

Local & Munl. (1895-) Department.

MISCELLANEOUS.

G.O., No. 1726 L.

DATED 19th Sept 1895

[Despatch Abstract.]

Sangam Anicut System.

Recording G.O., Public Works Department, approving the schedule of works amounting to Rs. 46,589 required to be carried out to complete the ---- and ordering a copy of the Proceedings to be forwarded for the sanction of the Government of India.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

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Miscellaneous.

LOCAL AND MUNICIPAL DEPT.	
G.O., DATED	19-9-95
No.	1726 L

INDEXED.

When given for copying.

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Sangam ancient system

Recording G.D.P.W.D. approving the schedule of works, amounting to Rs 46,589, required to be carried out to complete the — and ordering a copy of the Proceedings to be forwarded for the sanction of the Govt of India.

REAP-AGAIN ORDER OF GOVERNMENT, DATED
189 , No , MISCELLANEOUS.

BACK PAPER, No.

OF 1:9

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OF 1:9

ENCLOSURES.

CURRENT No

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT

STATEMENT WITH DITTO

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IRRIGATION.
ACCOUNT.

Govt. of {1895} Madras.
PUBLIC WORKS.

LOCAL 1726 L
CURRENT 2578 L

n order 17-7-95

Recorded

17/7/95
Wor 4/95

Dated August, 29th.

Recd. - 7 SEP 95

Encl. 6-12.

G.O., 29th Aug. 1895, No. 698 I.

*Reading of S.D. offering
the schedule of works amounting
to Rs. 46,589, required to be
carried out*
AUGUST.
*and ordering a copy of the pro-
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Sangam anicut system

The schedule of works, amounting to
Rs. 46,589, required to be carried out to
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Proceedings ordered to be forwarded for the
sanction of the Government of India.

Copy to the Pres. D. Bd. Nellore

Sept 24/95

(With order)

1/8 17/9

BACK PAPER, No.

OF 119

READ AGAIN ORDER OF GOVERNMENT, DATED
189 , No , MISCELLANEOUS.

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ENCLOSURES.

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BACK PAPER, No.

OF 119

REAP AGAIN ORDER OF GOVERNMENT, DATED
189 , No , MISCELLANEOUS.

FURTHER PAPER, No.

OF 119

29TH AUGUST 1895, No. 698 I., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From the Executive Engineer, Nellore Division, to the Superintending Engineer,
II Circle, dated 6th May 1895, No. 72 S.E.

With reference to your No. 400 N.L. of 10th September 1894, I have the honour
to forward herewith a report on the completion of the Sangam Project Works drawn
up by Mr. Marjoribanks before he went on leave.

No. 142 N.L.

Submitted to the Chief Engineer for Irrigation with reference to his No. II/67
N.L., dated 17th September 1894.

The undersigned has little to add to the excellent report drawn up by Mr. Mar-
joribanks, to whose ability and energy the satisfactory state of the works comprising
the project, except the Kanigiri reservoir, is largely due.

It is hoped that the proposals lately brought forward will, when carried out,
place this important reservoir above suspicion; it certainly is not so at present.

Proposals for improving the Maldevi drain are nearly ready for submission.

The new scheme for an additional supply to the Nellore tank might, with
advantage, be included in the Sangam anicut system.

18th May 1895.

(Signed) W. M. ELLIS, Captain, R.E.,
for Superintending Engr., II Circle.

ENCLOSURES.

REPORT called for in G.O. No. 724 I., Public Works, dated 3rd October 1894, in connection
with the closing of the construction estimate of the Sangam anicut system.

The history of the Sangam anicut system may be briefly narrated thus.

2. Prior to the construction of the anicut about 40,000 acres of land were fitfully irrigated
by two large channels which took off from the right bank of the Pennéru river, a little distance
below the junction of the Pennéru with its last affluent, the Biraperu.

3. Irrigation was carried on directly from these channels (Duvur and Gandavaram) and
indirectly from shallow tanks. The arrangements, however, were unsatisfactory. Drains were
used as irrigating ditches, cross bunds being erected at various points, and irrigation was con-
stantly being interrupted by these dams being washed away in the monsoon entailing severe and
often unavailing labour on the part of ryots concerned. Owing also to the uncertain freshes in
the south-west monsoon cultivation was precarious and speculative, as the work of weeks in
preparing fields for crop might be thrown away if the freshes failed or even were deficient. On the
other hand if operations were delayed until the character of the season could be fairly gauged,
the crops ran the risk of withering for want of rains later on. The consequence was that large
quantities of water were allowed to run waste to the sea.

4. This condition of affairs early attracted the attention of the Collectors of the district and
the Civil Engineers of the division, and in 1865 Mr. Richard Smith was appointed to draw up
estimates for the Sangam or Northern Pennéru delta.

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5. The village of Sangam is situated close to the northern bank of the Pennéru and about 20 miles to the west of Nellore. About a quarter of a mile above the village, the Biraperu, the last affluent of the Pennéru on the left bank, enters the main stream, and the scour caused by this affluent combined with the action resulting from a rock projecting a quarter of a mile down on which a pagoda is built, causes a permanent set which results in a constant depth being maintained at this point. This unchanging condition of the river-bed led to the off-take of the two old native channels (Duvur and Gandavaram) being situated here.

6. These old channels had been provided with head sluices and improved since the British occupation of the district. Their efficiency, however, varied from year to year being taken nominally at 40,000 acres. The success of the lower anicut at Nellore led to the preparation of the estimates by Mr. Richard Smith in 1865. These estimates amounted to 38 lakhs. The project was prepared under the direction of the Chief Engineer for Irrigation, Colonel Anderson, R.E. It provided for the construction of a head sluice on the northern bank immediately below the Biraperu, the erection of a river wall thence to the Gandavaram channel—an arrangement analogous to the Korumboo which trained the rivers to the Duvur and Gandavaram channels.

7. The existing Gandavaram channel was to be enlarged for a short distance and a short new cut made to the Kanigiri tank, the capacity of which was to be increased enormously. From the tank several large feeder channels were to be taken off to fill important minor tanks. The total acreage was to be 83,620 acres.

8. The then Acting Chief Engineer for Irrigation (now Lieutenant-General John Mullins, R.E.) made sweeping alterations. He reduced the capacity of the main canal and tank, dispensed with the river wall, substituted an anicut besides dispensing with some expensive distributaries. The ayacut was increased to 94,000 acres. The reduction in the capacity of the tank and the channels was made because Mr. Richard Smith had taken the discharge on the worst of a series of years as the basis of calculation of the water available, while the Chief Engineer considered that the average discharge for a series of years should be taken, this also allowed of a greater area being irrigated. The estimated cost of the revised project amounted to 27 lakhs. It was submitted in 1870 to the Chief Engineer for Irrigation who altered it to Rs. 35,69,049 including indirect charges (G.O. No. 352 I. of 2nd June 1881).

9. One important alteration was made, viz., the set of under-sluices provided at the south end of the anicut was omitted and an increased number of vents was allowed for the northern set of under-sluices.

The reason for the omission was, that it was considered that a channel and head sluice from the south end of the anicut would not prove remunerative. A lapse of 25 years and a consideration of the amount of water running to waste to the sea over the Nellore anicut have made it clear that this doubt was unfounded and an estimate has been submitted for such a head sluice and channel for the supply of the Nellore tank. The under-sluices, however, will not be built, as observation has shown that the deep water channel at the southern end (right bank) is permanent, notwithstanding the position of the scouring sluices at the opposite bank.

10. The total of the estimates submitted to Government by the Chief Engineer for Irrigation was Rs. 25,83,800; on this outlay the returns were calculated at 9.56 per cent.

11. The estimates were sanctioned in G.O. No. 1818, dated 28th July 1870, provisionally pending settlement of certain points by the Revenue Department.

The gross revenue which was estimated by the Public Works Department at Rs. 3,07,956 was reduced successively by the Revenue Department to Rs. 2,59,250 and Rs. 2,38,000. This last figure was accepted, and the Government of Madras after deducting Rs. 34,200 on account of maintenance charges, estimated the net return at Rs. 2,03,800, i.e., 7.88 per cent. on the proposed outlay.

12. The Inspector-General of Irrigation in his note, dated 2nd May 1872, doubled the number of vents in the under-sluice, reduced the width of the apron of the anicut and the height of the headworks, and increased the fall of the main canal.

The discussion on engineering points then ceased, and for the next five or six years the Secretary of State and the Governments of India and Madras discussed various points in connection with the scheme, such as indirect charges, the prior rights of the Madras Irrigation Company, &c., &c.

13. The Secretary of State desired information on the following points:—

- (i) Whether preliminary expenses had been included in the estimate.
- (ii) If interest during construction had been entered.
- (iii) Probable period of completion of works and of development of irrigation.
- (iv) Whether credit should be taken for sales of beds of the tanks until experience has proved that they are not wanted.
- (v) Why inam holders should receive irrigation free of charge.
- (vi) Infringement of rights of the Madras Irrigation Canal Company.
- (vii) What the circumstances connected with the application for unoccupied land were.

14. The Accountant-General, Public Works Accounts, increased the estimate of Rs. 25,83,000 to Rs. 32,38,729 by adding preliminary expenses and increasing cost of establishment. The Chief Engineer for Irrigation objecting, Government in their Order, No. 2492, dated 3rd September 1874, reduced the latter figure to Rs. 29,82,830, the net return being estimated at 6.30 per cent., and the Government of India was informed accordingly.

15. Further correspondence ensued and the estimate was fixed at Rs. 35,75,000, the return being taken as 5.25. This was further increased by the Government of India in their No. 405 I., dated 12th November 1875, the return being reduced to 4.28 per cent.

16. A serious remonstrance from the Deputy Examiner, Public Works Accounts, led to the estimate being reduced to Rs. 34,80,130. More correspondence ensued, and in G.O. No. 606 I., dated 14th October 1879, it was decided that the Government of India should be informed that the total cost of the project would be Rs. 34,62,176 and the net return 5.42 per cent., the cost of a river embankment being omitted.

17. The Government of India finally sanctioned the scheme as follows:—

	RS.
Works	23,64,935
Establishment	5,78,451
Tools and plant	82,670
Total	30,26,056

Deduct—Receipts on capital account, sale-proceeds of old tank-beds	1,29,619
Net direct charge	28,96,437

Indirect charges.

Leave and pensions	1,44,612
Capitalized land revenue	5,28,000
Total	6,72,612
Grand Total	35,69,049

18. The letter communicating the sanction to the project was received a year after the preparation of the estimate and after 12 years of correspondence. The estimates as originally drawn up amounted to Rs. 25,83,000, and the estimated return stood at 7.88 per cent. as revised; the figures stood at Rs. 35,69,049 and 5.25 per cent.

The result was due to a compromise of conflicting opinions as to what constituted indirect charges.

19. Though the delay led to a loss of revenue for 10 years (among which were the great famine years of 1877-79), an advantage was gained, viz., of securing a very fairly accurate estimate, though the calculations were necessarily based on data that were vague.

The principal features of the project were—

- (i) The construction of a weir 4,290 feet long.
- (ii) A head sluice of 40 vents of 4½ feet span each to supply the main canal.
- (iii) The excavation of a main canal 6 miles long and 157 feet bottom width to fill the Kanigiri reservoir and to supply the original ayacut of the Duvur tank.
- (iv) Improvements to the existing Duvur branch channel which was to be supplied from the main canal.
- (v) The raising of the bank of the Kanigiri reservoir to increase its capacity.
- (vi) The excavation of the following channels from the Kanigiri reservoir.

Eastern channel.
Feeder for central and southern channels.
Southern channel and central channel.

- (vii) The excavation of a channel from the Duvur tank.

20. The capacities of the tanks were to be as follows:—

	Cubic feet.
Kanigiri	6,419,001,600
Duvur	1,042,986,100
Total	7,461,987,700

The head sluice was designed to discharge 4,800 cubic feet a second, of which 4,576.5 cubic feet a second was carried to the Kanigiri tank by the main canal, while 223.5 cubic feet a second was allowed to enter the Duvur branch channel (improved).

21. The discharge of the distributaries was to be as follows:—

	Cubic feet a second.
Eastern channel	...
Feeder for central and southern channels	...
Central channel	934.5
Southern do.	420.0
Duvur branch channel	157.5
	262.5
	223.5
The present area of irrigation was taken at	ACS.
Increase	44,053
	49,947
Total	94,000

Of this, 87,944 were Government and 6,056 were inam.

The area to be irrigated by each channel was as follows:—

	ACS.
Eastern channel	...
Central do.	62,300
Southern do.	10,500
Duvur channel and tank	17,500
	3,700
Total	94,000

22. The irrigation under the last has increased to over 5,000 acres, and the estimated ayacut of the other channels will probably turn out to be more or less accurate. As subsequent enquiries have shown that the duty of a cubic foot is greater than has hitherto been accepted, it is possible that the ayacut of the project will in time considerably exceed 100,000 acres.

23. The works have been carried out more or less as they were designed, but the estimate has been revised three times. The first revision (see G.O. No. 393 I. of 1st July 1887, Rs. 38,25,000). This was due to the provision for baling being increased from Rs. 18,000 to Rs. 50,000, a separate establishment for settling compensation being found necessary, and a change being made in the alignment of the first 6 miles of the Eastern channel.

24. The second revised estimate (G.O. No. 195 I. of 25th March 1890) provided for a redistribution of the sub-heads, the amount remaining unaltered. Finally, in No. 781 I. of 16th September 1892, provision was made in a revised estimate for draining the Allúru swamp lands. The estimate finally stands at Rs. 38,91,552.

25. The accompanying extract from the administration report of 1893-94 gives the main facts as regards irrigation. It will be seen that the year 1893-94 was the first in which there was a surplus after paying the maintenance and interest charges, but omitting the past interest charges. The project is therefore assured as a success. There are still over 20,000 acres to be brought under cultivation, and the works still to be carried out will cost less than Rs. 1,00,090.

26. The project came into working in 1886-87 and there has been a steady increase of cultivation, except in 1891-92, when there was a falling off owing to the scarcity which amounted nearly to famine in the district. The value of the anicut and reservoir was clearly shown in these years. Under the former conditions no land would have been irrigated, and the deduction of Rs. 1,14,000 made for old irrigation year by year would have been lost to Government; and in the two years previous large remissions would have had to be granted—what the indirect gain to the ryots was cannot be estimated. The price of rice in 1891-92 was double the normal price, and though the irrigation sank by nearly 50 per cent., the prices gained made up for the diminished area reaped; the harvest and other crop operations also served as a famine relief work of the very best kind, and but for the two Pennéru deltas costly relief operations such as were put in hand in the northern taluks would have been rendered necessary in the central and southern portions of the delta.

27. One consideration which seriously affects the value of the reservoir was not sufficiently weighed when the estimates were drawn up or the works carried out, and that was, the effect on the reservoir bund of a north-east offing of over 6 miles.

To prevent accidents in cyclone months it has been found necessary to limit the depth to be maintained in the reservoir in the monsoon (north-east) months at the risk of running short later on.

By providing means of surplussing quickly at a low level, it has been hoped that this danger will be sufficiently guarded against and an estimate has been submitted for the purpose.

28. One great want in the delta is want of roads. This has been brought to the notice of the President of Local District Board, and it will be the duty of the Executive Engineer to urge on all occasions the claim of the delta to a fair treatment. The great increase in the revenue of the Board is, to a considerable extent, due to the project. Experience has shown that the provision for drainage was not sufficient. In the case of the Allúru swamp a flood embankment to prevent the flood tide invading the swamp lands is necessary. As regards the Maldevi drain, which at present is the escape channel of the reservoir, the improvements found necessary will be carried out from Provincial funds, agricultural.

29. The question whether the cost of the scheme for supplying the Nellore tank by a head sluice and channel from the southern end of the Sangam delta should be charged to the delta project is one that will have to be settled. The scheme is remunerative and is estimated to cost Rs. 2,66,000.

(Signed) R. A. SRINIVASA AIYANGAR,
Executive Engineer, Nellore Division.

4th May 1895.

EXTRACT from the administration report of 1893-94 regarding the irrigation and direct returns of the Sangam anicut system.

The irrigated area and revenue compare as follow with those of the previous year:—

		Area occupied.	Area charged as irrigated.	Irrigation revenue.
		ACS.	* ACS.	RS.
First crop	{ 1893-94	73,514	70,378	2,81,768
	{ 1892-93	71,128	70,106	2,78,084
Second crop	{ 1893-94	3,499	3,393	9,921
	{ 1892-93	4,912	4,881	14,801

The share of enhanced land revenue due to the works amounted to Rs. 17,670 as shown below:—

	RS.
Land assessment on waste lands brought under cultivation	12,388
Do. on miscellaneous items	1,219
Four per cent. on sale-proceeds of tank-bed lands	4,063
Total	17,670

The gross revenue and working expenses per acre amounted to Rs. 4.20 and Rs. 1.03, respectively, against Rs. 4.13 and Rs. 1.07 in the previous year.

The following statement shows the financial results:—

Expenditure.	During 1893-94.	To end of 1893-94.	Receipts.	During 1893-94.	To end of 1893-94.
	RS.	RS.		RS.	RS.
Direct charges	64,772	5,02,226	Direct receipts in Public Works		
Indirect charges	3,723	27,448	Department	680	6,793
Collection charges in the Civil Department	8,728	44,481	Irrigation revenue	2,95,891	20,62,727
Interest on capital outlay, direct charges	1,21,641	11,50,433	Share of enhanced land revenue ..	17,670	73,048
Total expenditure and charges	1,98,864	17,24,588	Total receipts	3,14,241	21,42,568
Surplus revenue	1,377	-6,50,754	Deduct portion of revenue, assumed to be due to "old irrigation," less old maintenance charges ..	1,14,000	10,68,734
Total	2,00,241	10,73,834	Net Total	2,00,241	10,73,834

The actual return after paying interest charges was Rs. 1,377 against a deficit of Rs. 4,289 in the previous year.

(Signed) R. A. SRINIVASA AIYANGAR,
Executive Engineer.

4th May 1895.

STATEMENT of outlay incurred on the Sangam anicut system to end of 1893-94 compared by main and sub-heads with estimates sanctioned by the Secretary of State in G.O. No. 352 I., dated 2nd June 1881, and with those as finally modified in G.O. No. 102 I., dated 4th February 1893.

Main and sub-heads.	Estimates sanctioned by the Secretary of State.	Estimates as finally modified.	Outlay to end of 1893-94.	Difference of columns 2 and 4.	Difference of columns 3 and 4.
1	2	3	4	5	6
I. Head works—					
A. Preliminary expenses	rs. 51,130	rs. 51,130	rs. 51,130	rs. ..	rs. ..
B. Land	800	18,562	18,513	— 17,713	49
C. Works	5,03,911	5,91,255	5,91,255	— 87,344	..
K. Buildings	25,185	21,026	21,026	4,159	..
O. Miscellaneous	40,635	32,502	32,502	8,133	..
P. Maintenance	..	4,105	4,105	— 4,105	..
Total	6,21,661	7,18,580	7,18,531	— 96,870	49
(2) Main canals and branches—					
B. Land	1,23,918	2,56,811	2,55,118	— 1,31,200	1,693
D. Regulators	1,05,654	94,287	94,287	11,367	..
E. Falls and weirs	44,000	24,010	24,011	19,989	1
G. Bridges	20,400	28,221	28,221	7,821	..
L. Earthwork	2,69,905	2,10,003	2,10,004	59,901	1
N. Tanks and reservoirs	2,32,015	2,99,082	2,99,182	— 67,167	100
O. Miscellaneous	7,082	13,761	13,760	6,678	1
P. Maintenance	..	22,058	22,058	— 22,058	..
M. Plantation	4,000	..	4,000	..	..
Total	8,06,974	9,48,233	9,46,641	— 1,39,667	1,592
(3) Distributaries—					
B. Land	19,105	51,905	28,407	— 9,302	23,498
C. Works	4,58,240	2,97,011	3,08,274	1,49,966	11,263
L. Earthwork	3,93,855	3,77,802	3,73,712	20,143	4,090
N. Tank and reservoirs	11,450	5,358	5,377	6,073	19
O. Miscellaneous	..	14,676	13,503	— 13,503	1,173
P. Maintenance	..	9,468	9,469	— 9,469	1
Total	8,82,650	7,56,220	7,38,742	1,43,908	17,478
(4) Drainage and protective works—					
B. Land	325	8,644	3,139	— 2,814	5,505
C. Works	28,850	828	829	28,021	1
L. Earthwork	24,475	76,397	53,694	— 29,219	22,703
O. Miscellaneous	..	2,000	884	— 884	1,116
Total	53,650	87,869	58,546	— 4,896	29,323
Provision for unforeseen works	..	3,182	..	..	3,182
II. Establishment	23,64,935	25,14,084	24,62,460	— 97,525	51,624
III. Tools and plant	5,78,451	4,96,362	4,87,770	90,681	8,592
III-A. Loss by exchange	82,670	1,19,384	1,16,610	— 33,940	2,774
Grand Total	30,26,056	31,30,000	30,67,010	— 40,954	62,990
V. Less receipts on capital account	1,29,619	..	48	— 1,29,571	48
Net Total	28,96,437	31,30,000	30,66,962	— 1,70,525	63,038

SCHEDULE of works required to be carried out to complete the Sangam anicut system.

Name of work.	Amount of estimate.	Expenditure to end of 1893-94.	Amount required to complete the project.	Date of completion.
WORKS WHICH ARE NECESSARY FOR THE FULL DEVELOPMENT OF THE PROJECT, BUT WHICH ARE NOT IN THEMSELVES DIRECTLY REMUNERATIVE.	rs.	rs.	rs.	
Sanctioned in 1893-94.				
Ulavapalla bridge, 2 miles 1,320 feet	2,580	626	1,954	31st March 1896.
Allaru main drain and affluents, excavation ..	53,630	30,724	22,906	31st " "
Do. demarcation stones	870	275	595	31st " "
Do. land compensation	5,600	..	5,600	31st " 1897.
Duvur branch channel extension, land compensation	..	63	455	31st " 1896.
Total	156	..	31,510	

Schedule of works required to be carried out to complete the Sangam anicut system—cont.

Name of work.	Amount of estimate.	Expenditure to end of 1893-94.	Amount required to complete the project.	Date of completion.
WORKS WHICH ARE DIRECTLY REMUNERATIVE IN THEMSELVES.	rs.	rs.	rs.	
Sanctioned in 1893-94.				
Eastern channel, minor channel, from Karlavadi tank, excavation	280	244	36	Completed 31st March 1895.
Iskapalli branch channel, minor channel, 5,000 feet, right bank, excavation ..	340	2	338	31st March 1896.
Iskapalli branch channel, minor channel, one sluice at head	350	122	228	Completed 31st March 1895.
Iskapalli branch channel, minor channel, one regulator at end	74	..	74	Do. do.
Iskapalli branch channel, minor channel, demarcation stones	50	..	50	31st March 1896.
Southern channel, minor channel, 5 miles 660 feet, right bank, head sluice	200	..	200	Completed 31st March 1895.
Southern channel, minor channel, excavation ..	474	..	474	Do. do.
Southern channel, minor channel, demarcation stones	34	..	34	Do. do.
Central channel, minor channel, 4 miles 990 feet, right bank, excavation	250	169	81	31st March 1896.
Land compensation (approximation)	2,47,572	2,41,195	* 6,377	31st " 1897.
Sanctioned in 1894-95.				
Gogulapalli branch channel, minor sluice, 2 miles 1,050 feet, right bank	270	..	270	31st March 1896.
Gogulapalli regulator and sluice, 2 miles 1,320 feet	530	..	530	31st " "
Total	..	..	8,692	
Grand total	..	..	40,202	
Establishment	..	..	6,387	
Total	..	..	46,589	

* The Executive Engineer, Nellore Division, states that the balance payable under land compensation cannot be exactly stated, and that the Collector has been addressed on the subject.

(Signed) R. R. E. DRAKE-BROCKMAN, Colonel, R.E.,
Chief Engineer for Irrigation.

STATEMENT comparing the particulars of the actuals of Irrigation and Financial results with those shown in the forecast statements printed in Proceedings of Madras Government, dated 5th February 1889, No. 44 I.

	Area irrigated.			Revenue.			Working expenses.		Net revenue.	
	Estimate.		Actual.	Estimate.		Actual.	Estimate.	Actual including collection charges and old irrigation revenue, less old maintenance charges.	Estimate.	Actual.
	First crop.	Second crop.		Direct.	Indirect.	Total.				
1888-89	ACS. 56,900	ACS. 3,149	ACS. 52,789	RS. 600	RS. 95,265	RS. 95,865	RS. 39,555	RS. 48,396	RS. 55,710	RS. 43,428
1889-90	62,000	4,288	60,638	600	1,13,660	1,14,260	47,483	1,86,697	66,777	70,538
1890-91	67,800	3,483	64,741	600	1,35,855	1,36,455	47,000	2,00,354	89,455	76,196
1891-92	73,500	2,24	38,975	700	1,62,305	1,63,005	47,000	1,76,038	1,16,005	27,725
1892-93	78,500	4,881	70,106	800	1,88,881	1,89,681	47,000	1,94,059	1,42,681	1,15,940
1893-94	84,400	3,393	70,378	900	2,21,157	2,22,057	47,000	1,91,223	1,75,057	1,23,018
1894-95	87,500	..	..	1,000	2,36,961	2,37,961	34,200	..	2,03,761	..
1895-96	90,700	..	..	1,035	2,43,267	2,44,302	34,200	..	2,10,102	..
1896-97	94,000	..	..	1,035	2,69,965	2,71,000	34,200	..	2,36,800	..
1897-98	94,000	..	..	1,035	2,69,965	2,71,000	34,200	..	2,36,800	..
1898-99	94,000	..	..	1,035	2,69,965	2,71,000	34,200	..	2,36,800	..

(a) Excludes collection charges in the Revenue Department which were in 1888-89 deducted from the revenue. The decrease both in the area irrigated and revenue derived during 1891-92 is due to very unfavourable character of the season on account of which remissions to the extent of Rs. 1.29 lakhs were granted.

21st August 1895.

(Signed) R. R. E. DRAKE-BROCKMAN, Colonel, R.E.,
Chief Engineer for Irrigation.

No. 135 I.

Submitted to Government with reference to letter No. 168 I., dated 13th September 1894, from the Government of India, printed in Proceedings of Madras Government, No. 724 I., dated 3rd October 1894, closing the construction estimate of the Sangam anicut system with effect from 31st March 1894.

2. To the report by the Executive Engineer of the Nellore Division the following statements have been appended:—

(1) Statement received from the Examiner of Public Works Accounts, comparing by main and sub-heads the outlay incurred up to end of 1893-94 on the Sangam anicut system with the estimate sanctioned by the Secretary of State and as finally modified by the redistribution of direct charges sanctioned by the Government of India in its letter, No. 292 I., dated 5th December 1892, embodied in Proceedings of Madras Government, No. 1067 I., dated 17th idem.

(2) A schedule compiled in this office from the statements received from the Superintending Engineer, II Circle, with his endorsement, No. 291 N.L., dated 17th July 1895, of the works for which detailed estimates were sanctioned when the construction estimate for the system was closed.

(3) A statement contrasting the particulars of the actuals of irrigation and financial results with those shown in the forecast statements printed in Proceedings of Madras Government, No. 44 I., dated 5th February 1889.

3. Subsequent to the closure of the construction estimate for the system the following works have been sanctioned under Open Canal Capital rules:—

	Amount of estimate.
RS.	RS.
1. Extending minor channel, 19 miles, left bank, eastern channel (G.O. No. 357 I., dated 23rd April 1895)	1,370
2. Varni branch channel, No. 2, eastern channel (G.O. No. 368 I., dated 29th April 1895)	2,150
3. Drainage scheme for Dampur tank bed, Kanigiri canal (G.O. No. 429 I., dated 20th May 1895)	5,610

4. The estimate referred to in paragraph 27 of the Executive Engineer's report for providing screw gearing shutters to the Kanigiri reservoir dam will be shortly submitted for sanction. The scheme for supplying the Nellore tank by a head sluice and channel from the southern end of the river above the Sangam anicut is now under scrutiny in this office.

Ootacamund, 20th Aug. 1895. (Signed) R. R. E. DRAKE-BROCKMAN, Colonel, R.E.,
Chief Engineer for Irrigation.

ORDER—dated 29th August 1895, No. 698 I., Public Works.

The schedule of works, amounting to Rs. 46,589, required to be carried out to complete the Sangam anicut system is approved.

2. Ordered that a copy of these Proceedings, together with the index map of the system, be forwarded to the Government of India, with a request that the schedule above referred to may be sanctioned at an early date.

[Here enter No. 699 I., dated 29th August 1895.]

(True Extract.)

Under Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle.
" Examiner, Public Works Accounts.
" Revenue Department.
" Local and Municipal Department. ✓

Exd. Shaik Karim.
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ACCOUNT.

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M. V. 95

Dated August, 29th.

Recd. - 7 SEP 95

Encl. 6-52.

G.O., 29th Aug. 1895, No. 698 I.

AUGUST.

Sangam anicut system

The schedule of works, amounting to Rs. 46,589, required to be carried out to complete the —, approved and a copy of the Proceedings ordered to be forwarded for the sanction of the Government of India.

Copy to the Pres. D. Bd. Nellore
Sept 24/95

(With Order)

E. A. 1/9

When given for copying _____
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When signed _____

189

READ AGAIN G.O., No.
189

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ENCLOSURES TO G. No.

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LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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