMORANDUM.

Forwarded to the Revenue Department with reference to G.O., No. 472 W., dated 10th February 1888.

2. The returns under Buildings and roads received from Superintending Engineers other than the Superintending Engineer, I Circle, are nil.

OOTACAMUND,
6th May 1891.

(Signed) A. C. SMITH, Lieut.-Col., R.E.,
Ag. Joint Secretary to Govt., P.W.D.

To the Revenue Department, with papers in original.

ORDER—dated 26th May 1891, No. 454, Revenue.

Miscellaneous.

Ordered that the lists of Professional Agency works received with the memorandum read above be forwarded to the Government of India.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Public Works Department.
" the Commissioner of Revenue Settlement, Land Records and Agriculture.
Copy to the Local and Municipal Department.

Exd. A. Aubert.

130 Copies.