



PUBLIC WORKS DEPARTMENT
MADRAS STATE

ADMINISTRATION REPORT

(WITH ADMINISTRATIVE ACCOUNTS)

FOR THE YEAR 1950-51

PART II-B—IRRIGATION
(STATISTICAL STATEMENTS)

PRINTED BY THE SUPERINTENDENT
GOVERNMENT PRESS
MADRAS
1954

Price, 4 rupees 12 annas

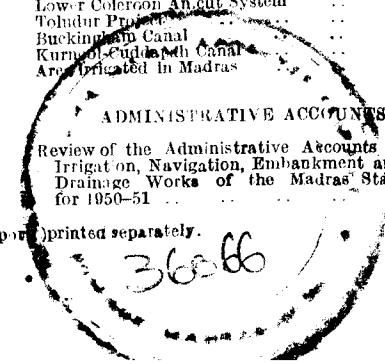
R
11-211rNSD
NS4-2.2
36066

7300

TABLE OF CONTENTS

	PAGE	PAGE
CHAPTER I.		
I. Personnel	1	Statement C-IV.—Financial results (based on assessment) of irrigation, navigation, embankment and drainage works for which capital and revenue accounts are kept ..
II. Salient features of the administration—Public Works (Irrigation) for the year 1951	1	54
CHAPTER II.		
Classification of works	22	Statement D-I.—Statement of traffic on principal navigable canals
I. Irrigation works:		58
Productive works:		Statement D-II.—Description and quantities of goods, etc., carried on the principal navigable canals
Capital outlay	22	59
Working expenses	22	Statement E-I.—Areas irrigated, etc., under irrigation works classed as productive and unproductive for which capital and revenue accounts are kept
Gross revenue	23	63
Net revenue	23	Statement E-II.—Incidence of working expenses and assessed water revenue on irrigation system under irrigation works classed as productive and unproductive for which capital and revenue accounts are kept
Area irrigated	23	64
Value of crops	23	Statement E-III.—Area irrigated and the value of crops raised
Revenue and working expenses per acre	23	66
Remissions	23	Statement E-IV.—Comparative statement of irrigation and rainfall
Unproductive works:		70
Capital outlay	23	Statement E-V.—Incidence of water-rates under irrigation works classed as productive and unproductive for which capital and revenue accounts are kept
Working expenses	23	74
Gross revenue	23	
Net revenue	23	APPENDIX II.
Area irrigated	23	Statements I and II.—Financial results of irrigation works classed as productive and unproductive for which capital and revenue accounts are kept
Value of crops	23	76
Revenue per acre	23	
Remissions	23	APPENDIX III.
Length of canals	23	Statement showing the extent irrigated and revenue derived under "Minor works" for fasli 1360
II. Navigation, embankment and drainage works: Unproductive works:	24	81
Navigation works	24	Statement showing the number of wells used for irrigation in fasli 1360
Works for which capital and revenue accounts are not kept	24	94
Irrigation works	24	General abstract of financial results showing the estimated cost of construction of productive and unproductive works, the capital outlay and revenue, the working expenses and interest on debt
Tank Restoration scheme works	24	
Navigation, embankment and drainage works	25	INDEX TO DIAGRAMS CONTAINED IN THE REPORT.
APPENDIX I.		
Statistical statements:		Financial Record—Revenue and Expenditure—
Statement A-I.—Canal projects with particulars regarding discharge, rainfall, area commanded, cost of construction, expenditure, interest charges and length of canals	27	Productive and Unproductive Systems (Fasli)
Statement A-II.—Reservoir projects with similar particulars as above	31	Polavaram I-land Project
Statement B-I.—Capital accounts of irrigation, navigation, embankment and drainage works for which capital and revenue accounts are kept	36	Cauvery Delta System
Statement C-I.—Financial results showing receipts and expenditure against revenue, etc., of irrigation, navigation, embankment and drainage work for which capital and revenue accounts are kept	38	Cauvery-Mettur Project
Statement C-II.—Financial results of irrigation, navigation, embankment and drainage works for and up to the end of 1950-51	44	Godavari Delta System
Statement C-III.—Demands and realizations of irrigation, navigation, embankment and drainage works for which capital and revenue accounts are kept	52	Krishna Delta System
		Pannar River Canal System
		Periyar System
		Srivaikuntam Ancient System
		Lower Coleroon Ancient System
		Toludur Project
		Buckingham Canal
		Kurnool-Endapalle Canal
		Area irrigated in Madras
		ADMINISTRATIVE ACCOUNTS.
		Review of the Administrative Accounts of Irrigation, Navigation, Embankment and Drainage Works of the Madras State for 1950-51

NOTE.—Part II-A (Report) printed separately.



Godavari Delta System—Eastern Delta.—The area thrown open for the second crop in 1951 was about 61,478 acres. An additional area of 4,927 acres was also thrown open for second crop to give redress to areas affected by submersion. Thus the total area cultivated for the second crop comes to 76,405 acres. The river condition during the major portion of the second crop was very unfavourable due to failure of rains and hence the full extent as contemplated above under various channels in the Eastern delta could not be cultivated under second crop. Turns were resorted to during the transplantation period and water was supplied to all crops by turn system. The river condition was favourable from the beginning of April 1951.

Freshes in the river arrived from 5th July 1951 and full supplies could be had from that date. There were heavy rains in the second week of July and this had hampered the progress of transplantation. But great care has been taken in regulating the supplies to canals to avoid submersion of lands during heavy rains. The yield of crops was generally good except in scattered low level places.

Central Delta.—Water-supply throughout the first crop season was good. To give redress for the areas affected by submersion during heavy rains in September 1950 an additional area of about 16,000 acres was thrown open for second crop for Fasli 1,360. The river began to fall down rapidly and the supply available between 10th February to 1st April was unprecedentedly low. There was a great clamour for water from all over the delta and the situation was averted with greatest difficulty by restoring the internal and lock turns from March 1951 throughout the delta till the first week of April to avoid complete failure of crops. Good supply could be had from the first week of April and continued to be such till the closure of canals which was also postponed by one week i.e. till 22nd April 1951 to complete final wettings. The crops were good in general.

Headworks.—The flood in the river commenced from 6 p.m. on 25th July 1951 when the reading at Dowlaishwaram rose to 8.2 and the maximum flood reading recorded was 12.1 on 11th August 1951 at 6 a.m. Heavy damages had occurred to the rear aprons of the Dowlaishwaram anicut during the floods of 1950 which were noticed early this year and these were completely repaired. There were damages to the other 3 anicut aprons, repairs to which were also completely attended to. The heaviest rainfall during the year was 2.41 inches recorded on 24th July 1951.

Western Delta.—To give relief to the worst affected areas an extent of 31,427 acres was thrown open for second crop cultivation in addition to the localised area of 146,828 acres comprising a permanent zone, rotation zone and projects. As canal water was found insufficient, irrigation by means of drainage water was allowed to an extent of 981 acres permitting cross bunds in the drains in certain areas. Supply position unfortunately fell down and there was severe draught throughout the month of March. Unauthorized cultivation was done to an extent of 5,555 acres causing further diminution of the available scant supplies. The difficulty was averted by introducing internal and external turns suitably and distributing the available water equitably among the legitimate areas. From the first week of April onwards the river position gradually improved and saved the withering crop.

The canals were reopened on 8th June 1951 at 6 p.m. for first crop irrigation and the river supply was abundant. But by the time transplantation was commenced in certain places in the second week of July, there were heavy rains and the tender crops in the areas adjoining Yerrakalva and some of the drains in the Delta were completely damaged, due to submersion by floods. In some flood affected areas the crop was not a thorough failure as the flood receded by the time the transplantation season came to an advanced stage. Second crop was being given under additional areas to the extent possible to the worst affected areas during the Fasli, which may be about 32,000 acres.

The water-supply under river channels taking off from the Nagavalli river direct was also good except in the month of November, due to low water level in the river. During the low condition of the river, Korambo works were done and adequate supply given.

Krishna Delta System.—The first freshes in the Krishna river arrived on 4th June 1951. Water-supply in the river was copious since then. The highest flood level in Krishna river was plus 57.65 on 31st July 1951.

The Krishna Eastern Delta Head Sluice was opened on 22nd May 1951 at 6 a.m. and water was let down into the canals. As the conditions of the supplies in the river were encouraging, water was supplied to seed beds in time and the transplantation of the ayacut was commenced in the first week of June 1951. The river supplies were copious and steady and there were timely rains. These facilitated transplantation without difficulty. Since the conditions of the season are favourable after transplantation with periodical rains the condition of the paddy crop was good and the yield also was satisfactory.

Except the minor floods in East and West Thammileru drains, there were no floods and cyclone. As a measure of G.M.F. several temporary pipes and pumping installations were allowed for the irrigation of an extent of 12,000 acres of commendable dry lands. Under orders of the Superintending Engineer and Collector, the short crop channels which were closed on 10th November 1951, were re-opened and kept running till the end of November 1951, in the interest of the ryots who have raised long-term crops.

Periyar Delta System.—The Periyar lake was opened on 1st June 1951 when the level was 126.30 and the corresponding lake level in 1950 on the date of opening 11th June 1950 was 124.00. The South-west Monsoon was quite good and the lake level continued to rise gradually due to occasional good rains in all the months. After a lapse of 3 years the lake surplused for 6 days in October 1951 and 17 days in November 1951. The regulator gates were opened for a total period of 582 hours during 1951 and the F.R.L. of 152.00 was maintained for 6 days in October 1951 and 19 days in November 1951. The surplus quantity is about 882 m.c.ft. As water was available in plenty, supply to 2nd crop zone was given on 1st August 1951 instead of usual date of 15th August of every year. The lake level on 30th November 1951 was 151.85 (the corresponding level on 30th November 1950 being 140.40). Due to seasonal rains, the condition of crops was reported to be good and the Kodai crop recently harvested had a satisfactory yield. On account of heavy rains in the cumbum valley and the catchment area of the Vaigai below the Peranai regulator, the flow in the Vaigai below Peranai was maintained continuously for more than a month since October 1951. On account of improved supply position in the lake, water was let down in the Periyar canal to feed non-Periyar tanks at the tail end. The number of tanks so fed in the non-Periyar area is 48 in Mathurai district and 32 in Ramanathapuram district. The total ayacut so fed is 1,130 acres in Mathurai and 1,550 acres in Ramanathapuram district. Due to local heavy rains, one channel in Cumbum section of Periyakulam taluk breached and the breach has been closed.

Post-war Reconstruction schemes—Lower Bhavani Project.—The Progress on the Lower Bhavani Dam sanctioned by the Government late in 1947 continued to be very good during this year also. As already reported in the previous reports, the Lower Bhavani Dam will be 5½ miles long, consisting of 1,523 feet of masonry dam in cement mortar (bulkhead above a certain level being in red cement mortar) and the rest rolled fill Earth dam. The dam will impound flood waters of the Bhavani river and the Reservoir so formed will have a storage capacity of about twenty-eight thousand million cubic feet and will bring under the plough a new area of 207,000 acres.

Headworks—Dam—Masonry Dam.—Early in the year, the water in the river was diverted over the built masonry on the left 3rd of the river and excavation for foundations of the dam on the right half of the river was commenced. In this reach also the foundations had to be taken down nearly 65 feet below bed level to get sound rock. Extensive grouting had to be done to close up all fissures and joints. The entire river bed area and the bulk head reach on the right flank

4

ADMINISTRATION REPORT OF THE

were covered with masonry during the year. At the end of the year the progress on the masonry dam was as under:—

On the right flank, masonry has been built from foundations to R.L. 925 for the entire bulk head portion, less the portion where sluices, penstock etc. were to be fixed. In the Canal, as well as in the sluice portions, the built in parts of the sluices have been fixed in position and concrete. Masonry around these was in progress. In the penstock portion two lines of penstock pipes have been erected and pipes for the other two lines are just being received. The centre block of the spillway portion is kept low to take care of the present flow of water in the river and it was expected that by 15th January 1952 water would be diverted through the river sluices and these low portions built up.

Total volume of masonry done during the calendar year 1951 62,306 units of 100 c.ft.

Total volume of masonry done from commencement to date 102,177 units.

Taking all the works such as excavation, drilling, grouting, etc., into consideration, the progress on masonry dam portion of the work can be taken as 70 per cent of the total work to be done.

Earth dam.—Out of the 5½ miles length of earth dam, by three miles length have been completed to designed levels. In other portions works were in progress in various stages. The cut-off trenches for the entire length of dam have been cut and grout curtain holes have been drilled at every 10 ft. intervals right throughout the length of the dam and grouted. Further works in the formation of the embankment were in progress.

Total earth work done on the embankments during the calendar year 1951. 54,631 units of 1,000 c.ft.

Total done till to date from commencement 82,847 units.

On the earth dam the progress to date can be taken as 65 per cent of the total work to be done on the Earth dam.

Six numbers Euclid bottom Dumpers, 4 Nos. DW 10 Tractor cum Scrapers, and a number of lorries were used for the transport of earth from the borrow area to the dam site. At the borrow area itself, nine excavators were employed to excavate the earth and fill into dumpers and lorries.

All the machines were kept in exceptionally good condition and the number of sick machines was very few.

Supplies.—Rubble, face stones, chisel dressed stones, sand surki, broken metal, etc. required for the work were quarried and supplied. The stones had to be transported over a distance of 5 miles from quarries to dam site. Haulage was done by six steam locos and 8 Nos. Diesel locos, hauling tip trucks filled with stones; sand was removed from various sand shoals on the river both above and below the dam site within a radius of 15 miles. Bricks were burnt at the dam site itself and made into surki and supplied. The supply was always equal to the demand.

Workshops.—An up-to-date workshop with three lathes and other machines handled all the day to day requirements of the work and repairs to various machines, etc. The workshop was so efficient that for none of the requirements of the work outside help was sought.

Stores.—Different kinds of articles and stores required for the project were collected at the stores well in time and issued to the works. The stores were very well organised and the acquisition and distribution were fairly perfected and the works never suffered for want of any stores. A petrol bunk and a High Speed Diesel Oil bunk are being run by the department to meet the fuel needs of the works. These two pumps helped very much to maintain a high quality of supply in the fuel oils and incidentally brought also the dealers profit to the department. The total consumption of cement on the dam during the

year 1951 was over 50,000 tons and these were obtained from the Madukkarai Cement Factory both as loose cement as well as bagged cement and used on the works.

Tests.—A well equipped laboratory was maintained and used to control the quality of work both in the masonry dam and in the earth dam. It has been a very great help to ensure proper quality of work on the dam.

Camp.—About 600 semi-permanent quarters and 1000 Nos. temporary quarters were put up for housing the staff and labourers at the works colony were maintained in very good condition. A population of more than 30,000 lives in the colony right throughout the year. Protected, filtered, and chlorinated water supply was made throughout the year to the entire camp. The disposal of sewage was through independent septic tank of Imhoff's type and these continue to give complete satisfaction.

The health of the camp was maintained at a high standard and there were no epidemics of any sort in the camp during the year 1951.

An up-to-date hospital with a full-time doctor, an in-patient ward, and a maternity ward were maintained in the camp throughout the year. An internal telephone system connecting all the work spots, offices and quarters of officers, and also the railhead at Mettupalayam was put up by the Telegraph department.

Results.—Now that the gates for the sluices have been received, it is expected that partial storage will be possible in the reservoir during the north-east monsoon of 1952 and it will be possible to allow water for irrigation during 1952-53 irrigation season. The further progress on the works during the coming year is so arranged as to try, if possible to allow water for irrigation during 1952 September, itself. The programme is ambitious, but all efforts will be made to achieve the same.

The works are attracting considerable number of visitors and all of them have expressed their profound satisfaction, both with the progress and the organisation of work in the project.

RS.

Expenditure during the year 95,84,751

Total expenditure to date 4,08,14,754

Canals.—The canal is to be considered in two parts:—

(i) Called "The Main Canal" from the Reservoir end to Noyyal valley a distance of about 90 miles and (ii) "The Extension canal" alias "Dharapuram Canal" covering a distance of about 35 miles below the Noyyal valley, which is a subsequent supplemental scheme sanctioned by Government to give succour to a famine-affected area in Dharapuram. The cost of the works relating to Main canal including direct and indirect charges as sanctioned, is to the tune of 4.4 crores of rupees in round figures and that of the extension canal an additional crore. The estimated cost of works alone under both the main and extension canals is Rs. 393.00 lakhs.

The work in the extension canal area was started in May 1950 and it has provided employment for about 3,000 men in the distress area since then. The situation in the upper reaches of the canal although not so acute as in the extension canal, has also been pretty bad all these years. Generally, between the months of March and August there is a great influx of labour flocking to the canal area in search of employment. The peak strength in the year rose up to 30,000. One great feature of the execution of the Lower Bhavani Project canals is that it has contributed a great deal to give immediate relief to men in the distress area by providing work for them in phenomenal situation caused by drought conditions for four successive years.

The progress on the canal works could be broadly considered under the following major heads.

Land acquisition.—There are 4 Special Deputy Collectors for Land Acquisition in the canal area. In all about 4,200 acres of land have to be acquired for the

Main canal. The bulk of the work has been done and it is anticipated that what little remains will be completed before the end of the financial year. A good portion of the alignment of the field bothies in the head reaches of the canal has been done and land plans and schedules sent to the concerned Special Deputy Collectors for acquisition. As there is a proposal to give benefits of irrigation to the lands in the upper reaches of the canal from September 1952 the work on the field bothie alignment and acquisition is done with concentrated effort in these reaches at present.

The question of development of the ayacut has been taken up by a Special Deputy Collector appointed for this purpose. The idea is to establish intimate contact with the ryots and educate them on the work to be done to prepare the fields for irrigation. Meetings are being held in the concerned villages on appointed dates and several aspects concerning development explained to the ryots both by the P.W.D. officers and the Special Revenue Officer.

Cross Drainage Works.—There are 113 of them in the main canal 8 of them are major aqueducts costing over a lakh of rupees and all of them were in good progress. The rest are under-tunnels or drainage culverts. Of these, 50 have been completed and 55 were in an advanced stage of progress. The outturn may be put down at 58 per cent against an anticipated ultimate outlay of 38.01 lakhs of rupees. A beginning has just been made on the work in the Extension canal and the designs for a few were under preparation.

Bridges.—There are 60 bridges in the Main canal and all of them have been completed and thrown open to traffic except 3 which were in a very advanced stage of progress. It may be said in general terms that about 75 per cent of the work on the bridges has been done in the main canal against an anticipated ultimate outlay of 10.28 lakhs of rupees. In the Extension canal 35 bridges have to be built in all, including foot bridges. Of these 26 have been taken up and the work on the remaining is yet to be started.

Buildings.—The building programme in the main canal has already been completed in the previous year. In all 53 buildings have been constructed for quarters, offices, rest sheds and quarters for regulating staff, the outlay on them being to the tune of 4½ lakhs of rupees. Building works in the Extension canal were in progress; five dormitories in the colony at Kangayam have been built and 4 dormitories and eight quarters for regulating staff in the Extension canal area were in progress. The ultimate outlay on all of them is expected to be to the tune of 0.9 lakhs.

Earthwork.—Both the main canal and the extension canal have been dug and banks formed over the entire length except for small gaps at the sites of cross drainage works and it may be said in general terms that about 68 per cent of the work has been done. The ultimate outlay is expected to be to the tune of 140 lakhs of rupees for a total output of 341,000 units (1 unit = 1000 c.ft.)

Distributaries.—The distributaries taking off from the main canal and the extension canal would cover a length of about 500 miles. There are 125 off takes from the main canal including 67 direct sluices. Investigation of 47 out of 58 of the distributaries has been completed and a good number of them has also been dug. The balance of investigation which was in progress is mostly on the branches of the three important major distributaries, viz., Chennasamudram, Unjalur and Bhavani, taking off from 74/1, 63/0 and 53/2, respectively of the main canal. It may be said in general terms that about 45 per cent of the work has been done on the distributaries. A good beginning has been made on the construction of 140 masonry works also.

As regards the extension canal, block levels are being taken in the area and it is anticipated that the work on the preparation of contour maps for the area irrigable will have been completed by the end of the financial year. It is only thereafter that the work on the alignment of distributaries and the location of off-takes for direct sluices can be done.

As this is the first scheme of some magnitude to be sanctioned in this part of the State for large-scale irrigation of dry crops by canal flow, it has been considered necessary to conduct certain experiments to determine the optimum sizes of plots, the optimum sizes of field channels, method of supply by turns and measures necessary to ensure efficient night irrigation without waste of water. To this end, certain experiments are being conducted in the existing Bhavani valley itself under the Tadapalle channel system with a farm manager of the rank of a Demonstrator of Agricultural Department in charge.

With a view to study the practice of irrigation of dry crops in Upper India and in the Bombay-Deccan, in the Nira Valley, the Government sanctioned the deputation of the Executive Engineer, Lower Bhavani Project Canals Division. The Executive Engineer undertook two trips, one to Uttar Pradesh in October 1951 and the other to Nira Valley in Bombay-Deccan in November 1951 and made a study of the practices in both the localities.

It is hoped that in September 1953 supply can be given to the entire irrigable area under the Main canal.

General—Organization.—The entire Project works (both Canals and Head-works) are controlled and directed by the Chief Engineer for Irrigation.

Headworks.—On the work-spot there is one Executive Engineer, assisted by sixteen Assistant Engineers, one Medical Officer and one Health Officer to carry out the work and maintain the health of the camp. Two Deputy Collectors, one for acquisition of lands required for the Project and also to acquire lands that will be submerged by the formation of the reservoir and another Deputy Collector to arrange for rehabilitating those people whose houses and property would be submerged in the reservoir, have been working throughout the year.

Canals.—The canal works are in charge of another Executive Engineer with headquarters at Erode. He is assisted by eight Assistant Engineers. These are from Special Deputy Collectors for the acquisition of land and one for the development of ayacut under the project.

Malampuzha Project—Headworks.—The Malampuzha Headworks division is situated at the headworks area of the Malampuzha Project which is named as "Malampuzha dam" which is about four miles north-east of Olavakkot Junction, Southern Railway. The additional yield of foodgrains anticipated by this scheme is 20,000 tons of paddy and the place benefited by this scheme is Palghat taluk.

In addition to the buildings already constructed, 2 more Assistant Engineers' quarters, 16 upper division clerks' quarters and 15 blocks of maistris' quarters were constructed. All these buildings have been occupied by the Project staff. To attend to the medical needs of the staff stationed at headworks, a dispensary with an emergency ward of four beds was constructed and it has already started to function with the requisite medical staff. An elementary school with three class rooms has been constructed; but it has not yet been opened. Two canteens were constructed by the department and they have been given out on rent to private parties for running hotels to cater to the staff at the headworks. A police outpost has since been opened with the required staff in a departmental building which was constructed for the purpose.

A masonry reservoir of 20,000 gallons capacity with reinforced concrete roof has been constructed on a hillock which is about half a mile north-east of the staff colony for giving water-supply to the Project area. Water is being collected through an infiltration gallery constructed in the bed of the river and pumped to the reservoir which is about 150 feet high and 1,000 feet away from the river-bed. From this reservoir, the whole Project area can be fed. Laying of water-supply distribution lines in the staff colony has been completed and the regular supply of water through pipes was started.

Almost all the repairs and renewals for the machinery obtained for the Project are being attended to in the workshop. The petrol and high-speed diesel oil

Main canal. The bulk of the work has been done and it is anticipated that what little remains will be completed before the end of the financial year. A good portion of the alignment of the field bothies in the head reaches of the canal has been done and land plans and schedules sent to the concerned Special Deputy Collectors for acquisition. As there is a proposal to give benefits of irrigation to the lands in the upper reaches of the canal from September 1952 the work on the field bothie alignment and acquisition is done with concentrated effort in these reaches at present.

The question of development of the ayacut has been taken up by a Special Deputy Collector appointed for this purpose. The idea is to establish intimate contact with the ryots and educate them on the work to be done to prepare the fields for irrigation. Meetings are being held in the concerned villages on appointed dates and several aspects concerning development explained to the ryots both by the P.W.D. officers and the Special Revenue Officer.

Cross Drainage Works.—There are 113 of them in the main canal 8 of them are major aqueducts costing over a lakh of rupees and all of them were in good progress. The rest are under-tunnels or drainage culverts. Of these, 50 have been completed and 55 were in an advanced stage of progress. The outturn may be put down at 58 per cent against an anticipated ultimate outlay of 38.01 lakhs of rupees. A beginning has just been made on the work in the Extension canal and the designs for a few were under preparation.

Bridges.—There are 60 bridges in the Main canal and all of them have been completed and thrown open to traffic except 3 which were in a very advanced stage of progress. It may be said in general terms that about 75 per cent of the work on the bridges has been done in the main canal against an anticipated ultimate outlay of 10.28 lakhs of rupees. In the Extension canal 35 bridges have to be built in all, including foot bridges. Of these 26 have been taken up and the work on the remaining is yet to be started.

Buildings.—The building programme in the main canal has already been completed in the previous year. In all 53 buildings have been constructed for quarters, offices, rest sheds and quarters for regulating staff, the outlay on them being to the tune of 4½ lakhs of rupees. Building works in the Extension canal were in progress; five dormitories in the colony at Kangayam have been built and 4 dormitories and eight quarters for regulating staff in the Extension canal area were in progress. The ultimate outlay on all of them is expected to be to the tune of 0.9 lakhs.

Earthwork.—Both the main canal and the extension canal have been dug and banks formed over the entire length except for small gaps at the sites of cross drainage works and it may be said in general terms that about 68 per cent of the work has been done. The ultimate outlay is expected to be to the tune of 140 lakhs of rupees for a total output of 341,000 units (1 unit = 1000 c.ft.).

Distributaries.—The distributaries taking off from the main canal and the extension canal would cover a length of about 500 miles. There are 125 off takes from the main canal including 67 direct sluices. Investigation of 47 out of 58 of the distributaries has been completed and a good number of them has also been dug. The balance of investigation which was in progress is mostly on the branches of the three important major distributaries, viz., Chennasamudram, Unjalur and Bhavani, taking off from 74/1, 63/0 and 53/2, respectively of the main canal. It may be said in general terms that about 45 per cent of the work has been done on the distributaries. A good beginning has been made on the construction of 140 masonry works also.

As regards the extension canal, block levels are being taken in the area and it is anticipated that the work on the preparation of contour maps for the area irrigable will have been completed by the end of the financial year. It is only thereafter that the work on the alignment of distributaries and the location of off-takes for direct sluices can be done.

As this is the first scheme of some magnitude to be sanctioned in this part of the State for large-scale irrigation of dry crops by canal flow, it has been considered necessary to conduct certain experiments to determine the optimum sizes of plots, the optimum sizes of field channels, method of supply by turns and measures necessary to ensure efficient night irrigation without waste of water. To this end, certain experiments are being conducted in the existing Bhavani valley itself under the Tadapalle channel system with a farm manager of the rank of a Demonstrator of Agricultural Department in charge.

With a view to study the practice of irrigation of dry crops in Upper India and in the Bombay-Deccan, in the Nira Valley, the Government sanctioned the deputation of the Executive Engineer, Lower Bhavani Project Canals Division. The Executive Engineer undertook two trips, one to Uttar Pradesh in October 1951 and the other to Nira Valley in Bombay-Deccan in November 1951 and made a study of the practices in both the localities.

It is hoped that in September 1953 supply can be given to the entire irrigable area under the Main canal.

General—Organization.—The entire Project works (both Canals and Head-works) are controlled and directed by the Chief Engineer for Irrigation.

Headworks.—On the work-spot there is one Executive Engineer, assisted by sixteen Assistant Engineers, one Medical Officer and one Health Officer to carry out the work and maintain the health of the camp. Two Deputy Collectors, one for acquisition of lands required for the Project and also to acquire lands that will be submerged by the formation of the reservoir and another Deputy Collector to arrange for rehabilitating those people whose houses and property would be submerged in the reservoir, have been working throughout the year.

Canals.—The canal works are in charge of another Executive Engineer with headquarters at Erode. He is assisted by eight Assistant Engineers. These are from Special Deputy Collectors for the acquisition of land and one for the development of ayacut under the project.

Malampuzha Project—Headworks.—The Malampuzha Headworks division is situated at the headworks area of the Malampuzha Project which is named as "Malampuzha dam" which is about four miles north-east of Olavakkot Junction, Southern Railway. The additional yield of foodgrains anticipated by this scheme is 20,000 tons of paddy and the place benefited by this scheme is Palghat taluk.

In addition to the buildings already constructed, 2 more Assistant Engineers' quarters, 16 upper division clerks' quarters and 15 blocks of maistris' quarters were constructed. All these buildings have been occupied by the Project staff. To attend to the medical needs of the staff stationed at headworks, a dispensary with an emergency ward of four beds was constructed and it has already started to function with the requisite medical staff. An elementary school with three class rooms has been constructed; but it has not yet been opened. Two canteens were constructed by the department and they have been given out on rent to private parties for running hotels to cater to the staff at the headworks. A police outpost has since been opened with the required staff in a departmental building which was constructed for the purpose.

A masonry reservoir of 20,000 gallons capacity with reinforced concrete roof has been constructed on a hillock which is about half a mile north-east of the staff colony for giving water-supply to the Project area. Water is being collected through an infiltration gallery constructed in the bed of the river and pumped to the reservoir which is about 150 feet high and 1,000 feet away from the river-bed. From this reservoir, the whole Project area can be fed. Laying of water-supply distribution lines in the staff colony has been completed and the regular supply of water through pipes was started.

Almost all the repairs and renewals for the machinery obtained for the Project are being attended to in the workshop. The petrol and high-speed diesel oil

are now being drawn from a consumer petrol pump and a high-speed diesel oil pump erected by Messrs. Standard Vacuum Oil Company, and Burmah Shell Company respectively in Block I area.

Masonry dam PQ 280 feet long.—This is a small bit of masonry dam to close up the gap between two hillocks. Earthwork excavation for foundation has been practically completed. Blasting rock in foundation was in progress and the foundation is being got ready to start the masonry work.

Masonry dam AB 1,806 feet long.—This is the main dam which is being constructed across the river. Excavation of foundation has been nearly completed and the masonry for a length of about 1,190 feet was at different levels of progress. The quantity of masonry done to end of November 1951 was about 25,000 units. This dam has got a drainage gallery 5" wide and 7 feet 6 inches high and also a roadway of 16 feet wide at top. Two sluices, one at right flank and the other at left flank, will be provided on this dam. The right flank sluice is intended for feeding an existing irrigation channel and also to increase the ayacut at a later stage, if found feasible, and the left flank sluice is for feeding the proposed main canal. Penstock pipes 6' diameter will also be provided at the bed of the river to generate electricity at a later stage if found feasible. There is also a proposal to supply water to Palghat town from this reservoir and necessary pipes for the same will be provided now itself. The dam also provides for necessary overflow arrangements.

Masonry dam B × 1 1,914 feet long.—This is a continuation of the dam AB. Preparation of foundation has been nearly completed. Masonry work for a length of about 1,050 feet was at different levels of progress. The quantity of masonry done so far was about 5,900 units. This dam has got a roadway 10 feet wide at top.

Earth dam X1 Y1 729 feet.—This a continuation of dam B × 1. Earthwork for stripping foundation and for common core trench have been completed. Filling up of core trench has been partly done and further work was kept in abeyance due to the onset of the monsoon. Now that the monsoon is over, the filling of core trench will be started. Formation of rock toe and filter was in progress and about 3,000 units of work done.

Earth dam RS 1,238 feet long.—This dam is to close up the gap between two hills, on the left flank. The work on this dam has not yet been started except for some clearance of site, etc.

The main canal from 0/0 to 0/4 and the cross masonry works in this reach are in charge of this division. Formation of main canal was in progress and the designs for cross masonry works were under preparation.

To look after the health of the Project staff and mazdoors working in the Headworks, there are two health inspectors under the Executive Engineer. The requisite medicines and apparatus such as D.D.T., Pyrethrum, inoculation outfit, etc., were being supplied by the Public Works Department. In addition to the above there is a special second class Health Officer with some staff stationed at Palghat to look after the Project headworks and also for attending to the needs of the staff and mazdoors working in the canals.

The expenditure during the year 1950-51 was Rs. 37,51,847 and the total expenditure from the inception of the Project to end of December 1951 was Rs. 93,49,523.

Canals.—The Malampuzha Project Canals Division (with headquarters at Palghat) was formed on 18th September 1950 solely for the investigation and execution of the Malampuzha canal system.

Investigation of main canal and distributaries system.—A few changes in the tail end reach of main canal were done during 1951. About 70 per cent of the investigation and alignment of the distributaries has been completed to the end of 1951. Remaining work is expected to be completed in 1952.

Investigation of the waterspread area.—About 80 per cent of the work involved in the survey of the waterspread area has been completed. The remaining work will be completed in 1952.

Execution of the main canal.—The execution of the main canal from 0/0 to 13/2 was in progress. About 85 per cent of the excavation work has been completed in this reach. The remaining work will be completed in 1952.

Most of the cross masonry works up to 13/2 were now in progress, the most important ones being the two major aqueducts, i.e., Korayar and Kannadi Aqueducts. The foundation for the two major aqueducts was taken up in March 1951 and about two-thirds of the foundation work was completed during the year.

There are two railway crossings for the main canal. The earthwork for the diversion works was completed by this department and the railway authorities have commenced the work on bridges.

All the cross masonry works up to 13/2 are expected to be completed in 1952.

Execution of the distributary system.—Distributaries commanding an ayacut of about 25,000 acres were under execution. Most of the excavation work of this Peringottukurusi branch was completed and the cross masonries taken up.

The expenditure during the calendar year and to end of December 1951 was Rs. 32,26,000 and Rs. 45,25,800 respectively.

Mettur Canals Scheme.—This scheme was sanctioned in the year 1949 for excavating a channel from Mettur Reservoir for irrigation of lands in Salem and Coimbatore districts at a cost of Rs. 2,66,84,800.

Buildings.—Construction of buildings such as Executive Engineer's office, Executive Engineer's quarters, 8 clerks' quarters and 3 blocks of 2 quarters each for peons have been completed. One block of Lascars' quarters, one lower division clerk's quarter at Kurichi and one Nissen shed at Ammapet were also constructed. Temporary buildings for Subdivisional Officer's office, Subdivisional Officer's quarters and 5 blocks of buildings to accommodate 10 clerks and supervisors were constructed and occupied.

Earthwork.—Earthwork excavation for Right Bank canal from head to tail end for 26½ miles length except in short reaches of heavy embankments and rock blastings has been completed. Bed-level is reached in almost all the places except the above and side slopes are being cut wherever incomplete. Out of total quantity of 51,807 units of earthwork involved for the Right Bank canal, 25,909 units of earthwork was done during the year and 42,573 units to end of the calendar year 1951.

Masonry works—Undertunnel works.—Out of 48 undertunnel works proposed to be constructed, 3 undertunnels were completed in all respects to end of the previous year and 4 during this year. The rest were under various stages of execution.

Syphons.—Construction of all the three syphons were taken up during this year at miles 6/1, 8/3 and 9/4 and canal portions were almost completed.

Drops.—Out of 6 numbers of drop works, 4 drops were completed to end of the previous year and one during this year. The last one is a combined drop and regulator at mile 4/2 which is now taken up.

Bridges.—Out of 20 bridge works 2 works were in progress from the previous year and 11 new works were started during this year. Of these, 3 works have been completed in all respects. More than 95 per cent of the work has been completed in respect of 3 others and 70 per cent in respect of 4 works. The remaining 3 were in various stages of construction.

Regulators.—All the three regulators were taken up for construction during this year and masonry was almost completed. Shutters with their accessories are being manufactured in P.W.D. Workshops, Madras and are awaited.

Constructing a combined head sluice and bridge with leading channel from the high-level supply channel of the Mettur Reservoir was also taken up during this year and excavation was almost nearing completion.

Constructing a weir wall across the high-level supply channel is another important masonry work taken up for execution during this year. Weir wall has been raised to a level of 691.5 against 694.8 required. Owing to the functioning of high-level sluices of Stanley Dam Reservoir for irrigation purposes work on this is only seasonal to be resumed when flow conditions permit.

The Right Bank canal crosses the Chittar river at mile 20/0 by a single vent R.C.C. box syphon. Designs have just been completed and work will be taken up shortly.

Left Bank canal.—Land plans and schedules for Left Bank canal were under preparation. Alternative alignments for the course of the Left Bank canal were also examined and got approved resulting in savings of a few lakhs of rupees.

Preliminary investigation for the course of Left Bank canal such as check levels, establishing bench-marks, etc., has almost been completed. Working estimates for seven masonry works and one earthwork reach have been prepared.

Earthwork.—Earthwork excavation in Left Bank canal was in progress from 0/0 to 14/6 of Left Bank canal. About 7,609 units of earth (including hard rock) have been done during 1951.

Constructing a pressure aqueduct for Left Bank canal for crossing the Cauvery river is one of the major works in the Canals Scheme. Several alternatives were contemplated and plans and estimates for Cauvery crossing have been finalized by the Design Engineer under instructions of Chief Engineer for Irrigation. Pending decision on the designs for the pressure aqueduct, construction of masonry piers in the river-bed was taken up during this year and 16 masonry piers out of 41 have been constructed to varying heights during the year under report. The position for the remaining piers in the river portion were marked and excavation for a few piers started. Collection of materials was also in progress for speedy completion in the next season. Earthwork excavation and blasting of rock on the right bank for the trough portion was also in progress.

Machineries and equipment.—Seven drop side lorries, 5 water lorries, 6 Muir Hill dumpers, 1 mixer, a sheep's foot roller with Fowler Marshall tractor, 1 stone-crusher, road-roller 1, Ruston Locomotives 2, 7 dumps with engines, etc., complete of different makes and tipping wagons were purchased during this year.

The total expenditure on works during 1951 and to end of the year was Rs. 26,55,748 and Rs. 37,51,456, respectively.

Manimuthar Reservoir Project.—The Manimuthar river raises in the Western Ghats and is a principal tributary of the famous Tambraparni river in Tirunelveli district. The flashy monsoonic floods in the river which are now going to waste in the sea are proposed to be conserved for the benefit of the fertile tract of the Tambraparni irrigation system to an extent of about 83,000 acres and secondarily to fill up a number of rainfed tanks in the taluks of Ambasamudram, Tirunelveli, Nanguneri, Tiruchendur and Srivaikuntam to benefit an extent of about 20,000 acres of existing irrigation.

The preliminary investigation of this reservoir scheme was taken up in 1945. Based on this, detailed investigation was taken in 1948 and completed in March 1949. The Scheme was sanctioned in G.O. Ms. No. 3842, P.W.D., dated 13th October 1950. The estimate amounting to 398 lakhs was technically sanctioned by the Chief Engineer for Irrigation.

The scheme was inaugurated by the Hon'ble Sri M. Bakthavatsalam, Minister for Public Works, on 29th November 1950 and the execution is in progress.

The site of the proposed dam is at a point about 4 miles south-west of Ambasamudram town. The reservoir will be formed with a Ogee masonry spillway dam in the river crossing with non-overflow dam on both the sides and earth dams in continuation at both the flanks. The total length of the dam from one end to the other is about 12,000 feet. The maximum height of masonry portion of dam will be about 137 feet above deep bed of river and earthen portion of dam about 100 feet. The reservoir will conserve a total quantity of 3,400 m.cft. in the first stage. After installing 15 feet radial shutters, the capacity would be increased to about 4,600 m.cft. in the second stage of project development. Preservation of the rich and fertile agricultural valley of the Tambraparni river is the vital role, assigned to the Manimuthar Reservoir. Secondarily about 29½ miles length of channel taking off from the reservoir will go to supplement the supply to the rainfed tanks in the five taluks, viz., Ambasamudram, Nanguneri, Tirunelveli, Tiruchendur and Srivaikuntam. The project is expected to add about 20,000 tons of rice to the food resources of the district.

Camp buildings such as staff quarters, workshops, store-sheds to the required extent to start with have been completed and the staff have moved in. Electric fittings, water-supply arrangements, etc., were being attended to. A separate road from Kallidaikurichi railway station to the dam-site has been completed. Investigation by exploratory borings with calyx drill, was done and the site for dam line finally selected at the lower site along the line of hillocks. Preliminary works on the dam line such as blastings and removing rock, clearance of obstructions, etc., were in progress. Working designs are under preparation in the Central Designs Office, Chepauk, Madras. A Special Deputy Collector has been posted for surveying the area required for waterspread, camp, road, etc., and proceeding with the land acquisition.

Ghriyar Project.—The investigation of the scheme was completed.

The aim of the Project is to divert the waters of the Ghriyar river, now flowing to waste to the Arabian sea through the Travancore-Cochin State limits, for irrigation in the eastern slopes. The river takes its origin in the western slopes of the Western Ghats just within 200 feet below the dividing ridge between Travancore State and Tirunelveli district.

The scheme consists of two alternatives (i.e.), either formation of a reservoir at an upper site or at a lower site, whichever is more feasible, economical and beneficial.

First alternative.—The proposal is to divert the water of Ghriyar at a lower site with a catchment area of 13.22 sq. miles to the Kottamalayar river in the eastern slopes. This proposal contemplates (1) Formation of a reservoir of 300 m.cft. effective storage capacity, (2) construction of a tunnel 13,740 feet long to discharge 77 m.cft. per day and (3) construction of an anicut across the Kottamalayar river with a supply channel to feed the tanks supplied by the Valamalayar river. By this proposal, a second short-term crop can be raised over an extent of about 3,000 acres under the various tanks. During the north-east monsoon season, assured supply is proposed to be given to an area of 6,000 acres, at least, if not 10,000 acres of the existing irrigation during the long term or pishanam crop period. The total cost of the scheme works to Rs. 189 lakhs including direct and indirect charges.

Second alternative.—The proposal is to divert the waters of the Ghriyar at the upper site with a catchment area of 3.54 square miles to the Valamalayar river in the eastern slopes and store the waters in the tanks fed by the Valamalayar channel and Kottamalayar channel partly.

This scheme comprises of (1) a reservoir of 25 m.cft. capacity and (2) a tunnel 8,000 feet long to discharge 50 m.cft. per day.

By this proposal a second short-term crop is proposed to be raised during the kar season to an extent of 800 acres under the various tanks. During the north-east monsoon, assured supply is proposed to be given to 2,500 acres of long-term

or pishanam crop. The cost of the scheme is Rs. 92 lakhs including direct and indirect charges.

Grow More Food Schemes.—During the year 43 new schemes were sanctioned at an estimated cost of Rs. 68.23 lakhs under Intensive Cultivation Programme to irrigate an approximate ayacut of 37,127 acres (inclusive of ensuring better irrigation facilities)—vide list appended.

Since the inauguration of the Grow More Food Schemes, 333 schemes including major and minor ones, were sanctioned at a cost of about Rs. 4.52 crores for irrigating about 162,388 acres and providing better irrigation facilities to about 158,385 acres including lands under Cauvery-Mettur Project. Of these about 165 schemes had been completed up to date.

Krishna-Pennar Project—Krishna Dam.—Geological investigations have been completed. Extensive calyx drilling operations have been gone through. During the year, 31 calyx holes making a total of 87 numbers were done giving a total depth of 5,384 ft. in all. The alignment of the dam has been finalized based on the results of the bore-holes.

Pennar Dam.—Exploratory works were continued and extensive penetrometer boring, drilling, pumping, pile-driving and grouting tests were done as noted below :—

Nature of exploratory work during the year 1951.	Total to end of 1951.	
Calyx drilling	6 Nos.	25 Nos.
Penetrometer soundings	161 "	1,085 "
Hand-borings	34 "	96 "
Pumping tests	2 "	2 "
Pile-driving	1 No.	2 "
Clay-grouting	1 "	2 "
Well-sinking	In progress.	
Blasting and quarrying	Do.	

Based on the data so far collected an earth dam at the downstream end of the gorge across the river portion with masonry spillway on the left margin was finally fixed up and designed.

Mylavaram Dam.—Eight calyx drill holes have been completed. As a result of data obtained in calyx drill, etc., location of spillway has been changed from the bed to the left flank.

Pick-up barrage below Pennar Dam site.—Boring tests were completed.

Canals.—Initial surveys were completed for the alignment of all main canals.

Designs.—Detail drawings and estimates for the dams were prepared in the Central Designs Office. Drawings and estimates for all the canals were prepared in the Project Division offices and the 1950 scheme drawn up. In July of 1951, the Inter-State Conference held at Delhi made definite allocations of water and the scheme had to be revised to suit this. This was taken up and the 1951 scheme was prepared and submitted in October. Dr. J. L. Savage, Consulting Engineer, inspected the two dam sites in March 1951 and gave his suggestions.

Some more exploratory works at the dam sites, borings and trial pits along canal lines, fixing of alignment stones, final check levels and finalization of drawings remain to be done. These were being attended to and the Divisions are proposed to be continued till June 1952.

Irrigation Research Station, Poondi.—The Irrigation Research Station, Poondi, maintained steady progress in its activities during the calendar year 1951. The Research Station in its capacity as a unit of the Madras Public Works Department, Irrigation Branch, participated in the Indian International Engineering Exhibition opened on 11th January 1951 at New Delhi. Officers of the Research Station participated in the International Conferences held at Bombay and Delhi

during January 1951, the 21st Annual Research Committee Meeting of the Central Board of Irrigation held at Simla in July 1951 and the 22nd Annual Meeting of the Central Board of Irrigation in November 1951. Contributions to technical journals were made by officers of the Research station.

The inspection bungalow at Poondi which has been taken over by this division for control and maintenance is being fitted with modern sanitary installations at a cost of Rs. 3,500.

A working model of the Mettur dam across the river Cauvery displayed by this division in the International Engineering Exhibition held early in January this year was appreciated very much by every section of the people. It is therefore being re-erected permanently in the station.

Special equipment—Circulation system for supply of water for models.—With the failure of the north-east monsoon for the fifth year in succession and consequent poor storage in the Poondi Reservoir, the necessity for assuring continuous supply of water for model by other means and for conserving the available supply became imminent. To achieve this, arrangements are being made to circulate the water for the models by pumping back into the storage tanks the waste water discharged from the models.

Electric analogy set up.—For conducting studies on problems such as the flow through the infiltration galleries, pressure relief in under-tunnel seepage in earthdams, etc., an equipment with high precession has been built up. A very sensitive null indicator employing an electronic ray tube has been provided, the circuit diagram followed being the same as that in the Bureau of Reclamation.

Titling flume.—For conducting experiments on spillways distorted models, and on river and canal models with various bed slopes, etc., a titling flume is a dire necessity and asset and arrangements have therefore been made to equip the Research Station with one. The titling flume is being manufactured by the General Superintendent, Public Works Workshops, at a cost of Rs. 6,000 and it will be installed in the Field station on the left flank shortly.

Hydraulic model experiments.—There had been intensified work during the year on several problems assigned to the Research Station. The experiments are described below under two heads, viz., specific and basic.

Specific problems.—Model experiments conducted for the Lower Bhavani, Krishna-Pennar, Tungabhadra, Malampuzha Projects and for maintenance of existing works in the State fall under this category. The following are illustrative of the nature of studies conducted :—

Lower Bhavani Project—Design of lined canal chutes in lieu of a series of drops to effect savings in cost of structures.

Lower Bhavani Project—Spillway dam.—Design of stream lined training wall on the left flank in an effort to guide the flood waters through the bridge downstream, without setting up whirlpools or other undesirable hydraulic features and at the same time involving the least amount of overburden removal immediately in rear of the spillway.

Lower Bhavani Project—Design of stream lined off-takes for the Unjalar distributary taking off from the main canal at mile 63/0/1 upstream of the flumed section.

Malampuzha Project :—(a) Design of energy dissipation arrangements downstream of the spillway dam, **(b)** testing the inlet and exit transitions of the Kannadi and Koraiyar aqueducts.

Pennar-Kumudavati Project—Design of energy dissipation arrangements downstream of the weir and the undersluices on either flank.

Nellore anicut across the Pennar.—evolving the precise formula for estimating the discharges of the river by model experiments.

Mettur canals scheme.—Design of the off-takes from (i) the high-level sluices and (ii) low-level sluices of the Mettur dam to feed the new right bank canal for irrigation in Salem and Coimbatore.

Krishna-Pennar Project—(a) Testing the designs worked out of the fluming of the main canal through the Mittakondala Ridge cutting on 1/150 scale and (b) on a comprehensive model to scale 1/1200 horizontal and 1/100 vertical.

Coom-river—flushing the river by sea-water by establishing a permanent communication with the sea by pipe lines. The results of model experiments in the station were tested by experiments at the site of Coom bar. Further studies were in progress.

Basic experiments.—By basic experiments are meant those studies the results of which will be of general application not only for a specific problem in hand but for a large number of problems pertaining to similar situations. The following are sum of the subjects investigated in this line :—

(i) The design of stream lined inlet and exit transitions at flumed sections of canals and cross-drainage works.

(ii) Studies on the laws governing the yield of infiltration galleries by the Electrical Analogy Method in an effort to obtain the maximum yield and obviate choking up of galleries.

(iii) The use of sheet-pile cut off and blankets in earth dams.

(iv) Building materials.

Studies were conducted on the following :—

(i) Pre-cast R.C. 'L' frames and R.C. frames for roof trusses—strength of pre-casting and assembling these frames.

(ii) Light weight concrete with admixture of saw dust and paddy husk.

(iii) Soil cement roofing tile—Mangalore pattern.

(iv) Berry bricks.

(v) Adobe bricks.

(vi) Clinker cement bricks.

Value of results achieved.—The model experiments have repeatedly shown their usefulness in

(a) ensuring safety of the structures designed.

(b) improving practically in all cases the efficiency of performance and

(c) effecting economies in the cost of the prototype structures.

Apart from direct economies in specific cases, the knowledge gained by experiments is also being employed in the design of new structures and the economies thereby effected which are of an indirect nature cannot naturally be evaluated. Another indirect benefit of model experiments is the saving of cost in maintenance of the structures, which too cannot be evaluated directly.

Several distinguished persons like Messrs. Michael W. Strauss, U.S. Commissioner of Reclamation, Washington U.S.A., C. L. Handa, Director, Irrigation Research, Punjab, R.E. Alexander, U.N. Technical Assistant Expert, Los Angeles, California, F. F. Fergusson, Chief Engineer, The Cementation Company, Limited, Bombay, Hon'ble K. Santhanam, Minister of State, Government of India, visited the Research Station during the year. Several batches of engineering students from different colleges in South India also paid visits to the station.

Soil Engineering Research Station, Chepauk, Madras.—The Soil Engineering Research Station, Chepauk, Madras, recorded further progress during the year under review. Among the important equipment added to this laboratory during the year may be mentioned the following :—

(1) A complete set of equipment required for geophysical survey by the electrical method using a D.C. potentiometer, (2) a complete B.D.H. spot testing outfit, (3) a complete photo-elastic outfit and workshop—(transferred from the Concrete Laboratory) soil testing equipment required for the Lower Bhavani Project, Manimuthar, and other field laboratories are now being manufactured in the workshops attached to this Research Station. Arrangements have also been made to purchase and supply of apparatus, etc., required for the field laboratories.

During the year a total of about 1,800 samples were tested. Daily six soil samples are being tested for all the significant constants including permeability and direct shear tests. Triaxial shear tests are performed only on important and selected samples. Triaxial shear tests were performed on thirteen soil samples from Lower Bhavani Project. Triaxial shear tests and consolidation tests were performed for a few selected samples from Kandla Port for which they were specifically asked for.

Among the more important projects for which soil surveys were conducted may be mentioned the following : (1) Malampuzha Project, (2) Manimuthar Project in Tirunelveli district, (3) Lower Sagileru Project, (4) Tamileru Project, (5) Rallapad Project, (6) Kalyani Reservoir Scheme, etc. Geological investigations were also conducted for a few of the dam sites. Tests on soil samples were conducted for a number of tank construction and tank restoration schemes.

In addition to sand samples from bore-holes in Krishna and Pennar dam sites, soil samples from a number of bore-holes in the alignment of the Krishna-Pennar North, South Kavali and Kanupur canals were received and tested. About 143 samples were received from these canal alignments from various places.

Tests on water samples from Mettur were continued. Water samples from Krishna Dam site, Mylavaram dam site, Machkund, Godavari and Krishna deltas were also analysed.

Foundation studies for a few important building constructions were carried out. With the special permission of the Chief Engineer, soil samples were tested from the Kandla Port.

The laboratory studies on the effects of micromesh prefiltration were continued.

At the end of the last year a complete photo-elastic equipment was transferred to this laboratory from the Concrete laboratory. The complete equipment has been set up. Preliminary experiments on tension, bending, etc., were conducted to calibrate and standardize the apparatus. Qualitative studies were made on the stress distribution around the drainage gallery of the Lower Bhavani dam. Special loading arrangements are being manufactured to study the problem quantitatively.

A geophysical survey unit has been organized. Equipment has been assembled for electrical geophysical prospecting using a D.C. potentiometer. Preliminary experiments are being conducted at the Marina to test out the equipment and for gaining experience.

Experiments were conducted to evolve a rapid method to determine moisture contents in the field to facilitate compaction control of earth embankments.

Experiments using plaster of paris cubes to determine wilting coefficient are being conducted to regulate the amount and frequency of application of water in irrigated dry crop areas.

The plaster of paris relief model of the Tungabhadra Project, one of the waterspread and the other of the commanded area of the canal was made and exhibited during the visit of the delegates to the International conferences held in Bombay and Delhi in December 1950-January 1951. Two relief models of the Araniar and the Rallapad projects were made and exhibited during the inauguration ceremony of these projects.

Among the distinguished visitors to this station, the following may be worth mentioning :—

Mr. Y. A. Alaga Ratnam, Irrigation Department, Ceylon.

Mr. K. Vogt, Research Officer, Central Standards Office for Railways, New Delhi.

Mr. S. N. Tripathi, Executive Engineer, Madhya Pradesh, Nagpur

CENTRAL DESIGNS OFFICE.

(a) *Designs Branch.*

Krishna-Pennar Project.—The preliminary designs drawings were revised with reference to Dr. Savage's remarks. Typical working tables were also prepared. The project proposals underwent a revision, consequent on the allocation of waters by the Planning Commission and with reference to these, revised preliminary drawings, estimates and working tables were made out. The balance of drawings to complete the specification drawings, specifications, and design reports were under preparation.

Upper Pennar Project.—Design and drawings, and estimates for Perur dam have nearly been completed.

Gandhikottah Project.—Preliminary design, drawings and estimate for Gandhi-kottah dam were prepared.

Mettur Canals Project.—Design for Cauvery river crossing of left bank canal were made out and is under revision. Design of Chittar river crossing of the right bank canal as also the offtake from high level sluices of Mettur dam was completed.

Malampuzha Project.—Revised drawings for sluices in dam providing for fixed wheel gates instead of slider gates were prepared. Detailed calculations were worked and furnished for reinforcement around sluice and penstock and gallery openings. Design and drawings for the main canal crossing of Erumayur Thodu are in progress.

Lower Bhavani Project.—Design manual for the dam is under compilation.

Tungabhadra Project.—Detailed structural calculations for trash rack structures were worked out and furnished.

Further work.—Besides completing balance of work in the above items, designs for Manimuthar and Walayar dams are being taken up.

(b) *Tests Branch.*

Concrete Research Laboratory.—1. The Concrete Research Laboratory offered facilities for carrying out test on building materials in general and concrete and concrete ingredients in particular to the various divisions and projects of the department as well as other departments and outside agencies needing such advice.

2. During this year, the workshops attached to this laboratory and also the Photo-elastic Laboratory were transferred to the Physics and Soil Mechanics Laboratory, Chepauk.

3. The annual report of the laboratory for the year 1950 is under print while the report for 1951 is under compilation.

4. Besides routine tests on cement, aggregates, mortar, concrete steel rods, etc., the laboratory is engaged upon research work of which mention may be made of the following:—

- (i) The use of sea-sand and sea water in concrete.
- (ii) The use of admixtures and special agent in concrete.
- (iii) The use of substitutes like bamboo, cane, etc., for reinforcement in concrete.
- (iv) Studies of light weight aggregate foamed concrete and light weight concrete.
- (v) Expansion of masonry in cement mortar and lime mortar.
- (vi) Bulk density and rods with reference to container size for aggregates.
- (vii) Yield on mortar and concrete.
- (viii) Studies on shock concrete.

5. This laboratory participated in the Engineering Exhibition organized by the Central Board of Irrigation in connexion with the international Engineering conferences held in Delhi, notable among the exhibits being earth dam settlement measuring apparatus that was modified here and also electric strain gauges with measuring units.

6. Many Engineers and engineering students both from the State and outside it, visited the laboratory in the course of this year.

Building research unit.

A small building research unit has been started with the equipment made available from the Polavaram Field Laboratory. At the moment this unit is concerned mainly with the foundation problems specially and allied soil mechanics problems generally and it is hoped that with the adjunct of concrete laboratory, the building research unit could be developed further. Of work done here, mention may be made of the following:—

(i) Analysis of soils and foundation design for Upputteru Bridge Pier, Bharathapuzha Bridge Pier, School of Indian Medicine Buildings, Madras, Arts College Buildings, Rajahmundry, Eluru Hospital, Madurai Hospital, etc.

(ii) Analysis and design of embankments from Nandyal water-supply tank. Kanchalamma tank, etc.

(iii) Studies on compaction of soils and behaviour of black-cotton soils.

(iv) Studies in stresses in soils.

GAUGING DIVISION.

(i) *Cauvery Gauging Subdivision, Mysore.*

1. Joint gaugings across the Hemavathi at Akkihebbal among the three standard stations in Mysore, viz., Unduvadi, Chunchinkatte and Akkihebbal and across the Mandagore right bank channel of the Hemavathi and Visweswaraya canal at Krishnarajasagara were conducted during this year. The joint gauging at Akkihebbal was however stopped a little before the usual time due to low flows and all stages having been covered already.

2. All the results of current meter gaugings 1950-51 taken across the Cauvery at Nattarmangalam, and in the various delta gauging stations were scrutinized and reports submitted to the Chief Engineer for Irrigation.

3. About 45 current meters were received and rerated mainly at Guindy Rating Station and few at Krishnarajasagara and returned to the respective gauging stations in the State.

4. As ordered by the Chief Engineer for Irrigation a suitable site 4 furlongs below the road bridge at Bhavanisagar near Pongurheri village has been selected to gauge the flow of the Bhavani river at a place below the Bhavanisagar dam now under execution and an estimate amounting to Rs. 15,750 for erecting a cradle gauging station at the above site and a second estimate for Rs. 4,600 for conducting gaugings for one year have been submitted to the Chief Engineer for Irrigation.

5. Suitable sites for gaugings have also been selected by the Executive Engineer, Gaugings, after inspecting the various anicuts across the Tambaraparni and Periyar rivers. The Executive Engineers of the respective divisions were requested to prepare plans and estimates and put them up for sanction of their Superintending Engineers. However, approximate estimates have also been prepared for conducting the gaugings in the Cumbum valley of the Periyar above the Kuruvanuthu bridge and below Palanichettipatti anicut system allowing provision for the requisite items.

6. The Krishnaraj sagara regulation statements received from the Controlling Officer K. R. Sagara for the period ending 29th September 1951 at 8 p.m. have been scrutinized and retransmitted to the Chief Engineer for Irrigation with remarks.

(ii) Gauging Subdivision, Madras.

1. Monographs of Tambaraparni and Pennar rivers have been completed. The first one has been submitted to the Chief Engineer for Irrigation and the monographs for Pennar and Palar rivers were under preparation.

2. A Brochure on the Grand Anicut across the Cauvery dealing with its origin and its importance to Truchirappalli and Tanjore deltas has been revised and re-edited based on additional information furnished by the Executive Engineer, Cauvery Division, and will be furnished to Chief Engineer shortly.

3. All the references received in connexion with the Inter-State affairs, Mysore-Madras agreements, Central Board of Irrigation and Navigation Commission and the information required by the Central Water and Power Commission in the draft questionnaire have been attended to.

4. The water year book of Krishna river for the years 1894-1945 based on the Poondi Research Station experiments was completed.

5. Detailed discharge statements at Nellore anicut on Pennar river based on experiments at Poondi are being worked out.

6. The office copy of the water year book for Vellar and Vaigai rivers in the revised form was completed and the sample volume to be submitted to the Chief Engineer for Irrigation for favour of approval was under preparation.

7. Water year books for Palar at Palar anicut and South Pennar at Tirukkoyilur were under progress.

New irrigation era.—This is a journal in the engineering field started by the Irrigation Branch of the Public Works Department and is intended to keep our far-flung technical staff well informed about the latest developments in engineering. Several articles relating to projects in and outside India and about any striking achievements in the science of engineering anywhere in the world find a place in it. By publishing the third issue in February and the fourth in July 1951, respectively, Volume I was completed. The second volume, now published as six issues per volume, is now in progress, the first issue having appeared in November and second being about to leave the printers' hands.

List of Grow More Food schemes sanctioned during the calendar year 1951.

Serial number and name of the scheme. (1)	Cost. (2) RS.	Ayacut proposed. (3) ACS.
1 Provision of irrigation facilities to a dry block of 441.5 acres in Teki village [G.O. Ms. No. 110, Food and Agriculture (Food Production), dated 22nd March 1951]	35,828	441.5
2 Provision of irrigation facilities to a dry block of 1,172 acres in L.B. cherla and Tirupattallu village by providing a branch channel from Ramamapalem channel, Block V (G.O. Ms. No. 111, Food and Agriculture, dated 22nd March 1951)	1,55,000	1,172
3 Providing relief from submersion to certain lands on the right side of the Ayadalaipa channel (G.O. Ms. No. 184, Food and Agriculture, dated 5th May 1951).	1,50,300	1,360 + 1,400 New to be saved from submersion.

Serial number and name of the scheme. (1)	Cost. (2) RS.	Ayacut proposed. (3) ACS.
4 Excavation of a straight cut from the tail end of Polimeritippa drain into Upputeru [G.O. Ms. No. 260, Food and Agriculture (Food Production), dated 30th June 1951]	56,925	1,000
5 Formation of a Reservoir across upper Varaha River in Ravanapalli village [G.O. Ms. No. 266, Food and Agriculture (Food Production), dated 3rd July 1951].	5,43,426	100 New 1,666 Existing.
6 Carrying out improvements to the anicuts across the Ummigedda (Rallagedda North) and the channel taking off from it and the excavation of a branch channel to provide irrigation facilities to dry lands in Dangabadra village [G.O. Ms. No. 387, Food and Agriculture (Food Production), dated 29th August 1951]	1,10,500	160 New 375 Existing.
7 Coringa Island Project (G.O. Ms. No. 405, Food and Agriculture, dated 4th September 1951)	16,93,122	6,600
8 Formation of a tank at Veerlakonda across Nallavagu (G.O. Ms. No. 36, Food and Agriculture, dated 29th January 1951)	7,14,585	500
9 Ghantasala Block—Provision of irrigation facilities to a dry block of 3,081 acres in Kodali, Tadepalli, Ghantasala, etc., villages [G.O. Ms. No. 66, Food and Agriculture (Food Production), dated 21st February 1951]	3,93,473	3,081
10 Taking over the bothie from behind the Aragolunu sluice under Government control and improving the same Chief Engineer's (Grow More Food) No. 2071/51, M-1, dated 27th March 1951]	24,100	*106 New 646 Existing.
11 Remodelling Komali channel and its branches. [G.O. Ms. No. 177, Food and Agriculture (Food Production), dated 1st May 1951]	30,948	173
12 Provision of irrigation facilities by pumping to lands in Patamata and Gundala villages [G.O. Ms. No. 285, Food and Agriculture (Food Production), dated 31st July 1951]	1,47,524	500
13 Excavation of a new channel from Kaikalur channel to provide irrigation facilities to Pallivada, Kottala, etc., villages. [G.O. Ms. No. 311, Food and Agriculture (Food Production), dated 25th July 1951]	1,56,000	1,462
14 Provision of irrigation facilities to an extent of 640 acres lying in Guntacole Block in K.W. delta [G.O. Ms. No. 307, Food and Agriculture (Food Production), dated 24th July 1951]	34,990	*397 New 243 Existing.
15 Improving supply to the Thondapi village tank by constructing an anicut across Chagallavagu and diversion of water in the existing channel [G.O. Ms. No. 317, Food and Agriculture (Food Production), dated 7th July 1951]	1,17,050	
16 Provision of irrigation facilities to dry block of lands in Edupalli and other villages [G.O. Ms. No. 454, Food and Agriculture, dated 18th October 1951]	1,09,844	

ADMINISTRATION REPORT OF THE

PUBLIC WORKS DEPARTMENT (IRRIGATION BRANCH), 1950-51 21

Serial number and name of the scheme. (1)	Cost. (2) RS.	Ayacut proposed. (3) ACS.
Provision of better irrigation facilities to Kothapalli village by excavating a branch channel [Chief Engineer's (Irrigation) No. 4651/51, M. 4, dated 8rd November 1951]	28,900	600 Existing.
Excavation of Hariyaram channel to provide irrigation facilities to lands in Hariyaram, etc., villages [G.O. Ms. No. 180, Food and Agriculture (Food Production), dated 5th May 1951.]	86,453	881
Restoration of Ramathirtham tank across Buggavagu (G.O. Ms. No. 449, Food and Agriculture, dated 15th October 1951)	81,200	230 New * 45 Existing.
Construction of an anicut across Chippaleru and improving supplies to Tallapalem, etc., tanks [G.O. Ms. No. 61, Food and Agriculture (Food Production), dated 16th February 1951]	96,280	3,300 New * 120 Existing.
Restoration of an abandoned supply channel to Senroyanpalayam tank from Allikuli, odai and construction of a head sluice and grade wall therein. [G.O. Ms. No. 115, Food and Agriculture (Food Production), dated 27th March 1951]	33,308	250 Existing.
Improvements to North Amalur tank [G.O. Ms. No. 194, Food and Agriculture (Food Production), dated 14th May 1951]	74,012	208
Improving supply to ayacut under Zaladanki tank and construction of an anicut across Chippaleru [G.O. Ms. No. 257, Food and Agriculture (Food Production), dated 30th June 1951]	61,100	179 New * 1,200 Existing.
Improvements to and restoration of Reddithangal tank [G.O. Ms. No. 258, Food and Agriculture (Food Production), dated 30th June 1951]	41,372	50
Construction of a small masonry Dam across the Maduvu in Varadarajapuram village [G.O. Ms. No. 259, Food and Agriculture (Food Production), dated 30th June 1951]	45,500	370 Second crop.
Provision of irrigation facilities by pumping to Devambalpatnam and Segal villages [G.O. Ms. No. 243, Food and Agriculture (Food Production), dated 20th June 1951]	31,950	270 New 50 Existing.
Construction of a dam across Kaludur Odai [G.O. Ms. No. 267, Food and Agriculture (Food Production), dated 3rd July 1951]	1,27,505	300 (Ultimate ayacut proposed 1,200 acres.)
Excavation of a New channel above Korukkuvadi anicut across Vellar [G.O. Ms. No. 308, Food and Agriculture (Food Production), dated 24th July 1951].	35,101	150
Extension of irrigation on the left side of Vadavar in Kattagaram, etc., villages [G.O. Ms. No. 320, Food and Agriculture (Food Production), dated 27 July 1951]	1,77,667	933
Supply of water from Bhuvangiri voikal to lands north of Vellar, G. Muthur village. [Chief Engineer's (Irrigation) No. 3600/49, B-19, dated 17th April 1951].	24,720	240

Serial number and name of the scheme. (1)	Cost. (2) RS.	Ayacut proposed. (3) ACS.
31 Supplementing supply from Uyyakondal channel to Sayakudi and 4 other rainfed tanks G.O. Ms. No. 413, [Food and Agriculture (Food Production), dated 12th September 1951]	52,912	500
32 Providing irrigation facilities to Thainkottayam Vadavancheri channel villages by extending irrigation at the tail end of Mulliar II Stage [G.O. Ms. No. 414, Food and Agriculture (Food Production), dated 12th September 1951]	1,99,947	1,500
33 Provision of water supply to New Vilankulam tank from Uyyakondal channel [Chief Engineer's (Irrigation) No. 3940/50, M-16, dated 4th December 1951]	14,500	200
34 Improvements to Kolakarakoil Kattuvari in Marudur village limit for efficient drainage of wet fields [Chief Engineer's (Irrigation) No. 2618/50-B-2, dated 5th February 1952]	29,421	750 (To be relieved from submersion).
35 Construction of an anicut across upper and excavation of right side channel [G.O. Ms. No. 309, Food and Agriculture (Food Production), dated 24th July 1951].	84,727	263
36 Extension of irrigation under the Punjathalayar Branch channel in Nanjathalayar village [G.O. Ms. No. 67, Food and Agriculture, dated 21st February 1951]	68,094	140
37 Constructing a bund across Murivaya canals in Mangalam village for preventing influx of salt water [Chief Engineer's Grow More Food) No. 6427/50-B-2, dated 7th March 1951]	22,118	205 Existing.
38 Formation of a new tank at Govindur Hamlet [G.O. Ms. No. 181, Food and Agriculture (Food Production), dated 5th May 1941]	53,952	41
39 Arkankottai Channel Extension Scheme [G.O. Ms. No. 247, Food and Agriculture (Food Production), dated 21st June 1951]	8,05,880	1,900
40 Construction of a dam across Manathazham canals [Chief Engineer's (Grow More Food) No. 5190/51-M., dated July 1951]	23,700	42
41 Improvements to Mogibettu Madugu [Chief Engineer's (Grow More Food) No. 5894/51-M-1, dated 11th August 1951]	26,000	40
42 Construction of a vented dam across thodu in R.S. No. 84, Engandiyur village [Chief Engineer's (Irrigation) No. 2309/51-B-1, dated 25th June 1951].	13,650	100 Existing.
43 Restoration of Sorakal tank [Chief Engineer's No. 8437/51-M., dated 21st November 1951]	21,375	66 Second crop.
Total	68,22,912	37,127

Chapter II.

CLASSIFICATION OF WORKS.

Irrigation works in the Province are classified as (a) Works for which Capital and Revenue Accounts are kept and (b) Works for which Capital and Revenue Accounts are not kept. Each class is divided into (i) Irrigation Works and (ii) Navigation, Embankment and Drainage Works. Works under (a) are again subdivided into "Productive" and "Unproductive", the classification being based on the financial results of three consecutive years.

"Productive" and "Unproductive" works under "Irrigation" numbered 24 and 45, respectively, during the year—vide names of works given in the Statement B-I of Appendix I.

The number of works for which Capital and Revenue Accounts are not kept was as shown below:—

	Channels.	Tanks.	Other works.	Total.
In charge of the Public Works Department ..	495	2,555	..	3,050
In charge of the Revenue Department ..	5,291	29,011	1,509	35,811
Total ..	5,786	31,566	1,509	38,861

FINANCIAL RESULTS.

The following paragraphs deal with the outlay, revenue and working expenses, and the area cropped, the area irrigated and remissions during the year for the Province as a whole and under each class of works mentioned above.

The financial results are tabulated below:—

	1950-51. RS.	1949-50. RS.
Capital outlay (direct and indirect)	9,06,34,396	7,64,70,102
Gross revenue	3,43,58,810	3,42,83,372
Working expenses	1,47,62,793	1,61,18,638
Net revenue due to improvements	18,45,020	23,95,955
Total area irrigated	ACS. 8,276,722	ACS. 8,462,466
Total area cropped	..	36,344,940
Remissions	RS. 71,38,512	RS. 72,79,960

The results of each class of works were as follows:—

I. *Irrigation works*—(i) *Productive works*.—The capital outlay (direct and indirect) during the year was Rs. 34,14,374 as against Rs. 31,23,640 in the previous year. The bulk of outlay was incurred on the Godavari Delta system, Pennar River Canals system, Periyar system, Krishna Delta system and Cauvery-Mettur Project system. Details of works carried out are given in Chapter IV, Part A of the Report.

The gross working expenses of the year were Rs. 1,34,60,136 as against Rs. 1,42,23,828 in the previous year.

The gross revenue of the year was Rs. 2,62,27,964 against Rs. 2,56,01,435 in the previous year. The bulk of the revenue was as usual derived from the Godavari, Delta system, Krishna Delta system, Cauvery Delta system and Cauvery-Mettur Project system.

The net revenue derived and the net profits after deducting interest charges amounted to Rs. 79,29,334 and Rs. 6,35,111 respectively, against Rs. 74,82,199 and Rs. 3,21,773 respectively, in the previous year. The net profit works out to 4.60 per cent on the Capital outlay of Rs. 17,24,27,480 against 12.7 per cent 25 years ago.

The total area charged as irrigated was 4,102,798 acres first crop and 779,882 acres second crop against 4,049,301 acres first crop and 836,315 acres second crop, respectively, of the previous year. The aggregate area irrigated was less than the acreage of the previous year by 2,936 acres.

The estimated value of irrigated crops raised during the year amounted to Rs. 71,32,94,799 against Rs. 59,90,93,997 in the previous year.

The average revenue per acre irrigated amounted to Rs. 5.35 on the gross area and Rs. 7.88 on the new irrigation. The working expenses per acre were Rs. 2.74 on the gross area and Rs. 4.04 on the new irrigation.

The remission granted during the year amounted to Rs. 31,11,081 against Rs. 38,44,155 of the previous year.

The total length of main canals and branches at the end of the year was 3,717½ miles. Of the length 918 miles were for irrigation and navigation combined under Godavari and Krishna Delta systems and the remainder were for irrigation only. The length of distributaries was 9,311-¾ miles.

(ii) *Unproductive works*.—The capital outlay (direct and indirect) during the year was Rs. 6,00,86,606 against Rs. 4,56,33,899 in the previous year. The outlay was incurred chiefly on the Tungabhadra Project, Lower Bhavani Project and Malampuzha Project on which the expenditure was Rs. 233.92 lakhs, 258.53 lakhs and 61.53 lakhs respectively.

The gross working expenses amounted to Rs. 9,03,907 against Rs. 10,42,653 in the previous year.

The gross revenue amounted to Rs. 12,68,606 against Rs. 14,20,025 in the previous year.

The net revenue due to improvements was Rs. 1,22,199 against Rs. 1,34,969 in the previous year. This represents a return of 0.07 per cent on the capital outlay of Rs. 18,80,26,712 to end of the year.

The net revenue fell short of the interest charges by Rs. 63,82,550 of which Rs. 10,77,469 pertain to Kurnool-Cuddapah canal and Rs. 28,96,474 to the Tungabhadra Project and Rs. 13,27,284 to the Lower Bhavani Project, representing the bulk of the deficit. The percentage of the deficit in those cases was 1.8 per cent, 4.8 per cent and 2.2 per cent respectively on the Capital outlay.

The area charged as irrigated was 271,995 acres first crop and 37,401 acres second crop respectively against 273,669 and 39,701 acres in the previous year.

The estimated value of crops amounted to Rs. 5,16,47,242 against Rs. 5,20,87,912 in the previous year.

The average revenue per acre amounted to Rs. 4.10 on the gross area and Rs. 6.65 on New Irrigation. The working expenses per acre were Rs. 2.92 on the gross area and Rs. 4.74 on the New Irrigation.

The remission granted during the year amounted to Rs. 2,73,979 against Rs. 1,92,046 in the previous year. The bulk of the remission was granted under the Palar Aicut System.

The total length of main canals and branches at the end of the year was 1,606-3/10 miles of which 75 miles were for Irrigation and Navigation combined under the Kurnool-Cuddapah canal while the remainder were for irrigation only. The length of the distributaries was 794½ miles.

II. *Navigation, Embankment and Drainage works*—*Unproductive works*. The gross working expenses and gross receipts from the Buckingham and

Vedaranyam canals were Rs. 3,98,750 and Rs. 1,94,860 respectively against Rs. 8,52,157 and Rs. 1,65,152 respectively in the previous year.

The loss on the working of canals was Rs. 2,03,890 compared to the loss of Rs. 6,87,005 in the previous year. Expenditure was as usual large on the Buckingham canal owing to the necessity to maintain it in a fit condition for traffic throughout the year.

WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE NOT KEPT.

I. Irrigation works.

Statement showing by minor heads and the expenditure incurred on works for which no capital accounts are kept for the year 1950-51.

Minor heads.	Ordinary minor works.				Total.
	Public Works Department works.	Revenue Department works in charge of Public Works Department.	Old maintenance charges.	Tank Restoration Scheme works.	
(1)	(2)	(3)	(4)	(5)	(6)
	RS.	RS.	RS.	RS.	RS.
Works	1,07,276	..	..	..	1,07,276
Extensions and improvements.	47,600	..	5,00,253	..	5,47,853
Maintenance and repairs ..	23,29,630	53,285	11,75,914	11,648	35,70,477
Establishment	4,28,478	4,026	2,60,197	3,780	6,96,481
Tools and plant	12,529	72	3,165	88	15,854
Miscellaneous expenditure.	12,70,245	..	..	..	(a) 12,70,245
Total ..	41,95,758	57,383	19,39,529	15,516	62,08,186
Outlay incurred by Civil Officers on Minor Irrigation works ..	..	..	..	..	(b) 64,07,067
Grand total ..	..	..	..	..	1,26,15,253

(a) Represents outlay on other charges, establishment, tools and plant, etc.

(b) Works	RS.
Maintenance and repairs	2,46,634
Establishment	55,38,888
Tools and plant	6,10,464
.. .. .	13,281
Total ..	64,07,067

The particulars of revenue derived from the works during the year are compared with those of the previous year :—

	1949-50.	1950-51.
	RS.	RS.
Receipts collected by the Revenue Department.	82,59,107	76,77,274
Receipts collected by Public Works Department.	2,82,510	3,07,291
Total ..	85,41,617	79,84,565

The area irrigated was 2,578,111 acres first crop and 506,535 acres second crop respectively against 2,612,687 acres first crop and 621,647 acres second crop respectively of the previous year.

The following statement compares the results of the year under review with those of the previous year and the average of the previous triennium :—

	Outlay incurred.	Area irrigated.	Gross revenue.
	RS.	ACS.	RS.
During 1950-51	1,26,15,253	3,084,646	79,84,565
During 1949-50	1,35,36,903	3,234,334	85,41,617
Average of the triennium ending 1949-50.	1,19,38,782	3,131,531	85,22,102

The net revenue after deducting working expenses amounted to Rs. (—) 44,95,175 against Rs. (—) 34,62,278 in the previous year.

II. Navigation, Embankment and Drainage works.

The outlay incurred on this class of works was Rs. 16,45,458 against Rs. 13,90,902 in the previous year as detailed below :—

	1950-51.	1949-50.
	RS.	RS.
Works	— 9,668	1,53,031
Extensions and improvements	56,779	71,640
Maintenance and repairs	13,89,371	9,88,705
Establishment	1,88,051	1,54,713
Tools and plant	16,461	19,303
Other charges	4,464	3,510
Total ..	16,45,458	13,90,902

The receipts realized by sale of plantation and produce of trees along river embankments, etc., amounted to Rs. 1,46,281 against Rs. 1,40,320 in the previous year.

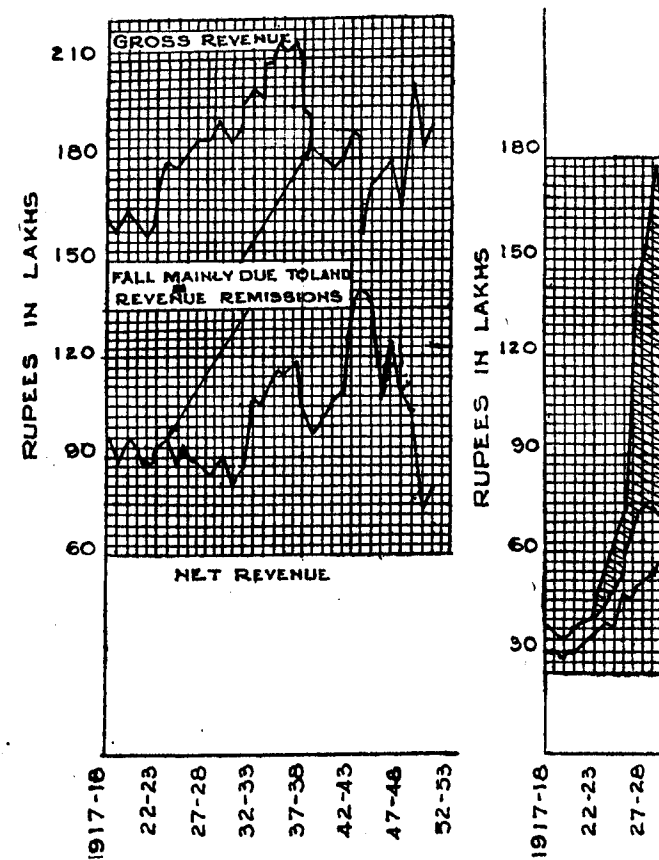
The following statement compares the outlay incurred on and the revenue derived from these works with those of the previous year and average of the previous triennium :—

	Outlay.	Revenue.
	RS.	RS.
During 1950-51	16,45,458	1,46,281
During 1949-50	13,90,902	1,40,320
Average of the triennium ending 1949-50 ..	15,85,289	1,32,374

FINANCIAL RECORD

REVENUE

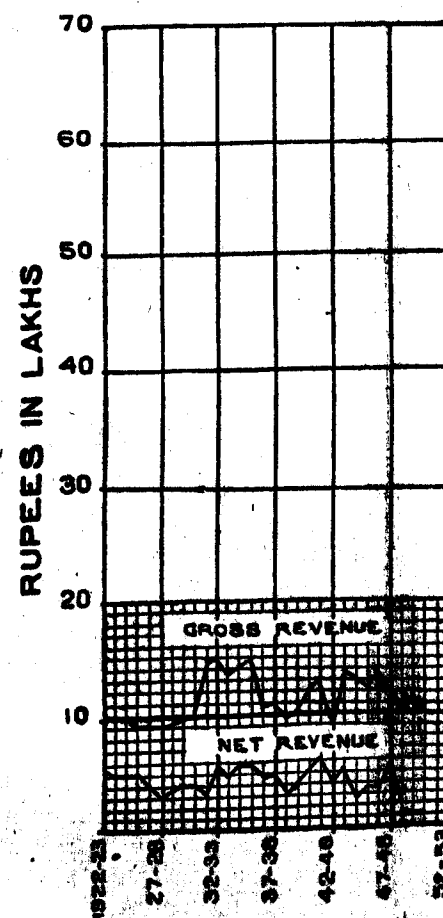
EXP



PRODUCTIVE

FINANCIAL RECORD

REVENUE



NOTE:-

LARGE VARIATIONS IN

APPENDIX I.

STATISTICAL STATEMENTS.

A.I.—Statement of canals in the Madras State for the year 1950-51.

Source of supply of water	Cauvery system. (1)	Godavari system. (3)	Mehmatpur system. (4)	Tadepalli channel. (5)	Kallangroyan channel. (6)	Vridhachalam ancient system. (7)	Marudam ancient system. (8)
Minimum discharge of river	River Cauvery.	River Godavari.	River Mahimukthi-nadhi.	River Bhavani.	River Bhavani.	River Manimukthi-nadhi.	River Yambraparni.
Maximum discharge of main canals as designed	43,700	14,570	263	725	383	351	1,595
Maximum discharge during the year	1,280	14,505	115	762	689	279	1,386
Average rainfall for the year	36.74"	51.31"	37.21"	18.27"	..	44.72"	32.26"
Gross area commanded	1,671,356	1,179,445	13,792	20,893	23,696	19,993	35,840
Cultivable area commanded	864,367	877,806	10,451	19,332	14,116	16,359	21,000
Area irrigable by complete project	864,367	873,000	5,200	19,332	14,116	9,760	21,000
Area irrigable at present	86,918	1,159,022	4,555	15,188	14,116	8,829	21,000
Sanctioned estimate—							
Direct charges	13,61,520	1,10,80,332	87,184	1,70,380	1,78,780	1,08,204	60,122
Indirect charges	1,75,284	1,09,34,584	..	11,050	4,746	..	..
Interest during construction	7,40,577	1,11,33,052	..	..	..	..	..
Total, Estimate	22,26,383	2,41,62,248	87,184	1,81,430	1,83,526	1,08,204	60,122
Expenditure to end of 1950-51—							
Direct charges	94,73,814	2,36,15,493	88,091	1,81,575	1,75,980	1,04,144	58,721
Indirect charges	2,82,792	21,20,408	2,093	11,195	4,506	4,060	1,401
Interest during construction	1,37,765	90,82,397	..	..	..	..	..
Total, Expenditure	1,10,93,371	3,57,43,10	87,184	1,92,770	1,80,486	1,08,204	60,122
Works completed at the end of 1950-51—							
Main canals, irrigation	28	508½	7	48	57	17	39
Branch canals, irrigation	46	1,955½	8	37	54	16	7½
Distributaries	..	..	9½	..	..	16	..
Of above—	..	..	..	..	..	..	..
Navigable	131½	491½	..	..	..	..	..

A.I.—Statement of canals in the Madras State for the year 1950-51—cont.

	Pennar river canals system.	Arankottah channel.	Tirukoyilur ancient system.	Shattope ancient system.	Cheyyar ancient system.	Pokey ancient system.	Krishna delta system.	Nandiyar channel system.
Source of supply of water ..	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Minimum discharge of river ..	20	10	134	136	1542	3217	..	..
Maximum discharge of main canals as designed ..	7,760	552	1,231	850	483	680	..	287
Maximum discharge during the year ..	7,652	636	903	1,063	19648	41875	..	202
Average rainfall for the year ..	39.08"	21.83"	29.61"	41.14"	24.45"	18.92"	..	28.23"
Gross area commanded ..	288,600	6,000	54,895	108,069	29,461	42,560	..	9,490
Cultivable area commanded ..	190,000	5,000	45,977	43,965	29,461	23,324	..	9,490
Area irrigable by complete project ..	170,000	6,000	28,000	34,000	23,629	23,324	..	7,295
Area irrigable at present ..	167,500	4,821	28,000	33,000	22,087	22,462	..	7,280
Sanctioned estimate—								
Direct charges ..	47,80,289	1,47,006	8,99,190	10,89,561	5,24,798	2,95,106	3,38,37,153	63,231
Indirect charges ..	10,06,096	8,878	..	..	16,201	8,812	..	2,484
Interest during construction ..	22,88,418	..	..	..	..	..	..	..
Total, Estimate ..	80,74,803	1,56,682	3,99,190	10,89,561	5,39,999	3,03,918	3,38,37,153	65,715
penditure to end of 1950-51—								
Direct charges ..	61,45,087	1,40,769	3,13,183	10,29,699	10,22,357	2,95,106	3,56,80,620	63,231
Indirect charges ..	10,18,734	3,676	10,204	59,673	19,758	8,812	14,27,349	2,484
Interest during construction ..	25,84,125	..	..	..	..	..	1,28,24,716	..
Total, Expenditure ..	97,47,946	1,44,445	4,23,387	10,89,372	10,42,115	3,03,918	4,98,12,694	65,715
Works completed at the end of 1950-51—								
Main canals, irrigation ..	442	20	57	3	21	55	425	61
Branch canals, irrigation ..	143-8/5	4	80	38	40	49	71	..
Distributaries ..	352-2/5	..	281	140	180	78	2,374	261
Of above—								
navigable ..	..	..	..	..	..	..	420	3

M. Chs.

A.I.—Statement of canals in the Madras State for the year 1950-51—cont.

	Chittoor minor rivers system.	Lower Celeroon ancient system.	Polavaram Project.	Kattalal scheme. * Total of (a), (b) and (c).	Kurnool- Cuddapah canal.	Vallur ancient system.	Pelandore ancient system.	Palar and system.
Source of supply of water ..	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Minimum discharge of river ..	Not known.	Not known.	..	..	227	..	208	59-31
Maximum discharge of main canals as designed ..	Do.	4,164	20	1,876	2,000	181	740	2,423
Maximum discharge during the year ..	Do.	3,117	277	1,610	7,820	..	301	19,93"
Average rainfall for the year ..	Do.	36.38"	6.06"	21.07"	20.19"	..	37.42"	19.93"
Gross area commanded ..	88,000	105,550	23,135	78,597	383,115	10,124	60,670	141,131
Cultivable area commanded ..	71,000	86,000	18,618	74,978	357,569	6,974	16,677	105,032
Area irrigable by complete project ..	65,000	80,000	17,500	72,207	180,232	5,216	16,000	82,713
Area irrigable at present ..	63,000	84,241	17,500	66,632	123,419	5,216	12,839	78,668
Sanctioned estimate—								
Direct charges ..	2,78,196	17,97,194	17,97,194	45,13,712	2,33,87,114	74,535	6,92,074	23,71,791
Indirect charges ..	11,030	24,463	24,463	18,21,296	..	1,066	..	1,17,434
Interest during construction ..	..	1,17,744	1,17,744	..	..	..	..	..
Total, Estimate ..	2,89,226	30,01,669	19,39,401	63,35,008	2,33,87,114	76,201	6,92,074	24,89,275
Expenditure to end of 1950-51—								
Direct charges ..	2,78,196	16,78,294	16,78,294	41,80,863	2,10,86,441	74,366	6,43,802	24,90,785
Indirect charges ..	11,030	27,538	27,538	95,968	79,260	1,916	48,772	1,18,494
Interest during construction ..	..	1,17,744	1,17,744	18,21,296	..	..	..	..
Total, Expenditure ..	2,89,226	31,02,418	18,23,576	60,51,127	2,41,66,701	76,282	6,92,074	26,09,279
Works completed at the end of 1950-51—								
Main canals, irrigation ..	871	94	..	741	4171	..	15	157
Branch canals, irrigation ..	1911	256	..	..	24	51	24	24
Distributaries ..	781	6481	441	106	2041	8	25	227
Of above—								
Navigable ..	771	..	..	..	75	..	..	..

* Kattalal scheme.

South bank canal.	High level channel.	Sriramasamudram channel.
(1)	(2)	(3)
42,000	25,597	11,000
41,000	23,378	10,000
40,000	21,507	10,400
35,164	21,318	10,150

A.I.—Statement of canals in the Madras State for the year 1950-51—*cont.*

Source of supply of water ..	Munivara system.	Seglure system.	Nagavalli River system.	Nagavalli anicut and supply channel.	Kanniyam-anicut.	Vedam-ranyam canal.	Buckingham canal.	Duvalera project.
Minimum discharge of river ..	(25) River Munivara.	(26) River Seglure.	(27) River Nagavalli.	(28) River Gunisveru.	(29) River Bhavani.	(30) ..	(31) ..	(32) River Duvalera.
Maximum discharge of main canals as designed ..	338	477	414	78	..	..	..	..
Maximum discharge during the year ..	292	19,200	491	84	..	..	..	100
Average rainfall for the year ..	30.61"	21.39"	53.66"	22.63"	..	..	38.73"	22.04"
Gross area commanded ..	14,471	33,576	49,920	760	..	..	..	1,355
Cultivable area commanded ..	13,024	26,576	31,200	700	..	..	..	1,355
Area irrigable by complete project ..	10,580	4,500	27,653	894	..	..	..	1,355
Area irrigable at present ..	8,323	4,500	28,321	894	..	..	..	1,234
Estimated estimate—								
Direct charges ..	6,09,601	4,47,108	17,47,770	1,07,295	1,36,243	1,32,699	95,81,344	1,50,620
Indirect charges ..	..	17,619	68,530	2,595	3,757	3,733	..	1,450
Interest during construction ..	..	..	2,93,217	..	..	..	..	..
Total, Estimate ..	6,09,601	4,64,727	21,09,517	1,09,890	1,40,100	1,36,432	95,81,344	1,52,075
Expenditure to end of 1950-51—								
Direct charges ..	9,13,769	4,47,108	17,69,473	1,07,295	1,07,221	1,32,699	94,9,973	1,46,233
Indirect charges ..	33,149	17,619	44,757	2,595	3,853	3,733	4,97,038	1,038
Interest charges during construction ..	..	..	2,93,217	..	..	..	..	..
Total, Expenditure ..	9,46,918	4,64,727	21,07,447	1,09,890	1,11,074	1,36,432	99,27,031	1,47,291
Works completed at the end of 1950-51—								
Main canals, irrigation ..	26½	12	23½	2	10½	45½	262	5½
Branch canals, irrigation ..	23½	..	41½	..	..	..	..	2½
Distributaries ..	2½	..	47	..	..	..	..	..
Of above—								
Variable ..	..	..	..	..	..	..	..	..

A.II.—Statement of reservoir projects in the Madras State for the year 1950-51.

Source of supply of water ..	Chembaram-bakam tank.	Cumbum tank.	Periyar system.	Toludur project (Willingdon reservoir).	Conveyer-Motur system (Shanley reservoir).	Barur tank.	Madras water-supply and irrigation system.
Reservoir ..	(1) Oooum river.	(2) Gundakamma and Jampala-pera rivers.	(3) Periyar and Valgar rivers.	(4) Vellar river and rainfall.	(5) Conveyer river.	(6) Ponnai and local rivers.	(7) Kortalar river.
Area of catchment ..	100	430	239	50	16,800	2,082	34
Area of tank ..	2.3	21.57	72.36	32.79	..	22.69	8.4
Area of tank between levels of surface of full supply and all of canal head sluice ..	3,145	2,942-17	9,815	2,591-58	98,500	248-63	2,729,364
Area of surface of full supply ..	5,729	5,697	10-20 sq. miles.	3,946	37,920	20-35	5,361
Gross area commanded ..	32,554	7,869	768,000	83,400	497,200	6,887	216,129
Attainable area commanded ..	24,478	6,000	Not known.	33,800	497,200	6,887	10,165
Area irrigable by complete project ..	15,300	6,000	143,000	27,670	332,000	6,887	7,500
Area irrigable at present ..	13,000	5,980	143,000	25,000	332,000	6,887	7,500
Estimated estimate—							
Direct charges ..	6,45,970	83,985	1,08,35,654	29,60,000	7,23,11,000	4,00,000	15,47,123
Indirect charges ..	1,12,547	2,388	3,71,027	2,50,000	18,97,000	25,300	2,38,945
Interest during construction ..	..	..	16,06,402	2,10,270	1,42,81,366	41,439	..
Total, Estimate ..	7,61,517	86,373	1,08,35,654	34,20,270	8,79,89,366	4,66,739	17,86,068
Expenditure to end of 1950-51—							
Direct charges ..	6,51,343	83,985	1,04,64,627	23,71,023	6,52,37,577	4,33,787	16,28,864
Indirect charges ..	1,12,795	2,388	3,71,027	2,51,758	10,58,327	23,857	2,40,064
Interest during construction ..	..	..	16,06,402	..	1,42,81,366	80,175	..
Total, Expenditure ..	7,64,143	86,373	1,24,42,056	26,22,781	8,05,72,270	5,37,819	18,68,918
Works completed to end of 1950-51—							
Tank (head) completed ..	25	56	173	50	214	28	30
Canals ..	104	..	163	31½	118½	11	11½
Distributaries ..	14	26½	118	40	594½	26	..

A.II.—Statement of reservoir projects in the Madras State for the year 1950-51—cont.

Source of supply of water	Donadap tank.	Yerur tank.	Atmakur tank.	Janga-maheswarapuram tank.	Anama-samudram Beeralperu tank.	Hajipuram tank.	Ponnalar tank.
	(9)	(9)	(10)	(11)	(12)	(13)	(14)
If supplied by rainfall } Area of catchment by rainfall / Average rainfall during the year	Rainfall.	Rainfall and surplus of upper tanks and of Challa-Kalva branch of Svarnamukhi.	Catchment of Chandra and Kogunda vagus.	Catchment of Dondi vagu.	Beeralperu tank.	Duvvaleru diverted into the tank.	..
Contents of tank between levels of surface of full supply and sill of canal head sluice.	56 21.45	60.50	105 29.82	60 27.25	23.82 0.9	100.20 20.03	32.14 19.24
Contents of tank between levels of surface of full supply and sill of canal head sluice.	288.83	317.69	164	79	90.57	309	180.51
Area of surface at full supply	705	3,285	575	619	474	1,600	719
Gross area commanded	3,240	3,176	1,700	960	1,000	2,900	1,973
Cultivable area commanded	2,880	3,176	1,160	960	1,000	2,900	1,973
Area irrigable by complete project	250	3,176	460	290	1,000	700	1,000
Area irrigable at present	745	1,470	394	223	1,000	700	1,000
Sanctioned estimate—							
Direct charges	1,24,786	61,741	1,11,059	61,253	71,687	2,78,774	1,92,975
Indirect charges	16,213	1,612	13,444	10,411	1,886	33,109	23,674
Interest during construction	..	..	..	..	..	..	..
Total, Estimate	1,40,004	63,353	1,25,403	71,664	73,573	3,11,883	2,18,649
Expenditure to end of 1950-51—							
Direct charges	6,99,950	61,741	1,22,953	61,253	71,687	2,91,698	1,92,975
Indirect charges	20,082	1,642	13,536	10,411	1,886	33,229	25,674
Interest during construction	..	..	..	..	..	..	..
Total, Expenditure	7,20,032	63,383	1,36,489	71,664	73,573	3,24,927	2,18,649
Works completed to end of 1950-51—							
Dam (height completed)	..	..	33	24	..	6	21
Canals	..	..	..	31	..	..	..
Distributaries	61	..	41	51	21	41	7

APPENDIX I

A.II.—Statement of reservoir projects in the Madras State for the year 1950-51—cont.

Source of supply of water	Markapur tank.	Venkatapuram tank.	Bhavanes tank.	Yellapur tank.	Paniapatti reservoir.	Mopad Thippayapalem reservoir.
	(15)	(16)	(17)	(18)	(19)	(20)
If supplied by rainfall } Area of catchment by rainfall / Average rainfall during the year	270.25 25.89	18.50	43 19.61	20.50 0.76	17.11	30.23
Contents of tank between levels of surface of full supply and sill of canal head sluice.	124.52	237	97.22	342.5	225	636
Area of surface at full supply	811	443	31.31	2,617	609	1,125
Gross area commanded	1,931	1,700	2,700	1,707	2,500	4,900
Cultivable area commanded	1,701	1,700	862	1,641	..	4,250
Area irrigable by complete project	1,701	840	862	925	..	1,000
Area irrigable at present	1,583	340	862 689	925	..	1,000
Sanctioned estimate—						
Direct charges	1,19,357	3,31,776	2,65,401	2,35,711	3,38,090	9,21,980
Indirect charges	4,901	14,824	..	30,039	68,610	26,620
Interest during construction	..	..	..	..	..	..
Total, Estimate	1,29,358	3,46,600	2,65,401	2,65,800	4,04,600	9,48,600
Expenditure to end of 1950-51—						
Direct charges	1,24,431	3,72,250	2,58,873	2,39,192	3,27,781	7,91,038
Indirect charges	4,859	12,671	11,136	30,615	11,495	13,448
Interest during construction	..	..	..	..	..	..
Total, Expenditure	1,29,340	3,84,921	2,70,009	2,69,707	3,39,276	8,04,486
Works completed to end of 1950-51—						
Dam (height completed)	..	31	..	15	40	271
Canals	74	31	..	..	..	..
Distributaries	..	..	31	31	14	84

APPENDIX I

35

Works or systems.										
(1)	Works.	Establishment.	Tools and plant.	Suspense.	Deduct Receipts on capital account.	Total.	Indirect charges.	Total excluding interest.	(9)	(10)
	(2)	(3)	(4)	(5)	(6)	(7)	(8)		RS.	RS.
A. IRRIGATION WORKS.										
1. PRODUCTIVE WORKS.										
Canavery delta system ..	To end of previous year.	75,25,570	15,70,764	1,36,094	— 1	14,793	92,17,634	2,80,430	94,98,124	1,36,76,552
Brivallankam anicut ..	During the year ..	2,30,221	25,751	208	..	389	2,56,180	9,58,482	9,58,482	4,14,957
Godavari delta system.	To end of previous year.	13,23,683	3,33,353	10,792	..	..	16,67,459	1,77,063	17,75,063	44,34,906
Mehamattur anicut ..	During the year ..	1,78,14,294	43,78,288	10,34,671	..	16,501	2,39,10,452	2,53,38,130	4,31,61,759	75,933
Thadepalli channel ..	To end of previous year.	3,53,080	45,759	6,132	..	..	4,04,971	10,56,773	10,56,773	2,58,446
Kallingsayan system.	During the year ..	67,745	17,320	26	..	..	85,091	2,098	87,184	3,828
Vridhachalam anicut ..	To end of previous year.	1,36,531	29,836	..	..	..	1,66,368	11,083	1,77,446	4,45,396
Chembrambakkam tank ..	During the year ..	13,191	1,909	92	..	..	15,192	1,322	17,810	3,71,667
Marudur anicut system.	To end of previous year.	1,43,789	32,191	..	..	..	1,75,980	4,506	1,80,486	7,919
Pennar river canals system.	During the year ..	82,956	21,125	..	..	..	1,04,144	4,060	1,08,204	2,27,511
Arankota channel ..	To end of previous year.	5,14,327	1,28,964	8,249	..	114	6,51,428	1,12,796	7,64,222	4,686
Thirukottiyur anicut system.	During the year ..	47,925	10,820	— 24	..	..	58,721	1,401	60,122	1,34,400
Shatlaope anicut system.	To end of previous year.	49,26,619	10,41,806	1,44,871	..	2,858	61,16,388	10,19,468	71,34,554	2,642
Cheyyar anicut system.	During the year ..	26,801	1,879	13	..	..	28,699	268	29,367	1,75,243
Cumbum tank system.	To end of previous year.	1,14,505	26,264	..	..	..	1,40,769	3,976	1,44,445	3,84,643
Polney anicut system ..	During the year ..	3,18,375	70,709	105	..	..	3,89,189	10,001	3,99,190	6,835
Periyar system ..	To end of previous year.	20,311	3,636	47	..	..	23,994	18,024	24,187	9,59,923
Krishna delta system ..	During the year ..	9,03,113	1,26,113	660	..	..	10,29,886	59,675	10,89,561	17,00,078
Wandiyar channel system.	To end of previous year.	159	— 28	..	..	..	137	2	139	46,541
Srikulam minor river system.	During the year ..	8,67,800	1,44,407	1,633	..	50	10,13,795	19,678	10,33,473	13,06,358
Lower Coleroon anicut system.	To end of previous year.	7,996	561	5	..	..	8,562	80	8,642	43,358
..	During the year ..	68,701	15,284	..	..	..	83,985	2,388	86,373	1,95,941
..	To end of previous year.	2,34,263	60,576	267	..	..	2,95,106	8,812	3,03,918	3,779
..	During the year ..	80,25,303	16,90,738	7,66,897	..	21,311	1,04,64,627	3,71,027	1,08,35,654	13,280
..	To end of previous year.	2,63,09,781	56,10,576	14,38,049	..	1,67,571	3,31,80,835	14,04,980	3,45,85,815	4,70,908
..	During the year ..	22,36,880	2,40,085	3,753	— 96,000	4,934	23,79,794	23,369	24,02,163	5,00,247
..	To end of previous year.	51,476	11,755	..	..	..	63,231	2,484	65,715	15,10,608
..	During the year ..	2,27,682	50,107	427	..	..	2,78,196	11,080	2,89,226	2,845
..	To end of previous year.	24,57,252	4,42,566	16,780	..	3,175	29,13,423	38,246	30,01,669	12,519
..	During the year	84,567	15,140	196	..	..	90,903	846	1,00,749	1,33,227
Polavaram Island Project.										
..	To end of previous year.	12,97,213	3,70,697	14,483	..	4,099	16,78,294	27,536	17,05,832	17,51,894
..	During the year ..	6,09,16,318	64,72,663	2,97,820	— 21,992	25,18,229	6,51,47,793	10,52,581	6,62,00,371	75,437
..	To end of previous year.	7,70,370	2,4,923	316	..	9,390	89,787	746	90,533	6,17,49,022
..	During the year ..	35,11,551	5,00,884	52,810	1	10,540	40,54,706	98,323	41,53,029	29,25,891
..	To end of previous year.	64,466	11,351	160	..	..	76,157	645	76,802	34,50,322
Total, A. Irrigation Works.	To end of previous year.	13,78,95,752	2,31,58,106	39,14,654	— 21,992	27,59,910	16,21,87,510	68,25,596	16,90,13,106	22,91,88,748
..	During the year ..	31,11,852	3,71,150	10,296	— 96,000	14,314	33,82,974	31,400	34,14,374	72,94,223
2. UNPRODUCTIVE WORKS.										
Karnool-Cuddapah canal system.	To end of previous year.	1,95,41,554	5,56,752	40,80,918*	..	2,44,283*	2,39,45,285*	77,922*	2,40,26,207*	6,83,18,717*
Barur tank system ..	During the year ..	4,323	13,344	13,344	..	..	1,38,156	1,388	1,39,434	10,77,469
..	To end of previous year.	3,42,758	78,506	6,961	..	22	4,28,228	23,809	4,52,037	10,08,765
..	During the year ..	4,826	13,679	25	..	..	5,559	48	5,607	2,14,148
..	To end of previous year.	60,662	13,679	25	..	..	74,366	1,916	76,282	2,14,148
..	During the year ..	13,62,995	2,30,243	6,928	..	1,302	16,28,364	2,40,054	18,68,918	48,37,192
..	To end of previous year.	5,20,637	1,17,426	6,037	..	798	6,43,302	48,772	6,92,074	15,06,452
..	During the year ..	18,68,029	4,74,367	30,047	..	672	23,71,731	1,17,484	24,89,275	67,46,788
..	To end of previous year.	1,00,977	17,806	211	..	..	1,18,984	1,010	1,20,004	1,09,203
..	During the year ..	6,88,854	1,33,759	6,121	..	1,732	8,27,002	32,446	8,59,448	11,39,838
..	To end of previous year.	70,352	16,415	3,018	..	..	86,767	708	87,470	3,78,114
..	During the year ..	4,61,745	80,867	3,018	..	7	5,35,623	18,677	5,44,300	2,85,159
..	To end of previous year.	1,40,523	23,804	..	..	..	1,64,327	1,405	1,65,732	23,541
..	During the year ..	50,219	11,522	..	..	..	61,741	1,612	63,353	1,03,575
..	To end of previous year.	3,54,321	80,339	12,449	..	1	4,47,108	17,619	4,64,727	2,778
..	During the year ..	94,992	10,797	22	..	..	1,14,811	13,466	1,28,277	9,13,890
..	To end of previous year.	7,000	1,094	48	..	..	8,142	70	8,212	1,87,799
..	During the year ..	52,564	6,669	..	..	..	61,253	10,411	71,664	5,925
..	To end of previous year.	58,421	13,266	..	..	..	71,687	1,866	73,573	1,14,615
..	During the year ..	2,30,686	48,308	..	..	..	2,78,774	33,109	3,11,883	4,59,742
..	To end of previous year.	12,014	842	..	..	..	12,864	120	12,984	12,984
..	During the year ..	1,61,263	31,658	..	..	..	1,92,975	25,674	2,18,649	3,25,905
..	To end of previous year.	1,01,374	23,066	..	..	..	1,24,481	4,859	1,29,340	8,684
..	During the year ..	19,86,929	2,92,746	93,897	..	5,308	17,68,264	44,746	18,13,010	1,90,956
..	To end of previous year.	1,064	137	18	..	..	1,209	11	1,220	26,23,029
..	During the year ..	3,03,994	64,539	4,236	..	519	3,72,250	12,671	3,84,921	54,184
..	To end of previous year.	1,39,840	43,576	25,754	..	297	2,58,873	11,136	2,70,009	16,751
..	During the year ..	1,91,292	41,156	7,087	..	..	2,39,192	30,515	2,69,707	3,68,038
..	To end of previous year.	2,24,998	43,411	60,075	..	343	3,27,781	11,495	3,39,276	11,627
..	During the year ..	..	..	..	..	..	..	..	..	10,764
..	To end of previous year.	..	..	..	..	..	..	..	..	4,54,150
..	During the year ..	..	..	..	..	..	..	..	..	14,708

B.I.—Capital accounts of irrigation, navigation, embankment and drainage works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras State for the year 1950-51—cont.

Direct charges (net expenditure).

Works or systems.	Works.				Tools and plant.		Suspense.		Deduct receipts on capital account.		Total.		Indirect charges.		Total excluding interest.		Simple interest.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
A. IRRIGATION WORKS—cont.																		
2. UNPRODUCTIVE WORKS—cont.																		
Siddapur tank system. { To end of previous year. ..	5,22,751	96,255	1,72,474	..	..	442	7,91,038	13,448	3,04,436	10,91,308	..	..	..	..	..	..	..	..
Nagavaram sicut and supply channel system. { To end of previous year. ..	88,757	18,538	..	..	..	..	1,07,295	2,595	1,09,890	1,47,909	..	..	..	..	..	..	..	..
Mopad reservoir system. { To end of previous year. ..	18,00,423	3,31,947	2,34,447	..	..	27,894	23,33,943	97,761	24,36,704	32,29,933	..	..	..	..	..	..	..	..
Kanliyalampalayam anti-cut system. { To end of previous year. ..	97,891	27,035	..	495	..	17,700	1,07,221	3,853	1,11,074	1,09,468	..	..	..	..	..	..	..	..
Toludur reservoir system. { To end of previous year. ..	15,99,590	4,75,238	3,05,960	..	..	9,815	23,71,023	2,51,758	26,22,781	33,36,958	..	..	..	..	..	..	..	..
Thippayalalem project. { To end of previous year. ..	4,41,041	1,30,844	..	967	..	636	5,72,196	12,020	5,84,216	4,08,644	..	..	..	..	..	..	..	..
Basavannah channel system. { To end of previous year. ..	4,68,839	1,12,166	..	2,197	..	..	5,83,202	6,578	5,89,780	5,76,958	..	..	..	..	..	..	..	..
Duvveleru Project. { To end of previous year. ..	1,01,215	44,793	..	225	..	..	1,46,233	1,058	1,47,291	64,933	..	..	..	..	..	..	..	..
Uduthorahalla Scheme. { To end of previous year. ..	1,26,345	40,951	1,602	..	..	..	1,69,398	1,268	1,70,666	36,392	..	..	..	..	..	..	..	..
Mahadevapuram Tank Project. { To end of previous year. ..	8,998	1,302	63	..	..	..	10,363	90	10,453	7,272	..	..	..	..	..	..	..	..
Tungabhadra Project. { To end of previous year. ..	5,37,61,617	47,33,992	2,85,221	15,76,602	..	2,04,620	6,01,92,803	5,12,457	6,07,05,260	36,63,070	..	..	..	..	..	..	..	..
Lower Bhavani Project. { To end of previous year. ..	2,52,53,926	17,37,373	2,19,579	40,26,272	..	3,33,593	2,23,51,013	2,33,223	2,33,92,223	28,96,474	..	..	..	..	..	..	..	..
Kallapad Project. { To end of previous year. ..	1,74,26,865	10,62,908	3,78,378	7,37,792	..	23,538	1,95,82,405	1,74,270	1,97,56,675	5,34,169	..	..	..	..	..	..	..	..
Tigaluru Project. { To end of previous year. ..	2,52,04,537	7,30,374	1,17,727	2,82,112	..	1,61,127	2,55,09,399	2,54,021	2,58,53,420	13,27,284	..	..	..	..	..	..	..	..
Mettur Canal Project. { To end of previous year. ..	4,38,065	51,138	119	46,713	..	..	5,32,609	4,881	5,37,490	13,589	..	..	..	..	..	..	..	..
(New channel from Mettur Reservoir). { To end of previous year. ..	1,46,318	87,910	10,700	28,785	..	..	2,73,713	1,463	2,75,176	27,120	..	..	..	..	..	..	..	..
Ponnair Scheme. { To end of previous year. ..	2,23,654	21,670	235	..	..	..	2,45,559	2,237	2,47,796	5,651	..	..	..	..	..	..	..	..
Gayathripuzha Project. { To end of previous year. ..	3,26,161	30,365	24,910	69,130	..	7,943	3,36,526	3,261	3,39,787	17,399	..	..	..	..	..	..	..	..
Malampuzha Project. { To end of previous year. ..	3,73,033	62,659	9,922	16,119	..	..	5,21,789	3,730	5,25,519	10,938	..	..	..	..	..	..	..	..
Badathalav Project. { To end of previous year. ..	12,29,229	88,724	9,922	16,119	..	..	13,35,675	12,293	13,50,968	49,318	..	..	..	..	..	..	..	..
Kolimugulavagu Project. { To end of previous year. ..	7,92,400	43,383	97	..	..	..	8,35,855	7,924	8,43,809	18,402	..	..	..	..	..	..	..	..
Pennar Kumudavathi Project. { To end of previous year. ..	3,37,990	26,988	..	..	..	3,447	3,61,531	3,280	3,64,811	4,118	..	..	..	..	..	..	..	..
Upper Pennar Project. { To end of previous year. ..	51,573	27,124	1	..	..	..	68,698	516	69,214	1,380	..	..	..	..	..	..	..	..
Manimuthar Project. { To end of previous year. ..	2,32,507	24,313	..	..	..	..	2,56,820	2,325	2,59,145	8,205	..	..	..	..	..	..	..	..
Bhadravanthippa Project. { To end of previous year. ..	16,35,452	1,69,191	37,171	5,438	..	3,579	18,43,673	16,354	18,60,027	37,031	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works. { To end of previous year. ..	59,83,860	2,92,827	1,10,592	2,85,093	..	9,427	60,92,759	59,839	61,52,598	2,13,218	..	..	..	..	..	..	..	..
During the year. ..	1,77,582	22,109	31	..	..	..	1,99,732	1,776	2,01,498	4,173	..	..	..	..	..	..	..	..
During the year. ..	1,56,942	29,964	..	..	..	..	3,86,906	3,509	3,90,475	16,211	..	..	..	..	..	..	..	..
During the year. ..	14,890	6,367	..	..	..	..	21,257	1,409	22,406	425	..	..	..	..	..	..	..	..
During the year. ..	1,71,261	26,928	..	..	..	..	1,98,189	1,713	1,99,902	5,062	..	..	..	..	..	..	..	..
During the year. ..	8,540	3,089	215	..	..	..	11,844	85	11,929	237	..	..	..	..	..	..	..	..
During the year. ..	2,81,245	18,634	..	..	..	..	2,99,879	2,813	3,02,692	6,846	..	..	..	..	..	..	..	..
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.																		
2. UNPRODUCTIVE WORKS.																		
Vedaranyam canal. { To end of previous year. ..	1,07,885	24,814	..	..	..	..	1,32,699	3,733	1,36,432	4,21,765	..	..	..	..	..	..	..	..
Beekingham canal. { To end of previous year. ..	72,53,373	16,68,683	1,81,681	..	..	24,365	90,79,372	4,93,784	95,73,156	2,28,12,272	..	..	..	..	..	..	..	..
Total, B. Navigation, etc., Works—(2) Unproductive Works. { To end of previous year. ..	3,27,410	22,963	..	..	..	..	3,50,601	3,274	3,53,875	4,15,712	..	..	..	..	..	..	..	..
During the year. ..	73,61,258	16,93,497	1,81,681	..	..	24,365	92,12,071	4,97,517	97,09,588	2,33,34,037	..	..	..	..	..	..	..	..
During the year. ..	3,27,410	22,963	..	..	..	..	3,50,601	3,274	3,53,875	4,15,712	..	..	..	..	..	..	..	..
During the year. ..	73,61,258	16,93,497	1,81,681	..	..	24,365	92,12,071	4,97,517	97,09,588	2,33,34,037	..	..	..	..	..	..	..	..
During the year. ..	3,27,410	22,963	..	..	..	..	3,50,601	3,274	3,53,875	4,15,712	..	..	..	..	..	..	..	..
During the year. ..	25,37,43,898	3,47,77,778	99,98,353	23,21,157	..	33,96,678	29,74,44,508	92,18,292	30,66,62,800	34,66,15,411	..	..	..	..	..	..	..	..
During the year. ..	6,39,74,439	35,92,029	5,01,004	46,06,055	..	5,27,264	6,29,21,133	9,30,672	6,38,54,855	1,42,20,655	..	..	..	..	..	..	..	..

C.I.—Statement showing the financial results of irrigation, navigation, embankment and drainage works (classified as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras State for the year ending 1950-51.

Works or systems.	Revenue (actual receipts).									
	Irrigation.					Navigation, Plantation, Miscellaneous.				
	Irrigation revenue.	Share of land revenue.	Total.							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS.										
1. PRODUCTIVE WORKS.										
1 Cauvery delta system ..	58,00,769	1,66,302	54,67,071	4,939	18,234	31,635	54,809	1,124	55,20,755	37,12,214
2 Srivasthikottai ancient system ..	2,46,243	1,490	2,46,736		3,353	6,681	10,034	772	2,56,698	18,08,542
3 Godavari delta system ..	46,95,840	2,30,723	49,26,563	2,60,252	13,622	93,894	3,78,768	2,853	53,02,438	1,77,698
4 Mahanadi ancient system ..	21,241	196	21,437		94	141	235		21,582	51,78,438
5 Thadapalli channel system ..	1,94,350	2,929	1,97,279			5,631	5,631	705	2,02,910	17,672
6 Kallanguravani canal system ..	1,69,727	483	1,70,210			6,049	6,049	262	1,75,957	1,36,205
7 Vridhachalam canal system ..	44,489	339	44,828		1,137	32	1,169	286	45,711	90,997
8 Chembarambakkam tank system ..	870	957	1,827			249	249		1,827	37,211
9 Marudur ancient system ..	2,13,400	279	2,13,679		509	4,019	4,528	2,353	2,15,844	1,924
10 Pennar river canal system ..	8,36,884	73,887	9,30,251	635		3,150	3,785		9,31,036	1,00,854
11 Tirukottai channel system ..	44,218	428	44,646			64	654		45,300	6,78,036
12 Tirukkottai ancient system ..	1,48,714	3,369	1,52,083		564	894	1,458		1,53,531	26,300
13 Shatkapottu ancient system ..	1,98,064	17,031	2,15,095			439	1,298		2,00,000	93,341
14 Cheyyar ancient system ..	7,763	4,735	12,498		140	3,138	3,278	16	15,768	20,000
15 Cumbum tank system ..	37,146	472	37,618						38,000	1,96,377
16 Polney ancient system ..	54,503	5,438	59,991			124	246		60,237	1,618
17 Periyar ancient system ..	11,48,344	94,863	12,43,207		122	8,676	28,708		12,71,911	22,137
18 Krishna delta system ..	38,97,891	2,79,415	41,77,306	2,46,626	19,391	1,08,398	3,63,379	134	42,71,707	10,67,761
19 Nandiyar channel system ..	31,948	250	32,198	37	1,543	147	1,732	330	33,907	64,45,995
20 Sriakulam minor rivers system ..	1,66,521	7,874	1,74,395			150	1,500	13	1,75,895	17,000
21 Lower Coleroon ancient system ..	6,37,997	51,549	6,89,546	93	9,183	8,898	18,174	174	7,07,725	79,345
22 Polavarani Island project ..	1,53,241	31,086	1,84,327	44	543	542	1,129		1,84,870	5,52,546
23 Cauvery-Mettur project ..	15,53,791	121	15,53,912	20	9,864	2,58,474	2,68,358	5,330	17,22,460	1,54,370
24 Kattalai scheme ..	5,14,872		5,14,872	274	14,380	4,621	19,255	212	5,34,693	20,44,725
Total, A. Irrigation Works—1. Productive Works.	2,26,37,819	9,73,766	2,36,11,575	5,22,561	1,01,858	5,48,657	11,73,076	20,153	2,47,64,498	55,98,085
2. UNPRODUCTIVE WORKS.										
1 Kurnool-Cuddapah canal system ..	4,59,761	3,277	4,63,038	180		20,768	20,948	909	4,83,077	35,872
2 Barur tank system ..	25,872	787	26,659		7,887	685	8,572		35,181	5,900
3 Vallur ancient system ..	9,457	1,074	10,531			430	430		6,661	1,461
4 Madras Water-supply and Irrigation system.	14,502	462	14,964			35,809	35,809		50,773	11,000
5 Pelandora ancient system ..	57,333	86	57,419		2,105	261	2,366		59,785	3,000
6 Palur ancient system ..	1,38,477	16,852	1,55,329		941	1,163	2,104		1,57,431	1,25,000
7 Mumbyer system ..	56,967	62	57,029			3,375	3,375	25	60,379	2,500
8 Dondapad tank system ..	39	10	49						49	25
9 Yeru tank system ..	368	86	454						454	425
10 Segluru system ..	6,846	26	6,872			306	306		6,872	17,800
11 Attamar tank system ..	1,854		1,854						1,854	500
12 Jangamaheswarapuram tank system ..	1,325		1,325						1,325	825
13 Anamasamudram-Becapuru tank system ..	1,136	1	1,137						1,137	3,600
Total, A. Irrigation Works—2. Unproductive Works.	11,34,165	52,337	11,86,502	180	13,907	69,201	83,288	1,184	12,68,606	2,63,406
Total, A. Irrigation Works	2,37,71,984	10,26,093	2,47,98,077	5,22,741	1,15,765	6,17,858	12,56,364	21,337	2,60,33,104	58,61,491
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.										
2. UNPRODUCTIVE WORKS.										
1 Vedaramani canal ..				1,051		31,291	1,051		1,051	1,051
2 Buckingham canal ..				1,10,458	43,799		1,94,546	789	1,93,809	1,93,809
Total, B. Navigation, etc., Works—2. Unproductive Works.				1,20,509	43,799	31,291	1,95,599	789	1,94,860	1,94,860
Total, B. Navigation, etc., Works				1,20,509	43,799	31,291	1,95,599	789	1,94,860	1,94,860
Total, Construction of Irrigation, etc., Works.	2,37,71,984	10,26,093	2,47,98,077	6,43,250	1,59,564	6,49,149	14,51,963	22,076	2,62,27,964	58,61,491

APPENDIX I

APPENDIX I

Works or systems.	Revenue (actual receipts).									
	Irrigation.					Navigation, Plantation, Miscellaneous.				
	Irrigation revenue.	Share of land revenue.	Total.							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
14 Halipuram tank system ..	674	70	744						744	
15 Ponnalur tank system ..	3,660		3,660						3,660	
16 Markapur tank system ..	7,622	1	7,623			129	159		2,130	
17 Nagavalli river system ..	1,24,265	21,804	1,46,069			531	531		1,46,600	
18 Venkataswami tank system ..	2,964		2,964						2,964	
19 Bhavanasi tank system ..	5,212	1,104	6,316			23	23		5,235	
20 Yellanur tank system ..	2,049		2,049						2,049	
21 Panjapatti reservoir system ..	5,569		5,569			135	135		5,704	
22 Sridharur tank system ..	3,220	1,017	4,237			771	771		4,237	
23 Nagavaram ancient and supply channel ..	83,821	5,170	88,991			161	161	13	89,139	
24 Mopid reservoir system ..	3,530		3,530						3,530	
25 Kanniyampalayam ancient system ..	1,01,988	448	1,02,436			4,455	7,314	235	1,09,515	
26 Toludur reservoir project ..	4,253		4,253			26	26		4,279	
27 Thirupayapalem project ..	16,192		16,192			203	338		16,530	
28 Basavanah channel system ..										
29 Durvaluru project ..										
30 Uththaraballa scheme ..										
31 Mahadevapuram tank project ..										
32 Tungabhadra project ..										
33 Lower Bhavani project ..										
34 Kallapad project ..										
35 Tigaluru project ..										
36 Mettur canal project (New channel from Mettur reservoir).										
37 Ponnar scheme ..										
38 Gayatriputha project ..										
39 Malaupuzha project ..										
40 Badathalay project ..										
41 Kollimangalavatu project ..										
42 Pennar Kunnuvathal project ..										
43 Upper Pennar project ..										
44 Mannuthar project ..										
45 Bhairavathippa project ..										
Total, A. Irrigation Works—2. Unproductive Works.	11,34,165	52,337	11,86,502	180	13,907	69,201	83,288	1,184	12,68,606	2,63,406
Total, A. Irrigation Works	2,37,71,984	10,26,093	2,47,98,077	5,22,741	1,15,765	6,17,858	12,56,364	21,337	2,60,33,104	58,61,491

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.

2. UNPRODUCTIVE WORKS.

Works or systems.	Revenue (actual receipts).									
	Irrigation.					Navigation, Plantation, Miscellaneous.				
	Irrigation revenue.	Share of land revenue.	Total.							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1 Vedaramani canal ..				1,051		31,291	1,051		1,051	1,051
2 Buckingham canal ..				1,10,458	43,799		1,94,546	789	1,93,809	1,93,809
Total, B. Navigation, etc., Works—2. Unproductive Works.				1,20,509	43,799	31,291	1,95,599	789	1,94,860	1,94,860
Total, B. Navigation, etc., Works				1,20,509	43,799	31,291	1,95,599	789	1,94,860	1,94,860
Total, Construction of Irrigation, etc., Works.	2,37,71,984	10,26,093	2,47,98,077	6,43,250	1,59,564	6,49,149	14,51,963	22,076	2,62,27,964	58,61,491

C.I.—Statement showing the financial results of irrigation, navigation, embankment and drainage works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras State for the year ending 1950-51—cont.

Working expenses—Revenue management.										Working expenses.										
Establishment.					Total					Maintenance and repairs.					Deduct					
Direction.	Execution.	Civil officers.	Revenue management.	Total	13	(14)	(15)	(16)	S.	RS.	(17)	(18)	Total.	Extensions and improvements.	Maintenance and repairs.	Tools and plant.	recovered on revenue account.	(23)	(24)	RS.
A. IRRIGATION WORKS—cont.																				
1. PRODUCTIVE WORKS—cont.																				
1	Cauvery delta system	..	2,71,590	2,71,590	..	..	2,71,590	2,71,590	..	..	97,057	3,88,229	4,85,236	6,77,101	14,93,819	51,017	3,655	..	26,64,861	..
2	Sivakuntam ancient system	..	8,387	8,387	..	..	8,387	8,387	..	..	3,306	13,224	16,530	..	..	..	125	..	67,672	..
3	Godavari delta system	..	2,38,211	2,38,211	..	..	2,38,211	2,38,211	..	..	89,673	3,53,691	4,43,364	33,609	22,65,401	83,931	..	27,87,506	..	
4	Mehamattur ancient system	..	868	868	..	..	868	868	..	..	584	2,339	2,923	3,500	9,331	..	30	..	13,793	..
5	Thadapalli channel system	..	6,064	6,064	..	..	6,064	6,064	..	..	1,764	7,055	8,819	10,986	33,375	..	310	..	53,490	..
6	Kallidasa channel system	..	4,261	4,261	..	..	4,261	4,261	..	..	843	3,373	4,216	..	..	..	147	..	25,337	..
7	Vridhachalam ancient system	..	1,815	1,815	..	..	1,815	1,815	..	..	1,143	4,570	5,713	..	..	..	59	..	31,262	..
8	Chembarambakkam tank system	..	..	..	..	..	..	..	..	..	1,338	1,352	1,690	..	..	..	8	..	13,579	..
9	Marudur ancient system	..	4,934	4,934	..	..	4,934	4,934	..	..	1,703	6,810	8,513	..	..	..	..	33,583	..	
10	Pennar river canal system	..	32,545	32,545	..	..	32,545	32,545	..	..	9,585	38,341	47,926	8,593	5,12,251	362	..	5,69,132	..	
11	Arankota channel system	..	1,282	1,282	..	..	1,282	1,282	..	..	538	2,132	2,665	..	..	..	165	..	17,723	..
12	Tirukoyilur ancient system	..	4,604	4,604	..	..	4,604	4,604	..	..	2,899	11,596	14,495	11,100	57,572	180	..	83,337	..	
13	Shattopey ancient system	..	9,755	9,755	..	..	9,755	9,755	..	..	3,236	12,947	16,183	2,962	58,523	143	..	77,811	..	
14	Cheyyar tank system	..	..	..	..	..	..	..	..	..	7,017	8,068	10,085	1,475	56,814	399	..	68,773	..	
15	Cumbum tank system	..	1,380	1,380	..	..	1,380	1,380	..	..	1,546	7,383	9,939	..	..	191	..	35,517	..	
16	Polveer ancient system	..	1,092	1,092	..	..	1,092	1,092	..	..	1,506	6,027	7,533	..	..	319	..	53,896	..	
17	Periyar system	..	48,234	48,234	..	..	48,234	48,234	..	..	21,426	85,705	1,07,131	1,07,131	450	..	..	4,52,576	..	
18	Krishna delta system	..	2,97,118	2,97,118	..	..	2,97,118	2,97,118	..	..	1,25,660	5,02,638	6,28,298	4,78,761	26,17,930	21,209	..	37,46,188	..	
19	Nandiyar channel system	..	751	751	..	..	751	751	..	..	626	2,505	3,131	4,798	9,672	..	..	17,635	..	
20	Srikakulam minor river system	..	3,966	3,966	..	..	3,966	3,966	..	..	4,784	19,136	23,920	1,61,557	2,79,451	2,907	..	1,88,312	..	
21	Lower Coleroon ancient system	..	26,726	26,726	..	..	26,726	26,726	..	..	13,263	53,050	66,313	31,553	2,43,997	941	..	3,73,040	..	
22	Polavaram Island project	..	7,662	7,662	..	..	7,662	7,662	..	..	2,008	8,031	10,039	1,137	5,48,117	..	..	65,164	..	
23	Cauvery-Mettur project	..	87,875	87,875	..	..	87,875	87,875	..	..	25,036	1,00,144	1,25,180	16,736	5,48,117	1,413	..	6,92,281	..	
24	Kattalai scheme	..	13,045	13,045	..	..	13,045	13,045	..	..	5,405	22,019	27,524	3,002	1,19,598	285	..	1,50,409	..	
Total, A. Irrigation Works—1. Productive Works.					..	..	10,69,059	10,69,059	..	..	4,16,341	16,65,365	20,81,706	12,85,346	88,47,902	74,493	..	1,22,89,447	..	
2. UNPRODUCTIVE WORKS—cont.																				
1	Kurnool-Cuddapah canal system	..	21,329	21,329	..	..	21,329	21,329	..	..	22,874	91,496	1,14,370	686	2,97,762	2,181	..	4,14,999	..	
2	Barur tank system	..	1,008	1,008	..	..	1,008	1,008	..	..	572	2,289	2,861	56	16,193	1,113	..	19,158	..	
3	Vallur ancient system	..	62	62	..	..	62	62	..	..	156	626	782	..	8,230	16	..	9,018	..	
4	Madras Water-supply and Irrigation system.	..	198	198	..	..	198	198	..	..	341	1,366	1,707	254	19,661	14	..	21,636	..	
5	Polandorai ancient system	..	2,721	2,721	..	..	2,721	2,721	..	..	1,264	5,654	6,918	104	25,511	59	..	31,992	..	
6	Palur ancient system	..	1,466	1,466	..	..	1,466	1,466	..	..	2,819	11,276	14,095	2,322	90,636	431	..	1,07,514	..	
7	Munieru system	..	2,726	2,726	..	..	2,726	2,726	..	..	568	3,872	4,840	1,887	20,682	163	..	27,382	..	
8	Dondapad tank system	..	2	2	..	..	2	2	..	..	23	89	112	..	1,148	1	..	1,541	..	
9	Yeru tank system	..	1	1	..	..	1	1	..	..	30	121	151	..	1,301	1	..	1,453	..	
10	Saguru system	..	571	571	..	..	571	571	..	..	664	2,656	3,320	..	9,170	67	..	12,557	..	

APPENDIX I

APPENDIX I

C.I.—Statement showing the financial results of irrigation, navigation, embankment and drainage works (classified as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras State for the year ending 1950-51—cont.

Works or systems.	Working expenses—cont.					Net revenue.		
	Indirect charges.		Deduct old maintenance charges.		Grand total of working expenses.	Total.		Due to improvements.
	(25)	(26)	Direct charges.	Indirect charges.		(27)	(28)	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
A. IRRIGATION WORKS—cont.								
1. PRODUCTIVE WORKS—cont.								
1 Cauvery delta system	21,836	29,827	19,088	14,828	20,871	20,871	9,40,569	5,38,973
2 Srivasthiam sicut system	510	70,549	7,051	55	7,056	7,056	69,483	1,08,219
3 Godavari delta system	22,992	30,48,789	256	6	230	230	30,48,109	21,29,779
4 Mahamattur sicut system	138	16,789	256	6	262	262	22,63,779	1,883
5 Godavari sicut system	444	59,984	4,110	36	4,146	4,146	55,852	1,42,207
6 Thadapalli channel system	210	39,808	4,598	40	4,638	4,638	23,172	70,357
7 Krishna sicut system	255	33,382	4,598	40	4,638	4,638	1,46,189	65,827
8 Chinnabai sicut system	119	12,969	5,761	54	5,815	5,815	12,177	5,779
9 Chinnabai tank system	250	38,767	5,944	47	5,991	5,991	12,177	5,779
10 Ponnur river canal system	5,238	6,06,885	31,753	206	32,049	32,049	5,74,836	65,078
11 Arakkonath canal system	130	19,155	1,010	9	1,019	1,019	25,145	1,03,200
12 Arakkonath sicut system	680	88,617	5,528	17	5,545	5,545	64,924	8,184
13 Satalapalle sicut system	745	81,811	1,942	32	1,974	1,974	80,352	1,03,200
14 Chinnabai sicut system	583	67,959	3,691	8	3,700	3,700	64,216	8,184
15 Chinnabai tank system	162	36,239	1,070	8	1,078	1,078	35,161	1,03,200
16 Ponnur sicut system	455	34,943	5,610	31	5,641	5,641	51,302	1,03,200
17 Ponnur tank system	3,440	5,04,256	32,750	259	33,009	33,009	4,71,247	5,96,514
18 Krishna sicut system	31,067	40,74,363	14,117	122	14,239	14,239	40,60,074	23,85,921
19 Krishna sicut system	44	18,331	1,942	32	1,974	1,974	14,711	1,03,200
20 Krishna sicut system	1,676	1,05,774	5,340	47	5,387	5,387	1,88,507	1,03,200
21 Lower Ootcheru sicut system	3,110	4,75,776	8,601	73	8,674	8,674	3,99,202	1,53,344
22 Ponnur sicut system	542	7,35,816	13,467	114	13,581	13,581	73,368	81,002
23 Ponnur tank system	5,655	7,35,816	13,467	114	13,581	13,581	73,368	81,002
24 Kattalai scheme	1,226	1,64,680	57,396	486	57,781	57,781	7,72,230	1,27,495
Total, A. Irrigation Works—1. Productive Works.	1,01,630	1,34,80,136	22,06,117	16,640	22,22,757	22,22,757	1,12,37,070	79,29,334
2. UNPRODUCTIVE WORKS—cont.								
1 Koodal-Cuddapah canal system	2,985	4,30,313	4,034	30	4,064	4,064	4,35,249	11,056
2 River tank system	162	20,325	1,395	13	1,408	1,408	20,325	8,953
3 Vellar sicut system	182	22,016	1,395	13	1,408	1,408	20,325	8,953
4 Madras Water-supply and Irrigation system.	199	22,016	4,070	38	4,108	4,108	17,927	21,848
5 Ponnur sicut system	256	34,909	138	1	139	139	31,830	21,956
6 Ponnur sicut system	930	1,09,910	3,535	31	3,566	3,566	1,06,324	47,551
7 Ponnur sicut system	233	30,311	259	2	261	261	30,050	27,829
8 Doodapet tank system	13	264	..	..	..	..	204	215
9 Vellar tank system	92	12,078	2,960	22	2,982	2,982	1,467	1,438
10 Agalpur system	3	500	..	..	..	..	9,106	20,325
11 Attalur tank system	4	564	..	..	..	..	1,354	1,354
12 Jagannathapuram tank system	..	..	..	..	..	..	584	584
Total, A. Irrigation Works—2. Unproductive Works.	6,614	9,03,907	20,732	174	20,906	20,906	8,83,001	1,22,199
Total, A. Irrigation Works	1,08,244	1,43,84,043	22,27,149	16,814	22,43,963	22,43,963	1,21,20,080	80,51,533

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.

2. UNPRODUCTIVE WORKS.

1 Vedaranyam canal	40	4,749	..	..	..	..	4,749	..
2 Beckingham canal	3,624	3,94,001	..	..	..	..	3,94,001	2,00,192
Total, B. Navigation, etc., Works—2. Unproductive Works.	3,664	3,98,750	..	..	..	..	3,98,750	2,03,490
Total, B. Navigation, etc., Works	3,664	3,98,750	..	..	..	..	3,98,750	2,03,490
Total Construction of Irrigation, etc., Works.	1,11,908	1,47,82,793	22,27,149	16,814	22,43,963	22,43,963	1,25,18,830	78,47,043

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to end of, 1950-51 in the Madras State.

Serial number and name of work	Mileage in operation.		Area irrigated.
	Main canals and branches.	Distributaries.	
	(2)	(3)	(4)
A. IRRIGATION WORKS.			
1. PRODUCTIVE.			
1. Coimbatore delta system	943½	2,798½	1,064,197
2. Srivakulam canal system	28	46	44,859
3. Coimbatore delta system	500	1,925½	1,314,114
4. Madhavaram canal system	15	9½	5,430
5. Thirupattur canal system	85	..	26,045
6. Kalingarayam canal system	62½	..	25,316
7. Vaidhachalam canal system	33½	16	11,743
8. Chemburambakkam tank system	10	1½	16,640
9. Marudur canal system	29	7½	32,497
10. Pennar river canal system	188½	352½	176,720
11. Arakonkottai canal system	24	..	5,954
12. Tirukkoyilur canal system	138	28½	41,300
13. Shattatope canal system	41	149	47,436
14. Cheyyar canal system	61	120	21,184
15. Chulabai tank system	..	23½	7,972
16. Ponnai canal system	104	78	19,459
17. Periyar system	152	118	293,056
18. Krishna delta system	425	2,374½	1,227,795
19. Nandiyar canal system	6½	16½	9,251
20. Srikakulam minor rivers system	279½	7½	77,427
21. Lower Coleroon canal system	230	64½	127,591
22. Polavaram island project	..	44½	26,253
23. Coimbatore-Mettur project	113½	594½	271,104
24. Kattana scheme	74½	106	79,534
Total, A. Irrigation Works—1. Productive Works.	3,673½	9,535½	4,832,680

2. UNPRODUCTIVE.

1. Kurnool-Cuddapah canal system	417½	294½	92,958
2. Barur tank system	11	26	5,817
3. Vallur canal system	5½	..	5,490
4. Madras Water-supply and Irrigation system	11½	..	8,026
5. Polandora canal system	39	25	14,842
6. Palar canal system	157	227	85,695
7. Muniyuru system	49½	2½	10,725
8. Dondapudi tank system	..	6½	426
9. Yerur tank system	..	..	765
10. Sagileru system	12	..	3,636
11. Atmakur tank system	..	4½	471
12. Jangamabeswarapuram tank system	3½	5½	309
13. Anamasamudram-Beraperu tank system	..	2½	856
14. Hajipuram tank system	..	4½	657
15. Ponnalur tank system	..	7	767
16. Morkapur tank system	7½	..	1,644
17. Nagavalli river system	64½	47½	29,436
18. Venkatapuram tank system	3½	..	318
19. Bhavanasi tank system	6½	..	614
20. Yellapur tank system	..	3½	581
21. Pajhapatti reservoir system	..	1½	..
22. Siddapur tank system	6½	9	714
23. Nagavaram anicut and supply channel system	2	..	760
24. Mopad reservoir system	..	84	11,203
25. Kanniyampalayam anicut system	10½	..	471
26. Toludur reservoir system	31½	40	18,613

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to end of, 1950-51 in the Madras State.—cont.

Serial number and name of work.	Mileage in operation.		Area irrigated.
	Main canals and branches.	Distributaries.	
(1)	(2)	(3)	(4)
A. IRRIGATION WORKS—cont.			
2. UNPRODUCTIVE—cont.			
27. Thippayapalem project	5½	..	648
28. Basavannah canal system	..	..	1,119
29. Duvvakur project	8½	..	..
30. Uduthorahalla scheme	..	..	..
31. Mahadevapirram tank project	..	..	..
32. Tungabadhra project	..	..	..
33. Lower Bhavani project	..	..	..
34. Rallapad project	..	..	..
35. Tigaluru project	..	..	..
36. Mettur canal project	..	..	..
37. Ponnai scheme	..	..	..
38. Gayathripuzha project	..	..	..
39. Malampuzha project	..	..	..
40. Badathalav project	..	..	..
41. Kollimagulavagu project	..	..	..
42. Pennar-Kumudavathi project	..	..	..
43. Upper Pennar project	..	..	..
44. Minimathur project	..	..	..
45. Bhairavathuppa project	..	..	..
Total, A. Irrigation Works—2. Un-productive	852½	791½	309,396
Total, A. Irrigation Works ..	4,526½	10,327½	5,192,076

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.

2. UNPRODUCTIVE.

1. Vedaranniyam canal	45½	..	..
2. Buckingham canal	262	..	..
Total, B. Navigation, etc., Works—2. Unproductive.	307½	..	..
Total B. Navigation, etc., works ..	307½	..	..
Total, Construction of Irrigation, etc., Works.	4,834	10,327½	5,192,076

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to the end of, 1950-51 in the Madras State—*cont.*

General financial results to end of 1950-51.

Serial number of works.	Name of works.	Mileage in operation.		Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when the system first came into operation.	Total capital outlay (direct and indirect).	Accumulated arrears of interest.	Accumulated surplus revenues.	Total sum at charge (column (7) plus columns (8), (9), (10) and (11)).
		(3)	(4)		(6-a)	(6-b)	(7)	(8)	(9)	
(1)	(2)	MILES.	MILES.	RS.	(6-a)	(6-b)	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS.										
1. PRODUCTIVE WORKS.										
1	Cauvery delta system	..	..	98,85,788	31-3-1899	..	97,56,606	..	5,52,70,354	97,56,606
2	Sriyalkuntam anicut system	..	..	17,75,083	31-3-1899	..	17,75,083	..	2,88,768	17,75,083
3	Godavari delta system	..	..	2,65,98,468	31-3-1890	1877-78	2,57,41,913	..	17,22,95,453	2,57,41,913
4	Mehamattur anicut system	..	..	87,184	March 1891	..	87,184	..	3,94,910	87,184
5	Tadepalli channel system	..	..	1,77,446	1893	..	1,92,770	..	24,52,854	1,92,770
6	Kalingarayan channel system	..	..	1,80,486	1893	..	1,80,486	..	10,52,884	1,80,486
7	Vridhachalam anicut system	..	..	1,08,204	31-3-1893	..	1,08,204	..	7,28,836	1,08,204
8	Chembarambakkam tank system	..	..	7,64,143	31-3-1893	..	7,64,143	..	2,04,134	7,64,143
9	Marudur anicut system	..	..	60,122	1893	..	60,122	..	47,41,774	60,122
10	Pennar river canal system	..	..	72,06,761	31-3-1894	1860-61	71,63,821	..	1,15,37,477	71,63,821
11	Arankota channel system	..	..	1,44,445	31-3-1894	..	1,44,445	..	1,87,974	1,44,445
12	Tirukkoyilur anicut system	..	..	3,99,190	31-3-1895	..	4,23,387	..	7,17,498	4,23,387
13	Shatistope anicut system	..	..	10,89,561	31-3-1895	..	10,89,372	..	51,72,639	10,89,372
14	Cumbum tank system	..	..	12,28,940	31-3-1896	..	10,42,115	4,22,438	..	14,64,553
15	Polney anicut system	..	..	86,373	31-3-1896	..	86,373	2,875	..	89,248
16	Polney anicut system	..	..	3,03,918	1897	..	3,03,918	..	11,73,465	3,03,918
17	Periyar system	..	..	1,08,35,654	31-3-1897	1896-97	1,08,35,654	..	49,45,514	1,08,35,654
18	Krishna delta system	..	..	4,32,97,155	31-3-1898	..	3,89,87,978	..	13,89,59,628	3,89,87,978
19	Nandiyar channel system	..	..	65,715	1899	1895-96	65,715	..	56,018	65,715
20	Srikulam minor rivers system	..	..	2,89,226	31-3-1900	..	2,89,226	..	5,62,767	2,89,226
21	Lower Coleroon anicut system	..	..	30,01,669	30-6-1903	..	31,02,418	..	1,48,45,574	31,02,418
22	Polavaram island project	..	..	17,12,876	28-2-1934	1929-30	17,05,832	1,18,648	..	18,24,480
23	Cauvery-Mettur project	..	..	7,25,81,746	30-9-1934	1932-33	6,62,90,904	4,74,08,097	..	11,36,98,001
24	Kattalai scheme	..	..	45,24,732	..	1929-30	42,29,831	26,77,898	..	69,07,729
Total, A. Irrigation Works—1. Productive Works..				13,69,03,865	..	..	17,24,27,480	5,06,29,566	41,54,83,521	22,30,67,436

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to the end of, 1950-51 in the Madras State—*cont.*

Financial results of the year 1950-51.

Serial number of works.	Name of works.	Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage on capital outlay [column (10)].	Percentage on sum at charge [column (7)].	Interest.	Net profit.	Net loss.	Area irrigated.	Percentage of working expenses to receipts [column (12) to (11)].
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)	(2)	RS.	RS.	RS.	(14)	(15)	RS.	RS.	RS.	ACS.	(20)
A. IRRIGATION WORKS—<i>cont.</i>											
1. PRODUCTIVE WORKS—<i>cont.</i>											
1	Cauvery delta system	18,08,542	9,49,569	8,58,973	8-99	8-99	4,14,957	4,44,016	..	..	52-30
2	Sriyalkuntam anicut system	1,77,668	69,483	1,08,215	6-10	6-10	75,036	33,179	..	..	39-10
3	Godavari delta system	51,78,488	30,48,709	21,29,779	8-27	8-27	10,26,773	11,03,006	..	..	58-87
4	Mehamattur anicut system	17,672	16,033	1,639	1-88	1-88	3,828	..	2,189	..	90-73
5	Tadepalli channel system	1,26,205	55,852	70,358	36-49	36-49	7,310	62,543	..	..	44-25
6	Kalingarayan channel system	90,997	25,170	65,827	36-47	36-47	7,919	57,908	..	..	27-66
7	Vridhachalam anicut system	87,211	33,332	53,879	3-58	3-58	4,686	..	807	..	89-58
8	Chembarambakkam tank system	13,924	7,174	21,098	2-76	2-76	29,312	..	50,410	..	51-52
9	Marudur anicut system	1,90,854	32,776	68,073	113-23	113-23	2,642	65,436	..	..	30-50
10	Pennar river canal system	6,78,036	5,74,836	1,03,200	1-44	1-44	2,75,243	..	1,72,043	..	84-78
11	Arankota channel system	26,800	18,116	8,184	5-67	5-67	6,335	1,849	..	..	68-88
12	Tirukkoyilur anicut system	93,541	82,740	10,801	2-55	2-55	18,024	..	7,223	..	88-45
13	Shatistope anicut system	1,96,377	86,352	1,10,025	10-01	10-01	46,341	63,684	..	..	43-97
14	Cheyay anicut system	23,234	64,236	87,470	8-39	8-39	42,358	..	1,30,828	..	27-67
15	Cumbum tank system	7,618	35,161	27,543	30-86	30-86	3,779	..	31,322	..	461-55
16	Polney anicut system	22,137	51,802	29,165	9-60	9-60	13,280	..	42,445	..	231-75
17	Periyar system	10,67,761	4,71,247	5,96,514	5-51	5-51	4,70,908	1,25,606	..	..	44-13
18	Krishna delta system	64,45,995	40,60,074	23,85,921	6-45	6-45	15,10,608	8,75,313	..	..	62-99
19	Nandiyar channel system	16,917	14,711	2,206	3-36	3-36	2,845	..	839	..	86-96
20	Srikulam minor rivers system	79,545	1,89,507	1,08,962	37-67	37-67	12,519	..	1,21,481	..	236-98
21	Lower Coleroon anicut system	5,52,546	3,99,202	1,53,344	4-94	4-94	1,33,227	20,117	..	..	72-25
22	Polavaram island project	1,54,370	73,368	81,002	4-75	4-75	75,487	5,515	..	..	47-53
23	Cauvery-Mettur project	20,44,725	7,72,280	12,72,445	1-92	1-12	29,25,391	..	16,52,896	..	37-77
24	Kattalai scheme	2,80,036	1,06,899	1,73,137	4-09	2-51	1,83,915	..	10,778	..	38-17
Total, A. Irrigation Works—1. Productive Works..				79,29,334	4-60	3-55	72,94,223	6,35,111	..	..	58-63

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to the end of, 1950-51 in the Madras State—cont.

Serial number of work.

Name of works.

(1)	(2)	Mileage in operation.		Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when the system first came into operation.	Total capital outlay (direct and indirect).	Accumulated arrears of interest.	Accumulated surplus revenues.	Total sum-at-charge (column (7) plus column (9) minus column (10)).
		(3)	(4)	(5)	(6-a)	(6-b)	(7)	(8)	(9)	(10)
		MILES.	MILES.	RS.			RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—cont.										
2. UNPRODUCTIVE WORKS.										
1	Kurnool-Cuddapah canal system	..	..	2,41,02,027	Not known.	1882-83	2,41,65,701	5,26,38,882	..	7,68,04,583
2	Barur tank system	..	..	4,52,037	31-3-1891	1887-88	4,57,644	5,11,422	..	9,69,066
3	Valur ancient system	..	..	76,282	31-3-1893	..	76,282	1,12,061	..	1,88,343
4	Madras Water-supply and Irrigation system.	..	..	18,68,918	1893	..	18,68,918	33,33,936	..	52,02,854
5	Pelandurai ancient system	..	..	6,92,074	31-3-1896	..	6,92,074	4,98,444	..	11,85,518
6	Palar ancient system	..	..	25,28,832	1901-02	1898-99	26,09,279	28,25,832	..	54,35,111
7	Muniyern system	..	..	10,59,312	31-3-1903	1898-99	9,46,918	3,06,411	..	12,53,329
8	Dondapet tank system	..	..	8,06,004	31-3-1903	1898-99	7,20,032	2,94,436	..	10,14,468
9	Yerur tank system	..	..	63,353	31-3-1907	1912-13	63,353	96,749	..	1,60,102
10	Saglieru system	..	..	4,64,727	31-3-1907	1898-99	4,64,727	10,02,414	..	14,67,141
11	Atmakur tank system	..	..	3,34,209	31-3-1907	1912-13	1,36,489	1,49,692	..	2,86,181
12	Jangamahewarapuram tank system	..	..	71,664	31-3-1908	1912-13	71,664	96,123	..	1,67,787
13	Anasasundram-Beraseru tank system.	..	..	73,573	31-3-1910	1911-12	73,573	1,47,874	..	2,21,447
14	Hajipuram tank system	..	..	7,52,623	31-3-1911	1910-11	3,24,867	3,72,367	..	6,97,234
15	Ponnalur tank system	..	..	2,18,649	31-3-1911	1910-11	2,18,649	3,21,945	..	5,40,594
16	Markapur tank system	..	..	1,29,840	31-3-1911	1909-10	1,29,340	1,71,213	..	3,00,553
17	Nagavalli river system	..	..	18,13,010	31-12-1913	1909-10	18,14,280	6,56,640	..	24,70,870
18	Venkatapuram tank system	..	..	3,84,921	31-8-1918	1921-22	3,84,921	5,39,313	..	9,24,234
19	Bhavanesi tank system	..	..	3,08,460	31-3-1919	1921-22	2,70,009	3,48,665	..	6,18,674
20	Yellatur tank system	..	..	2,69,707	31-3-1919	1920-21	2,69,707	3,14,296	..	5,84,003
21	Panchapettai reservoir system	..	..	3,39,276	30-6-1919	1924-25	3,39,276	6,90,617	..	10,29,893
22	Siddapur tank system	..	..	8,04,486	31-10-1919	1921-22	8,04,486	10,63,089	..	18,67,575
23	Nagavaram ancient and supply channel system.	..	..	1,09,890	31-12-1919	1920-21	1,09,890	1,42,178	..	2,52,068
24	Mopad reservoir system	..	..	24,20,630	30-4-1921	1921-22	24,36,704	25,88,956	..	50,25,660
25	Kanniyampalayam ancient system	..	..	1,11,074	31-3-1922	1924-25	1,11,074	1,73,095	..	2,84,169
26	Toludur reservoir system	..	..	26,22,781	31-10-1925	1924-25	26,22,781	18,27,561	..	44,50,342
27	Tippayapalem project	..	..	5,93,900	In progress.	In progress.	5,84,216	4,11,002	..	9,95,218
28	Rasavannah channel system	..	..	5,92,100	Do.	Do.	5,89,780	2,71,835	..	8,61,415
29	Duvvalur project	..	..	1,52,075	Do.	Do.	1,47,291	99,793	..	2,47,084
30	Uduthoraballi scheme	..	..	2,11,088	Do.	Do.	1,81,119	43,704	..	2,24,823
31	Mahadevapuram tank Project	..	..	1,12,489	Do.	Do.	14,425	4,349	..	18,774
32	Tungabhadra project	..	..	9,53,79,458	Do.	Do.	8,40,97,483	61,59,544	..	9,08,57,027
33	Lower Bhavani project	..	..	7,65,72,000	Do.	Do.	4,56,10,095	19,61,453	..	4,74,71,548

24	Railapad project	..	..	63,31,100	Do.	Do.	8,12,666	40,709	..	8,53,375
25	Tigalaru project	..	..	7,29,176	Do.	Do.	6,07,583	23,050	..	6,30,633
26	Meisur canal project	..	..	2,66,84,800	Do.	Do.	18,76,487	60,256	..	19,36,743
27	Ponnalar scheme	..	..	16,32,833	Do.	Do.	12,08,720	59,520	..	12,68,240
28	Gayatriputra project	..	..	9,40,000	Do.	Do.	3,28,359	9,585	..	3,37,944
29	Nalamputra project	..	..	4,16,00,000	Do.	Do.	80,12,625	2,40,249	..	8,52,874
30	Badthalav project	..	..	11,43,000	Do.	Do.	5,91,973	20,354	..	6,12,387
31	Kollimaguavagu project	..	..	9,15,000	Do.	Do.	2,21,308	5,487	..	2,26,795
32	Pennar Kumudavathi project	..	..	19,60,000	Do.	Do.	3,14,621	7,083	..	3,21,704
33	Upper Pennar project	..	..	84,00,000	Do.	Do.	28,074	1,023	..	29,097
34	Manimuthar project	..	..	3,97,55,800	Do.	Do.	6,13,686	12,932	..	6,26,568
35	Bhairavanthippa project	..	..	..	Do.	Do.	3,663	77	..	3,740
Total, A. Irrigation Works—2. Unproductive Works.		..	..	34,75,82,678	..	..	18,80,26,712	8,951,046	..	26,89,77,758
Total, A. Irrigation Works		..	..	53,34,36,543	..	..	36,04,54,102	13,15,81,002	..	49,20,35,194

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.

2. UNPRODUCTIVE WORKS.										
1	Vedaranyam canal	..	..	1,36,432	31-3-1893	..	1,36,432	9,16,195	..	10,52,627
2	Buckingham canal	..	..	96,44,500	31-3-1897	..	99,27,931	3,76,47,974	..	4,26,75,005
Total, B. Navigation, etc., Works—2. Unproductive Works		..	..	97,80,932	..	..	1,00,63,463	3,85,64,169	..	4,36,27,632
Total, B. Navigation, etc., Works		..	..	97,80,932	..	..	1,00,63,463	3,85,64,169	..	4,36,27,632
Total, Construction of Irrigation, etc., Works.		..	..	54,32,67,475	..	..	37,05,17,655	16,51,45,171	..	53,56,62,886

C-II.—Statement showing the financial results of irrigation, navigation, embankment and drainage works for, and up to the end of, 1950-51 in the Madras State—*cont.*

Serial number of works.

Financial results of the year 19. 0-51.

Name of works.	Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage on capital outlay and (7).	Interest.	Net profit.	Net loss.	Area irrigated.	Percentage of working expenses to receipts (column (12) to (11)).
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
A. IRRIGATION WORKS—<i>cont.</i>									
2. UNPRODUCTIVE WORKS—<i>cont.</i>									
1 Kurnool-Cuddapah canal system ..	4,47,205	4,35,249	11,956	0.65	0.02	10,77,469	10,65,513	..	97.33
2 Barur tank system ..	29,231	29,328	3,953	1.96	0.92	19,82	10,429	..	69.42
3 Vallur ancient system ..	1,611	7,754	6,93	7.99	3.74	3,346	9,439	..	466.83
4 Madras water-supply and irrigation system.	39,773	17,955	21,848	1.17	0.42	73,299	51,451	..	45.07
5 Pelandurai ancient system ..	56,735	34,830	21,905	3.17	1.85	28,949	6,994	..	6.34
6 Palar ancient system ..	32,431	1,06,224	7,835	2.83	1.36	1,09,03	1,83,036	..	327.83
7 Muniyeru system ..	57,379	30,050	27,329	2.94	2.22	27,314	9,985	..	51.92
8 Dondapad tank system ..	49	261	215	0.03	0.02	2,541	25,756	..	33.78
9 Yerur tank system ..	29	1,467	1,438	2.27	0.90	2,778	4,16	..	55.62
10 Sagileu system ..	11,122	9,106	2,228	4.35	1.38	20,120	40,348	..	81.87
11 Attur tank system ..	1,354	500	1,354	0.99	0.47	5,325	3,971	..	26.97
12 Jangamaheswarapuram tank system ..	825	564	261	0.36	1.56	2,756	2,400	..	68.36
13 Anamasandram-Beraperu tank system ..	2,463	465	2,928	3.98	1.32	3,226	6,154	..	13.88
14 Halpuram tank system ..	744	751	7	0.01	0.00	12,818	12,821	..	100.04
15 Ponnalur tank system ..	3,660	3,359	110	0.05	0.02	8,684	8,74	..	96.99
16 Markapur tank system ..	5,622	1,948	7,326	3.66	2.44	5,602	12,928	..	230.31
17 Nagavalli river system ..	1,09,200	61,126	48,074	2.65	1.16	79,423	1,349	..	35.98
18 Venkatapuram tank system ..	2,954	2,23	761	0.00	0.08	16,751	15,990	..	74.3
19 Bhavanasi tank system ..	5,235	5,414	179	0.07	0.13	11,677	11,806	..	103.42
20 Yellaur tank system ..	1,153	2,622	531	0.20	0.09	10,764	10,233	..	8.16
21 Panjappatti reservoir system ..	135	2,517	2,722	0.80	0.26	14,750	17,472	..	2,116.30
22 Siddhapur tank system ..	6,340	4,551	2,989	0.37	0.16	35,597	32,608	..	5.85
23 Nagavaram ancient and supply channel system.	1,931	1,991	10	0.01	0.00	4,828	4,83	..	100.0
24 Mopad reservoir system ..	3,706	38,637	30,069	2.05	1.00	1,04,970	54,811	..	43.56
25 Kanniyampalayam ancient system ..	3,519	234	3,105	2.97	1.16	4,325	1,320	..	6.61
26 Tholudur reservoir system ..	93,955	37,368	41,057	1.57	0.92	1,06,652	65,99	..	53.50
27 Thippayapalem project ..	4,279	9,659	5,380	0.92	0.54	25,480	30,860	..	225.73
28 Basavanah channel system ..	16,630	11,065	5,465	0.93	0.63	26,230	20,765	..	68.94
29 Duvaleru project ..	..	3,899	3,899	2.63	1.38	6,595	10,414	..	..
30 Uduchoraballa scheme ..	..	..	..	..	..	7,372	7,372	..	..
31 Mahadevapuram tank project ..	..	..	..	..	..	609	609	..	..
32 Tungabhadra project ..	..	..	..	..	..	28,964.4	28,964.4	..	..
33 Lower Bhavani project ..	..	..	..	..	..	13,27,284	13,27,284	..	..
Total, A. Irrigation Works—2. Unproductive Works ..									
	10,52,000	8,83,001	1,27,199	0.07	0.5	63,04,419	63,04,419	..	87.84
	2,01,71,813	1,21,00,080	8,51,133	2.23	1.64	1,37,98,972	57,4,419	..	60.08
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—<i>cont.</i>									
2. UNPRODUCTIVE WORKS—<i>cont.</i>									
1 Vedaranyam canal ..	1,031	4,749	3,698	2.71	0.35	5,971	9,669	..	451.86
2 Buckingham canal ..	1,93,809	3,94,091	2,00,192	2.02	0.47	4,15,712	6,15,904	..	20.29
Total, B. Navigation, etc., Works—2. Unproductive Works.	1,94,860	3,98,750	2,03,890	2.13	0.47	4,21,683	6,25,573	..	204.63
Total, Construction of Irrigation, etc., Works.	1,94,860	3,98,750	2,03,890	2.03	0.47	4,21,683	6,25,573	..	204.63
	2,03,66,473	1,23,18,830	76,47,643	2.12	1.46	1,42,06,555	68,78,012	..	61.47

APPENDIX I



APPENDIX I

Works or systems.	Capital outlay (direct and indirect) to end of the year.	Revenue assessed during the year.									
		Owner's rates.					Direct revenue.				
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	Less refunds of revenue.	Grand total.
A. IRRIGATION WORKS.											
1. PRODUCTIVE WORKS.											
1 Cauvery delta system	97,56,606	..	18,334	4,939	31,636	54,809	54,67,071	1,124	55,20,756		
2 Srivastunam anicut system	17,75,063	..	3,353	..	6,031	10,034	2,46,736	..	2,50,089		
3 Godavari delta system	2,57,41,913	..	13,62	2,69,252	95,834	3,78,768	49,26,373	2,853	53,02,488		
4 Melamattur anicut system	87,184	..	94	..	..	235	21,437	..	21,672		
5 Thadipalli channel system	1,92,770	..	..	..	5,631	5,631	1,97,279	705	2,02,205		
6 Kalingarayan anicut system	1,80,486	..	..	..	6,049	6,049	1,70,210	262	1,75,917		
7 Vridhachalam anicut system	1,08,224	..	1,137	..	32	1,169	41,828	26	1,15,917		
8 Chemburam tank system	7,64,143	..	..	..	240	249	1,87	..	45,711		
9 Marudur anicut system	60,122	..	509	..	4,019	4,58	2,13,679	2,353	2,15,854		
10 Ponnar river canals system	71,6,821	..	..	635	3,150	3,785	9,30,231	..	9,34,036		
11 Arkenkota channel system	1,44,445	..	..	..	654	654	41,645	..	1,53,540		
12 Trukkoilur anicut system	4,387	..	584	..	894	1,458	1,52,083	..	1,53,541		
13 Shadatope anicut system	10,59,732	..	839	..	459	1,298	2,15,095	..	2,15,577		
14 Cheyyar anicut system	10,41,115	..	140	..	3,138	3,278	1,488	..	37,618		
15 Cumbum tank system	86,373	..	..	..	..	..	37,618	..	37,618		
16 Poinex anicut system	3,03,918	..	122	..	174	246	59,901	..	60,337		
17 Periyar anicut system	1,08,35,654	..	19,391	..	8,676	28,708	12,43,291	154	12,71,761		
18 Krishna delta system	3,69,575	..	835	2,46,626	1,08,398	3,63,249	61,77,306	3,390	65,77,245		
19 Nandiyar channel system	65,715	..	1,548	..	147	1,732	3,108	19	35,917		
20 Chicacole minor rivers system ..	2,89,228	..	..	..	150	150	1,74,395	..	1,74,395		
21 Lower Coleroon anicut system ..	31,0,318	..	9,183	..	8,808	18,174	6,80,546	174	7,07,316		
22 Polavaram island project	17,05,318	..	43	44	342	1,129	1,53,241	..	1,54,370		
23 Cauvery-Mettur project	6,62,90,004	..	9,864	..	2,58,474	2,68,368	18,84,877	859	2,44,696		
24 Kattalai scheme	4,9,851	..	14,360	274	4,821	19,155	5,14,993	212	5,34,036		
Total, A. Irrigation Works—1. Productive Works.	17,24,27,480	..	1,01,858	5,22,561	5,48,657	11,77,076	2,36,11,575	2,0153	2,47,64,498		

2. UNPRODUCTIVE WORKS.

1 Kurmol-Cuddapah canal system ..	2,41,65,701	..	7,837	180	20,768	20,948	4,68,038	909	4,93,077		
2 Barui tank system	4,57,644	..	..	..	635	8,322	26,639	..	35,181		
3 Vallur anicut system	76,282	..	..	..	430	430	6,231	..	6,661		
4 Madras water-supply and irrigation systems ..	18,68,918	..	2,105	..	35,809	35,809	14,964	..	10,773		
5 Pelandoral anicut system	6,92,074	..	941	..	61	2,06	57,419	..	59,785		
6 Palar anicut system	26,06,279	..	..	..	1,163	2,104	1,55,329	2	1,57,431		

B

7 Kanyern anicut system	9,48,918	..	..	..	3,375	3,375	57,029	25	60,379		
8 Dondapad tank system	7,20,932	..	..	..	..	..	49	..	49		
9 Yerur tank system	63,353	..	..	..	..	..	4	..	4		
10 Saffern system	4,84,727	..	..	..	306	306	6,372	..	6,678		
11 Almatir tank system	1,36,459	..	..	..	..	..	1,854	..	1,854		
12 Janamathewarapuram tank system ..	1,76,164	..	..	..	..	..	1,325	..	1,325		
13 Anamasamudram-Heraperu tank system ..	73,373	..	..	..	..	..	1,137	..	1,137		
14 Halipuram tank system	3,24,807	..	..	..	..	..	744	..	744		
15 Ponnalur tank system	2,18,649	..	..	..	..	..	3,660	..	3,660		
16 Markapur tank system	1,29,340	..	..	..	129	129	7,623	..	7,623		
17 Nacavalli river system	18,14,230	..	..	..	531	531	1,46,069	..	1,46,600		
18 Venkatauram tank system	3,84,921	..	..	..	..	..	2,984	..	2,984		
19 Bhavanasi tank system	2,70,009	..	..	..	23	23	5,212	..	5,235		
20 Vellalur tank system	2,69,707	..	..	..	..	..	3,153	..	3,153		
21 Panjapatir reservoir system	3,39,276	..	..	..	135	135	5,569	..	5,569		
22 Suddapur tank system	8,04,488	..	..	..	771	771	4,237	..	4,237		
23 Nacavaram anicut and supply channel ..	1,09,890	..	..	..	161	161	88,991	13	89,199		
24 Kanyernpalayan anicut system	1,11,074	..	2,889	..	..	..	3,539	235	3,839		
25 Tondur reservoir system	26,22,781	..	..	..	..	..	1,02,436	..	1,02,436		
26 Tappayapalem project	5,84,216	..	..	..	4,425	7,314	4,253	..	4,279		
27 Bhavanani channel system	5,89,780	..	..	..	28	28	16,192	..	16,192		
28 Bhavanani channel system	4,56,10,095	..	..	..	203	336	..	..	..		
29 Duvvaleri project	1,47,291	..	..	..	..	..	..	..	..		
30 Gutturahalla scheme	1,31,119	..	..	..	..	..	..	..	..		
31 Mahadevapuram tank project	14,425	..	..	..	..	..	..	..	..		
32 Tungabhadra project	8,40,97,483	..	..	..	..	..	..	..	..		
33 Lower Bhavani project	4,56,10,095	..	..	..	..	..	..	..	..		
34 Kallapad project	8,12,666	..	..	..	..	..	..	..	..		
35 Tigalaru project	6,07,583	..	..	..	..	..	..	..	..		
36 Mettur canal project (new channel from Mettur Reservoir)	18,76,487	..	..	..	..	..	..	..	..		
37 Ponnar Scheme	12,06,720	..	13,907	180	69,291	89,288	11,86,502	1,184	12,68,606		
38 Gayatriputha project	3,28,359	..	..	..	..	..	..	..	..		
39 Malampuzha project	80,1,625	..	43,799	1,19,158	31,291	1,94,548	..	739	1,95,809		
40 Kallathalay project	5,91,973	..	43,799	1,20,509	31,291	1,95,599	..	739	1,94,860		
41 Kollimalavay project	2,21,308	..	43,799	1,20,509	31,291	1,95,599	..	739	1,94,860		
42 Pe nar-Kundavathi project	3,14,621	..	..	..	..	..	..	..	..		
43 Upper Pennar project	28,074	..	..	..	..	..	..	..	..		
44 V in mutiar project	6,13,616	..	..	..	..	..	..	..	..		
45 Bhalrawantheppa project	3,663	..	..	..	..	..	..	..	..		
Total, A. Irrigation Works—2. Unproductive Works.	18,80,26,712	..	13,907	180	69,291	89,288	11,86,502	1,184	12,68,606		
Total, A. Irrigation Works	36,04,54,192	..	1,15,765	5,22,741	6,17,858	12,56,364	2,47,98,077	21,337	2,60,31,104		

B. NAVIGATION EMBANKMENT AND DRAINAGE WORKS.

2. UNPRODUCTIVE WORKS.

1 Vedaranyam canal	1,051	..	43,799	1,19,158	31,291	1,94,548	..	739	1,95,809		
2 Buckingham canal	1,19,158	..	..	..	..	..	..	..	..		
Total, B. Navigation, etc., Works—2. Unproductive Works.	1,00,63,463	..	43,799	1,20,509	31,291	1,95,599	..	739	1,94,860		
Total, B. Navigation, etc., Works	1,00,63,463	..	43,799	1,20,509	31,291	1,95,599	..	739	1,94,860		
Total, Construction of Irrigation, etc., Works	87,05,17,655	..	1,59,64	6,43,250	6,49,149	14,51,903	2,47,98,077	22,076	2,62,27,964		

APPENDIX I

APPENDIX I

APPENDIX I

Works or systems.	Revenue assessed during the year—cont.				Net revenue of the year.		Percentage on capital outlay to end of the year (improvements only).
	Deduct share due to old irrigation.	Total revenue due to improvement.	Total charges (direct and indirect).	Deduct old maintenance charges.	Total.	Due to improvements.	
	(11)	(12)	(13)	(14)	(16)	(17)	(18)
	RS.	RS.	RS.	RS.	RS.	RS.	
A. IRRIGATION WORKS—cont.							
1. PRODUCTIVE WORKS—cont.							
1 Canvey delta system	37,12,314	18,08,542	29,58,287	20,08,718	25,49,569	3,58,973	7.99
2 Sriyalkumbam ancient system	70,000	1,77,698	70,569	7,086	1,08,129	1,08,215	6.10
3 Godavari delta system	1,24,000	51,78,488	30,48,709	..	22,58,779	21,29,779	8.27
4 Melamattur ancient system	4,000	17,672	16,789	756	16,033	70,933	1.88
5 Thadepalli channel	76,000	1,26,205	50,968	4,146	1,42,297	68,827	36.49
6 Kallangarayan channel	85,000	90,921	29,508	4,688	1,46,726	68,827	36.47
7 Vridhachalam ancient system	8,500	37,211	33,332	..	12,679	33,579	3.58
8 Chembambakkam tank system	16,000	13,924	1,389	5,815	10,908	..	2.76
9 Marudur tank system	1,15,000	1,00,554	38,767	5,991	1,77,087	63,078	113.23
10 Pennar river canals system	2,56,000	6,78,036	6,06,885	32,049	3,27,151	1,09,900	1.44
11 Arankota channel system	19,000	26,800	19,135	1,089	26,149	10,501	5.67
12 Tirukkoilur ancient system	60,000	93,541	88,617	5,877	64,324	1,10,95	2.55
13 Shattatope ancient system	20,000	1,96,377	88,311	1,959	1,28,066	1,10,95	10.01
14 Cheyyar ancient system	39,000	23,324	67,959	3,723	52,193	8,740	8.39
15 Cumbum tank system	38,100	7,618	36,239	1,078	1,379	27,543	31.29
16 Poiney ancient system	2,04,000	92,137	54,943	3,641	7,67,503	29,163	9.00
17 Periyar system	91,300	10,67,761	5,04,256	33,009	3,96,314	3,96,314	5.51
18 Krishna delta system	17,000	64,45,915	40,71,363	14,289	24,62,932	23,85,821	6.45
19 Nandiyar channel system	95,000	70,545	18,531	3,820	1,386	2,206	3.44
20 Chittoor minor rivers system	1,55,000	5,52,546	1,93,894	5,387	1,88,507	1,08,162	37.67
21 Lower Coleroon ancient system	..	1,54,370	4,07,876	8,674	2,99,670	1,53,344	4.75
22 Polavaram island project	99,971	20,43,725	7,85,811	13,681	81,002	51,02	1.92
23 Cauvery Mettur project	2,54,000	2,80,036	1,64,680	57,781	13,58,855	1,72,495	1.02
24 Kattalai scheme	..	..	..	..	3,69,356	1,73,137	4.09
Total, A. Irrigation Works—1. Productive Works	55,98,085	1,91,46,413	1,34,60,136	23,23,057	1,13,04,362	79,29,334	4.60
2. UNPRODUCTIVE WORKS—cont.							
1 Kurnool-Cuddapah canal system	35,872	4,47,205	4,39,813	4,064	43,764	11,956	0.05
2 Barur tank system	5,000	29,261	20,338	..	14,853	8,953	1.90
3 Vallur ancient system	11,000	39,961	3,162	1,408	7,754	6,093	7.99
4 Madras water-supply and irrigation system	3,000	16,785	2,303	4,108	28,740	21,848	1.77
5 Peddandurthi ancient system	1,25,000	52,431	3,969	3,850	24,816	21,955	3.17
6 Palur ancient system	2,500	8,879	1,09,910	3,586	47,521	73,893	2.83
7 Munivaru system	..	..	30,311	261	30,068	27,829	2.94
8 Dondapudi tank system	425	49	264	..	215	215	0.03
9 Yerru tank system	17,800	1,467	1,467	..	1,013	1,438	2.27
10 Sagluru system	..	1,1122	12,078	2,972	540	20,228	4.35
11 Alankur tank system	500	1,854	500	..	1,354	1,54	0.99
12 Jangamahevalapuram tank system	3,600	825	564	..	761	1,261	0.36
13 Jangamahevalapuram tank system	..	2,403	1,156	691	19	2,928	3.99
Total, A. Irrigation Works—2. Unproductive Works	2,63,406	53,61,491	43,85,249	20,906	3,64,699	1,22,199	0.07
Total, A. Irrigation Works	58,61,491	2,01,71,613	1,43,04,043	22,43,963	1,16,69,061	80,51,533	2.23
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—cont.							
2. UNPRODUCTIVE WORKS—cont.							
1 Vedaranyam canal	..	1,051	4,749	..	3,698	3,698	2.71
2 Buckingham canal	..	1,93,809	3,94,001	..	2,00,192	2,00,192	2.02
Total, B. Navigation, etc., Works—2. Unproductive Works	..	1,94,860	3,98,750	..	2,03,890	2,03,890	2.03
Total, B. Navigation, etc., Works	..	1,94,860	3,98,750	..	2,03,890	2,03,890	2.03
Total, Construction of Irrigation, etc., Works	58,61,491	2,03,66,473	1,47,62,793	22,43,963	1,14,65,171	78,47,643	2.12

D-I.—Statement of traffic on the principal navigable canals in the Madras State during the year 1950-51.

(1)	Length of canals open or navigation	Godavari canals.					Krishna canals.		Kurnool-Cuddapah canals.		Buckingham canal.		West Coast canals.		Dumma-gudem canal.		Vedaranyam canal.		Total.
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
Receipts—		498½	420	75	261½	78½	4	35½	1,372½										
Tolls																			
Testing fees																			
Annual licence fees																			
Six weeks' licence fees																			
Registration fees																			
Wharfage fees																			
Demurrage fees																			
Raft fees																			
Numbering fees																			
Fines																			
Gro nd rents																			
Miscellaneous																			
Refunds																			
Government boats and steamers																			
Boat rent																			
Other refunds																			
Duplicate fees																			
Hire on punts																			
Berm rent																			
Total, Receipts		3,10,461	2,50,453	457	1,03,424	4,11,9	6,774	1,031	8,06,784										
Maintenance charges including navigation establishment		6,3,616	5,61,820		8,33,000	78,226	10,419	3,056	21,24,557										
Net revenue		—3,2,155	—5,10,867	457	—6,41,666	34,087	—3,640	—2,085	—13,17,893										
Total number of boats plying, cargo																			
Total number of boats plying, passengers																			
Total tonnage, cargo boats																			
Total tonnage, passenger boats																			
Ton mileage, up																			
Ton mileage, down																			
Total																			
Estimated value of cargoes, up...																			
Estimated value of cargoes, down																			
Total																			
Number of passengers																			
Rafts, tons, up																			
Rafts, tons, down																			
Total																			
Estimated value of cargoes on rafts																			
Tollage on boats, per ton, per mile																			
Tollage on rafts, per 100 sq. ft.																			
Timber																			
Bamboo																			

D-II.—Description and quantity of goods, etc., carried on the principal canals in the Madras State during the year 1950-51.

Description.	Godavari canals.					Krishna canals.					
	Total, Government and private.			Private.		Total, Government and private.			Private.		
	Up. (2)	Down. (3)	Total. (4)	Value. (5)	Quantity. (6)	Value. (7)	Up. (8)	Down. (9)	Total. (10)	Value. (11)	Quantity. (12)
(1)	TONS.	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.	TONS.
Boat traffic.											
Cotton, raw and manufactured.	185	607	792	25,70,150	792	25,70,150	32	31	63	76,230	63
Woolen goods	..	..	..	..	..	..	..	..	..	..	..
Dyes and tans	127	165	292	1,61,500	292	1,61,500	6	6	12	1,42,100	7
Rice and paddy	58,915	12,918	71,833	2,19,60,876	71,833	2,19,60,876	15,872	7,079	22,951	69,58,900	22,951
Other foodgrains	944	8,771	9,715	50,32,370	9,715	50,32,370	4,303	3,557	7,860	74,27,700	7,860
Hides and skins	..	..	..	..	..	..	..	..	..	..	..
Liquors	67	13	80	2,59,000	80	2,59,000	56	8	64	2,23,440	64
Metals	1,474	1,168	2,642	40,76,700	2,642	40,76,700	..	..	..	..	..
Oils	679	3,921	4,600	69,00,000	4,600	69,00,000	423	249	672	38,03,140	672
Oil-seeds	3,970	1,814	5,784	76,95,700	5,784	76,95,700	154	970	1,094	21,16,800	1,094
Provisions	69,555	37,298	1,06,853	6,89,85,200	1,06,853	6,89,85,200	15,872	3,818	19,690	39,59,100	19,690
Salt	12,284	1,103	13,387	7,76,148	13,387	7,76,148	11,641	4,197	15,838	2,11,19,920	15,838
Spices	43	97	140	6,27,200	140	6,27,200	3,247	655	3,902	3,70,690	3,902
Sugar and jaggery	116	849	965	69,58,000	965	69,58,000	..	..	..	..	..
Tobacco	3316	6,284	9,600	23,70,980	20,505	6,58,920	3,574	294	3,768	13,67,800	3,768
Building materials	37,180	2,674,718	30,418	46,01,987	30,418	46,01,987	4,341	2,416	6,757	1,09,96,420	6,757
Miscellaneous goods	40,549	12,768	59,117	1,42,31,470	59,117	1,42,31,470	14,044	2,87,659	3,27,793	35,75,323	3,27,793
Timber	..	..	..	..	..	..	..	..	..	..	..
Firewood	1,565	10,515	12,080	14,36,000	12,080	14,36,000	2,398	249	2,647	54,53,943	2,647
Bamboos	17,614	11,831	29,145	46,63,200	29,145	46,63,200	2,398	249	2,647	54,53,943	2,647
Coal and coke	2,842	20,912	23,754	71,26,200	23,754	71,26,200	641	801	1,445	5,12,265	1,445
Tea	..	..	..	..	..	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..
Scandlings	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic	2,69,203	4,05,788	6,74,991	18,40,50,239	6,74,991	18,40,50,239	1,15,007	4,60,339	5,75,376	7,02,47,066	5,75,376
Raft traffic.											
Timber in logs	..	40,138	40,138	1,60,53,200	40,138	1,60,53,200	24,239	19,056	43,295	3,03,06,500	43,295
Sleepers, broad gauge	..	..	..	..	..	..	..	..	..	..	..
Do, metre gauge	..	..	..	..	..	..	..	..	..	..	..
Scandlings	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds	..	..	..	..	..	..	..	..	..	..	..
Total, Raft traffic	..	74,885	74,885	2,64,78,800	74,885	2,64,78,800	24,239	19,107	43,360	3,03,27,150	43,360
Gross total	2,69,203	4,80,673	7,49,876	21,05,29,039	7,49,876	21,05,29,039	1,39,246	4,79,476	6,18,736	10,05,74,216	6,18,736

D-II.—Description and quantity of goods, etc., carried on the principal canals in the Madras State during the year 1950-51—cont.

West Coast canals.

	Total, Government and private.				Private.			
	Quantity.		Value.		Quantity.		Value.	
	Up. (14) TONS.	Down. (15) TONS.	Total (16) TONS.	(17) RS.	Up. (20) TONS.	Down. (21) TONS.	Total (22) TONS.	(23) RS.
Boat traffic—cont.								
Cotton, raw and manufactured								
Woolen goods								
Dyes and tans								
Rice and paddy	10,966	82	11,048	44,19,200	2,490	5,174	7,664	23,55,792
Other foodgrains	2,742	232	2,974	29,74,000	11,150	6,904	18,054	95,68,620
Hides and skins								
Liquors								
Metals								
Oils	32	916	948	15,16,800				
Oil-seeds	56	81	137	3,42,500	736	115	851	50,03,880
Provisions	25	450	505	3,42,500	2,395	18	2,613	42,67,419
Salt	234	209	443	4,04,000	375	10,140	10,518	67,73,992
Spices	51,202	26,117	77,319	8,36,000	40,575	17,181	57,756	5,68,0,880
Sugar and jaggery					1,362	7,704	9,066	34,66,011
Building materials	285		285	92,85,450	273	246	519	29,03,893
Miscellaneous goods	4,332	22	4,404	1,42,500	363	1,895	2,188	8,24,204
Timber	32,508	2,014	34,522	89,8,000	476	4,6	14,297	77,0,206
Firewood	6,501	3,413	9,914	67,58,700	10,250	4,012	14,262	2,50,463
Bamboos	374	134	508	54,38,620	23,441	68,839	92,270	1,67,03,268
Coal and coke	66,906	9,963	76,869	2,12,490	837	1,341	2,178	10,39,780
Iron and steel	1,045	7	1,052	49,98,435	1,445	676	2,121	76,356
Iron and steel	6		6	2,10,400	52	3,165	3,217	3,60,304
Treasure								
Kerosene oil								
Cotton seeds		1,921	1,921	4,80,250	3,216	154	3,370	13,58,110
Poles								
Scantlings								
Total, Boat traffic	1,77,294	46,681	2,22,975	4,68,78,875	99,766	1,28,023	2,27,794	11,31,33,944
Raft traffic—cont.								
Timber in logs		32	71	42,600				
Squared timber								
Sleepers, broad gauge								
Do. metre gauge								
Scantlings								
Poles								
Firewood								
Bamboos and reeds								
Total, Raft traffic	10,898	1,097	11,995	7,58,040				
Grand total	1,88,192	46,778	2,34,970	4,76,36,915	99,766	1,28,023	2,27,794	11,31,33,944

D-III.—Description and quantity of goods, etc., carried on the principal canals in the Madras State during the year 1950-51—cont.

Vedaranyam canal.

	Total, Government and private.				Private.			
	Quantity.		Value.		Quantity.		Value.	
	Up. (26) TONS.	Down. (27) TONS.	Total (28) TONS.	(29) RS.	Up. (32) TONS.	Down. (33) TONS.	Total (34) TONS.	(35) RS.
Boat traffic—cont.								
Cotton, raw and manufactured								
Woolen goods								
Dyes and tans								
Rice and paddy	27		27	8,358				
Other foodgrains								
Hides and skins								
Liquors								
Metals	8		8	Not known				
Oils	48	1	49	73,500				
Oil-seeds	62	94	156	10,91,120	6		6	3,864
Provisions	107	403	510	1,16,620	12	154	166	1,50,920
Salt	559	559	1,118	3,26,400	20	20	40	1,920
Spices					42		42	2,41,374
Sugar and jaggery	45		45	15,920				
Tobacco	65		65	1,56,000				
Building materials	96	65	161	1,95,000	26	16	42	18,272
Miscellaneous goods	61	55	116	56,720	1,902	33	2,235	5,06,759
Timber								
Firewood								
Bamboos								
Coal and coke								
Iron and steel								
Treasure								
Kerosene oil								
Cotton seeds								
Poles								
Scantlings								
Total, Boat traffic	1,021	618	1,639	18,96,780	2,096	6,514	8,610	9,50,257
Raft traffic—cont.								
Timber in logs		149	149	59,600				
Squared timber		92	92	36,800				
Sleepers, broad gauge								
Do. metre gauge								
Scantlings		30	30	12,000				
Poles		30	30	9,000				
Firewood								
Bamboos and reeds								
Total, Raft traffic		301	301	1,17,400				
Grand total	1,021	919	1,940	20,14,180	2,096	6,514	8,610	9,50,257

D-II.—Description and quantity of goods, etc., carried on the principal canals in the Madras State during the year 1950-51—cont.

	Kurnool-Cuddapah canal.					
	Total, Government and private.				Private.	
	Quantity.		Total.	Value.	Quantity.	Value.
	Up.	Down.				
	(38)	(39)	(40)	(41)	(42)	(43)
<i>Boat traffic—cont.</i>						
Cotton, raw and manufactured	..	..	..	..	..	..
Woolen goods	..	..	..	..	..	..
Dye- and tan-	..	..	..	..	..	..
Rice and paddy	..	..	..	..	..	..
Other foodgrains	..	..	..	..	..	..
Hides and skins	..	..	..	..	..	..
Liquor	..	..	..	..	..	..
Metals	..	..	..	..	..	..
Oils	..	..	..	..	..	..
Oil-seeds	..	..	..	..	..	..
Provisions	..	..	..	..	..	..
Salt	..	..	..	..	..	..
Spice	..	..	..	..	..	..
Sugar and jaggery	..	..	..	..	..	..
Tobacco	..	..	..	..	..	..
Building material	..	..	..	..	..	..
Cellulose goods	..	..	..	..	..	..
Timber	..	..	..	..	..	..
Firwood	..	..	..	..	..	..
Bamboo	..	..	..	..	..	..
Coal and coke	..	..	..	..	..	..
Jute	..	..	..	..	..	..
Treasure	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..
Pole	..	..	..	..	..	..
Scantling	..	..	..	..	..	..
Total, Boat traffic	..	..	..	..	..	..
<i>Raft traffic—cont.</i>						
Timber in logs	..	..	..	..	..	..
Squared timber	..	..	..	..	..	..
Sleeper, broad gauge	..	..	..	..	..	..
Do metre gauge	..	..	..	..	..	..
Scantling	..	..	..	..	..	..
Pole	..	..	..	..	..	..
Firwood	..	..	..	..	..	..
Bamboo and reeds	..	..	..	..	..	..
Total, Raft traffic	..	..	..	..	..	..
Grand total	..	..	..	..	..	..

E-I.—Statement of area irrigated under irrigation works classed as "Productive" and "Unproductive" for which Capital and Revenue Accounts are kept in the Madras State during the year 1950-51.

Area charged as irrigated in acres.							
Name of canal.	First crop.		Second crop.		Total.	Both seasons.	Percentage of double cropped area (columns (4) and (5)) on the first crop area (columns (2) and (3)).
	Flow.	Lift.	Flow.	Lift.			
	(1)	(2)	(3)	(4)			
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	PER CENT
<i>Productive.</i>							
1 Cauvery delta system ..	85,564	37,714	133,873	4,785	1,011,936	23,020	15.52
2 Srivaikuntam anicut system. ..	25,535	421	16,058	1,170	43,204	1,412	66.37
3 Godavari delta system ..	847,430	24,587	357,152	13,689	1,242,853	23,514	42.53
4 Mahamattur anicut system ..	4,853	26	447	3	5,334	171	9.21
5 Thadapalle channel system ..	16,649	718	7,336	1,192	25,945	3,352	49.39
6 Kallingarayan channel ..	10,154	2,358	10,367	2,026	25,201	2,768	96.73
7 Vridhachalam anicut system.	6,385	997	315	578	8,278	860	12.09
8 Chembarambakkam tank ..	11,952	2,204	1,125	364	15,645	352	10.51
9 Marudur anicut system ..	17,166	235	13,331	602	31,774	732	97.09
10 Pennar river canals system ..	158,388	4,901	3,903	244	167,336	745	2.54
11 Arakenkotta channel ..	4,722	140	1,047	29	5,938	30	22.13
12 Tirukkoyilur anicut system. .	33,044	1,438	5,042	440	39,994	901	15.57
13 Shattatope anicut system ..	32,705	1,148	11,981	337	46,171	267	36.39
14 Cheyyar anicut system ..	12,728	3,303	2,440	906	19,377	245	21.50
15 Cumbam tank ..	5,742	88	2,061	23	7,914	..	35.75
16 Poincy anicut system ..	13,324	471	3,516	82	17,393	1,475	26.08
17 Periyar system ..	131,778	4,702	53,517	3,298	193,295	6,711	41.63
18 Krishna delta system ..	962,618	21,937	19,881	1,692	1,008,028	13,370	2.08
19 Nandiyar channel system ..	5,922	839	1,464	288	9,013	1,460	33.42
20 Lower Coleroon anicut system.	111,473	2,495	10,698	620	125,285	1,995	9.92
21 Krishna East Bank Canal [extension scheme].	103,577	1,073	155	27	104,832	1,226	0.17
22 Polavaram Island Project ..	17,451	115	8,406	26	25,998	122	48.00
23 Cauvery-Mettur Project ..	191,111	9,626	27,631	2,081	230,469	2,031	14.11
24 Kattalai scheme ..	52,446	2,311	22,533	899	78,139	10,618	42.79
25 Chitrole minor rivers system.	54,635	2,231	4,942	763	62,770	283	10.02
<i>Unproductive.</i>							
1 Kurnool-Cuddapah canal ..	74,099	629	15,113	581	90,423	..	21.01
2 Barur tank ..	4,213	57	985	13	5,268	600	22.84
3 Vallur anicut system ..	2,039	401	..	..	2,500	33	..
4 Madras water-supply and irrigation system.	6,508	370	854	4	7,736	70	11.02
5 Pelandora anicut system ..	12,813	443	1,067	253	14,576	133	9.97
6 Palur anicut system ..	61,612	3,205	9,750	1,572	76,139	686	17.47
7 Muniyuru channel system ..	9,364	904	231	1	27,303	1	2.26
8 Dondapad tank system ..	494	..	8	..	412	..	1.23
9 Yerur tank system ..	434	3	..	..	437	..	..
10 Sagileru system ..	3,265	2	29	..	3,296	71	0.89
11 Atmakur tank system ..	426	..	1	..	427	..	0.23
12 Jangamaheswarapuram tank.	242	10	32	..	284	..	12.70
13 Anamasamudram, Boerapuru tank.	824	2	..	..	826	..	..
14 Hajipuram tank ..	600	..	3	..	603	1	0.5
15 Ponnalur tank ..	710	..	3	..	713	..	0.42
16 Markapur tank ..	1,614	9	3	..	1,631	..	0.18
17 Nagavalli river system ..	26,247	152	875	29	27,303	29	3.43
18 Venkatapuram tank ..	311	..	..	..	311	..	..
19 Bhavanasi tank ..	551	2	2	..	555	..	0.36
20 Yellanur tank ..	486	..	..	..	486	2	..
21 Panjapatti reservoir ..	..	..	..	..	..	..	..
22 Siddhapur tank ..	714	..	..	..	714	..	..
23 Nagavaram anicut and supply channel.	519	10	180	3	712	20	34.59
24 Mopad reservoir ..	10,370	7	493	1	10,876	577	4.31
25 Kanniyampalayam anicut ..	471	..	..	..	471	..	..
26 Toludur reservoir system ..	17,512	43	867	24	18,446	1,997	10.7
27 Thippayapalem project ..	436	3	4	..	443	..	0.91
28 Basavannah channel ..	1,078	..	37	..	1,115	..	3.44
29 Duvvaleru project ..	..	..	..	..	..	..	..

E-II.—Statement showing the incidence of working expenses and assessed water revenue on irrigation works (classified as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras State during 1950-51.

(1)	Name of canal.	Water assessed, 1950-51.			(2)	Average discharge of the year at canal head in cubic feet per second.		Gross of assessed revenue from all sources.		(7)	(8)	Working expenses.		(11)
		Direct.	Indirect.	Total of direct and indirect.		RS.	RS.	Percentage on gross revenue.	Per acre irrigated.					
												(3)	(4)	
(1)	Productive.	RS.	RS.	RS.				RS.	RS.	RS.	ACS.			
1	Cauvery delta system	53,00,769	1,66,002	54,67,071	..	..	..	55,20,736	29,58,237	1,06,497	53.58	2.78	5.14	
2	Srivalkuntam ancient system	2,45,246	1,490	2,46,736	..	..	..	2,56,698	76,769	44,959	29.82	1.70	5.49	
3	Godavari delta system	46,95,840	2,30,733	49,26,573	..	..	..	53,02,488	30,18,709	1,31,114	57.50	2.32	3.75	
4	Mehmatpur ancient system	21,241	196	21,437	..	..	..	21,872	16,789	5,430	77.47	3.09	3.95	
5	Thadapalle channel	1,94,350	2,029	1,97,279	..	..	..	2,02,205	59,993	26,045	29.67	2.30	7.54	
6	Kalingarayan channel system	1,69,727	483	1,70,210	..	..	..	1,75,947	29,808	25,316	16.94	1.18	6.72	
7	Vrididi achalam ancient system	44,489	339	44,828	..	..	..	45,711	33,332	11,743	72.92	2.84	3.82	
8	Chembrambakkam tank system	870	957	1,827	..	..	..	2,076	12,959	16,640	625.67	0.75	9.11	
9	Marudur ancient system	2,13,400	279	2,13,679	..	..	..	2,15,854	33,767	32,497	17.96	1.19	6.58	
10	Pennar river canal system	8,56,884	73,367	9,30,251	..	..	..	9,34,036	6,06,885	176,720	64.97	3.43	5.26	
11	Arakonkotta channel system	44,218	428	44,646	..	..	..	45,300	19,155	5,974	42.28	3.22	7.50	
12	Tirukkoyilur ancient system	1,48,714	3,869	1,52,583	..	..	..	1,53,541	88,617	41,000	57.72	2.16	3.71	
13	Shatidape ancient system	1,95,064	17,031	2,12,095	..	..	..	2,16,777	88,311	47,436	40.82	1.80	4.53	
14	Cheyar ancient system	7,753	4,735	12,488	..	..	..	13,766	67,959	21,184	43.10	3.21	0.59	
15	Cumbum tank system	37,146	472	37,618	..	..	..	37,818	36,239	7,972	66.33	4.55	4.73	
16	Polney ancient system	54,503	5,488	59,991	..	..	..	60,237	54,943	19,459	91.21	2.82	3.08	
17	Periyar ancient system	11,48,344	94,863	12,43,207	..	..	..	12,71,761	5,04,256	203,036	39.65	2.43	6.12	
18	Krishna delta system	58,97,891	2,79,415	61,77,306	..	..	..	63,37,295	40,74,363	1,227,795	62.32	3.32	5.03	
19	Nandiyar channel system	31,948	250	32,198	..	..	..	33,917	18,531	9,254	54.64	2.00	3.48	
20	Lower Coleroon ancient system	6,97,997	51,549	7,49,546	..	..	..	7,07,546	4,07,876	127,591	57.65	3.15	5.40	
21	Polavaram Island project	1,53,241	..	1,53,241	..	..	..	1,54,370	73,363	26,353	47.59	2.79	5.33	
22	Cauvery-Mettur project	18,53,791	31,086	18,84,877	..	..	..	21,44,696	7,85,811	271,104	36.64	2.90	6.95	
23	Kattalai scheme	5,14,872	121	5,14,993	..	..	..	5,34,036	1,64,680	79,534	30.84	2.07	6.47	
24	Chicacole minor rivers system	1,66,521	7,874	1,74,395	..	..	..	1,74,545	1,93,894	77,437	111.09	2.50	2.25	

1	Kinnath-Cuddalore canal system	4,59,761	3,277	4,63,038	..	..	..	4,68,077	..	4,39,313	92,958	90.95	4.07	4.06
2	Baker tank system	25,872	787	26,659	..	..	..	26,181	..	20,328	5,617	57.78	3.62	4.74
3	Valur ancient system	5,157	1,074	6,231	..	..	..	6,661	..	9,162	5,490	137.55	1.67	1.13
4	Madras water-supply and irrigation system	14,502	462	14,964	..	..	..	16,773	..	22,083	8,626	43.39	2.55	1.73
5	Pandurani ancient system	57,333	86	57,419	..	..	..	59,785	..	34,969	14,842	58.49	2.63	3.87
6	Palar ancient system	1,38,477	16,852	1,55,329	..	..	..	1,67,431	..	1,09,910	85,695	69.81	1.28	1.81
7	Muntyaru ancient system	56,967	62	57,029	..	..	..	60,379	..	30,311	10,725	50.20	2.81	5.31
8	Dendurani tank system	39	10	49	..	..	..	264	..	426	538.78	0.12	0.62	0.12
9	Yerur tank system	368	96	464	..	..	..	454	..	1,467	765	323.13	1.92	0.59
10	Sagilam system	6,346	26	6,372	..	..	..	6,678	..	12,078	3,636	180.86	3.32	1.75
11	Alankur tank system	1,854	..	1,854	..	..	..	1,864	..	500	471	26.97	1.06	3.94
12	Janapadapuram tank system	1,825	..	1,825	..	..	..	1,825	..	564	308	42.67	1.83	4.30
13	Arakonkottai-Becapur tank system	1,136	1	1,137	..	..	..	1,137	..	1,156	856	101.67	1.35	1.33
14	Halapur tank system	674	79	744	..	..	..	744	..	751	657	100.95	1.14	1.13
15	Pennar tank system	3,660	..	3,660	..	..	..	3,660	..	3,550	767	96.99	4.63	4.77
16	Marudpur tank system	7,622	1	7,623	..	..	..	7,752	..	13,277	1,644	171.27	8.07	4.64
17	Kagavallur tank system	2,964	21,304	24,268	..	..	..	2,964	..	64,474	29,436	43.98	2.53	4.96
18	Venkatapur tank system	2,964	..	2,964	..	..	..	2,964	..	2,203	318	74.33	6.93	9.32
19	Rhavanur tank system	5,212	..	5,212	..	..	..	5,212	..	5,414	614	10.34	8.82	8.59
20	Yellur tank system	2,049	1,104	3,153	..	..	..	3,153	..	2,622	561	83.16	4.67	5.62
21	Pandurani reservoir system	..	..	..	..	..	..	..	..	2,357	..	211.28	..	..
22	Shidhar tank system	5,569	..	5,569	..	..	..	6,340	..	3,351	714	52.35	4.69	7.80
23	Maravapur ancient and supply channel system	3,230	1,017	4,247	..	..	..	4,237	..	1,991	769	46.99	2.59	5.51
24	Mopid reservoir system	83,321	5,170	88,491	..	..	..	89,139	..	33,637	11,203	43.34	7.94	7.94
25	Kandampalayam ancient system	3,539	..	3,539	..	..	..	3,539	..	234	471	6.61	0.50	7.51
26	Talcher reservoir system	1,01,938	448	1,02,436	..	..	..	1,09,515	..	57,868	18,613	52.84	3.11	5.59
27	Thirupayam project	4,233	..	4,233	..	..	..	4,279	..	9,659	648	225.73	14.91	6.56
28	Banavannah and Ryoa channels	16,182	..	16,182	..	..	..	16,530	..	11,065	1,119	66.94	9.89	14.47
29	Banavannah project	..	..	..	..	..	..	..	..	3,896	..	..	..	..

E-III.—Statement showing the area irrigated by flow and lift under for fasli

Districts.	Names of systems.	Area actually irrigated.					
		First crop.		Second crop.		Total.	Both seasons.
		Flow.	Lift.	Flow.	Lift.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
1. Productive Works.							
East Godavari.	Polavaram Island system ..	17,451	115	8,496	26	25,998	122
	Godavari delta system ..	392,475	11,626	148,818	5,877	559,196	11,680
West Godavari.	Do. ..	452,870	12,762	207,685	7,613	680,939	11,834
Krishna	Do. ..	1,676	199	649	199	2,723	..
	(Godavari delta system) Total ..	847,430	24,587	357,152	13,889	1,212,558	23,514
West Godavari.	Krishna delta system ..	87,875	18	1,057	66	89,616	869
Krishna	Do. ..	532,060	10,795	12,049	928	558,832	10,429
Guntur ..	Do. ..	392,688	11,124	6,175	598	410,580	3,072
	(Krishna delta system) Total ..	982,618	21,937	19,881	1,592	1,008,028	18,870
Krishna	Divi cum Krishna East Bank canal. ..	103,577	1,073	155	27	104,832	1,228
Nellore ..	Pennar river canals system ..	158,288	4,901	3,908	244	167,336	745
Coimbatore	Arakkankottal channel ..	4,722	140	1,047	29	5,938	30
	Tadepalli channel ..	16,649	718	7,886	1,192	25,945	3,352
	Kalingarayan channel ..	10,454	2,358	10,867	2,026	25,205	2,758
Chingleput	Chembrambakkam tank ..	11,952	2,204	1,125	364	15,645	852
North Arcot	Poincy anicut system ..	12,606	338	3,490	76	16,510	1,467
Chittoor	Do. ..	718	133	26	6	883	8
	(Poincy anicut system) Total ..	13,324	471	3,516	82	17,393	1,475
South Arcot	Tirukkoyilur anicut system ..	33,044	1,468	5,012	440	39,994	901
	Shatlatope anicut system ..	32,705	1,148	11,981	337	46,171	267
	Mehmattur anicut system. ..	4,858	26	447	8	5,384	171
	Vridhachalam anicut system. ..	6,388	997	315	578	8,278	860
	Lower Coleroon anicut system. ..	86,947	1,856	8,097	388	97,232	1,998
Tanjore	Do. ..	24,526	689	2,601	237	28,033	137
	(Lower Coleroon anicut) Total ..	111,478	2,495	10,698	620	125,285	1,995
Tanjore	Cauvery-Mettur Project ..	191,111	9,626	27,651	2,081	230,469	2,081
	Cauvery delta system ..	816,122	35,508	110,285	3,452	965,367	24,402
Tiruchirappalli..	Do. ..	39,442	2,206	23,588	1,333	66,569	8,618
	(Cauvery delta system) Total ..	855,564	37,714	133,873	4,785	1,081,936	28,020
Tiruchirappalli..	Nandiyar channel system ..	5,922	839	1,964	288	9,018	1,460
	Kattalai scheme ..	52,446	2,311	22,533	899	78,189	10,618
Madurai	Periyar system ..	181,778	4,702	58,517	3,298	198,295	6,711
Ramanathapuram.	Do. ..	..	..	..	..	..	..
	(Periyar system) Total ..	181,778	4,702	58,517	3,298	198,295	6,711
Tirunelveli	Srivaikuntam anicut system. ..	25,585	421	19,058	1,170	48,204	1,442
	Marudur anicut system ..	17,466	265	18,381	692	31,774	732
Kurnool	Cumbum tank ..	5,742	88	2,061	28	7,914	..
North Arcot	Cheyyar anicut system ..	12,047	3,184	2,309	851	18,341	236
Chingleput	Do. ..	681	169	131	55	1,036	9
	(Cheyyar anicut system) Total ..	12,728	3,353	2,440	906	19,577	245
Kakulam	Srikakulam minor river system. ..	54,635	2,235	4,942	758	62,770	288
	Total of Productive Works ..	3,687,890	126,163	719,791	26,349	4,870,182	15,077

1 Productive " and " Unproductive " works and the value of crops raised thereon 360 (1950-51).

		Value of crops.							
		Paddy.		Ragi.		Other crops.		Total.	
		Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(15)	(16)
ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
25,882	19,68,580	1	..	615	30,700	25,998	19,99,280	..	..
494,711	61,77,257	836	1,13,051	63,649	62,62,018	559,196	1,25,52,321	..	..
575,223	8,95,33,864	637	84,332	80,955	1,41,67,125	656,815	10,87,84,821	..	..
1,627	1,93,257	103	20,068	992	16,294	2,722	2,29,619	..	..
1,071,561	9,58,68,878	9,076	2,17,451	1,45,596	2,04,45,432	1,214,783	1,88,56,821	..	..
39,613	57,70,072	..	..	3	750	39,616	57,70,832	..	..
402,409	8,69,97,513	..	..	8,009	26,93,637	410,418	8,96,91,150	..	..
392,705	8,52,04,922	1	664	9,763	32,54,038	402,469	8,84,59,586	..	..
834,727	17,79,72,507	..	664	17,775	58,88,895	852,503	18,89,21,558	..	..
98,514	86,72,040	..	..	6,818	44,226	104,832	87,16,266	..	..
136,296	2,42,54,344	..	..	..	..	136,296	2,42,54,344	..	..
5,934	22,53,048	4	1,441	..	..	5,938	22,54,489	..	..
24,966	76,25,068	128	47,705	851	35,686	25,945	77,08,489	..	..
7,701	7,60,900	3,549	2,59,888	18,956	2,08,905	25,205	12,29,093	..	..
14,203	12,93,560	1,146	1,85,640	247	51,600	15,596	15,30,800	..	..
10,755	22,22,146	3,297	5,32,582	2,459	45,024	16,511	27,99,752	..	..
652	1,53,58,691	94	15,846	187	2,600	883	1,53,71,687	..	..
11,407	1,75,75,887	2,891	5,47,928	2,596	47,824	17,393	1,81,62,389	..	..
8,682	17,12,654	1,868	3,01,269	1,892	1,22,100	11,942	21,36,028	..	..
49,920	94,29,086	1,604	2,06,303	647	94,450	46,171	97,28,769	..	..
4,926	9,33,524	198	34,382	210	1,150	5,384	9,09,086	..	..
6,316	1,39,475	90	22,349	1,872	93,600	8,278	2,55,424	..	..
96,751	2,22,78,055	802	67,865	282	16,150	97,788	2,28,61,879	..	..
26,086	5,87,459	129	15,059	1,788	1,29,258	28,003	60,15,776	..	..
122,837	2,81,49,514	981	82,424	2,018	1,46,408	122,786	2,83,77,846	..	..
210,604	3,72,79,344	1,427	1,51,037	18,289	12,35,263	230,320	3,86,52,744	..	..
936,498	10,32,32,906	3,064	6,36,758	25,205	54,74,050	965,862	20,48,93,709	..	..
62,036	1,58,79,271	254	58,886	4,248	10,74,345	66,549	1,70,12,125	..	..
1,209,128	25,18,88,521	5,375	8,96,665	47,743	18,77,358	1,262,231	26,00,58,978	..	..
8,280	10,18,008	225	42,763	..	..	8,505	10,55,766	..	..
65,547	93,08,551	286	1,11,017	12,356	5,01,000	78,189	99,15,998	..	..
125,204	29,70,721	4,421	6,21,306	15,942	2,73,251	145,567	8,86,25,373	..	..
125,204	29,70,721	4,421	6,21,306	15,942	2,73,251	145,567	8,86,25,373	..	..
56,779	61,65,814	76	2,035	3,849	1,67,200	48,204	68,84,546	..	..
59,596	1,05,40,836	217	28,869	680	78,800	31,748	1,06,47,768	..	..
6,532	11,39,318	88	12,754	1,293	32,365	7,918	12,34,233	..	..
14,648	25,11,233	2,337	5,76,859	844	13,595	17,324	31,03,667	..	..
681	1,64,755	68	22,605	67	2,789	1,086	1,92,142	..	..
15,524	26,86,988	2,425	5,99,484	911	15,275	18,860	32,35,839	..	..
53,474	68,62,719	1,305	1,06,254	5,066	96,902	60,345	96,66,875	..	..
3,971,740	67,27,59,078	29,485	46,34,407	281,368	2,62,11,319	4,332,506	71,62,94,799	..	..

E-III.—Statement showing the area irrigated by flow and lift under for fasli

Districts.	Names of systems.	Area actually irrigated.						Both seasons.
		First crop.		Second crop.		Total.		
		Flow.	Lift.	Flow.	Lift.			
		(1)	(2)	(3)	(4)	(5)	(6)	
		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	
2. Unproductive Works.								
Srikakulam	.. Nagavalli river project ..	26,247	152	875	29	27,303	29	
Krishna..	.. Muniyeru anicut system ..	9,364	904	231	1	10,500	1	
Guntur ..	.. Jangamaheswarapuram tank.	242	10	32	..	284	..	
	.. Atmakur tank	426	..	1	..	427	..	
	.. Dondapad tank	406	..	6	..	412	..	
	.. Bhavanasi tank	551	2	2	..	555	..	
Nellore ..	.. Mopad reservoir	10,870	7	498	1	10,876	577	
	.. Hajipuram tank	600	..	3	..	603	1	
	.. Ponnalur tank	710	..	3	..	713	..	
	.. Anamasamudram-Biraperu tank.	824	2	..	..	826	..	
	.. Yerur tank	434	3	..	..	437	..	
Cuddapah	.. Saglieru system	3,265	2	29	..	3,296	71	
	.. Chepaud channel	8,834	783	1,217	41	10,875	857	
	.. Nagavaram anicut and supply channel.	519	10	180	3	712	20	
Kurnool	.. Markapur tank	1,619	9	3	..	1,631	..	
	.. Siddapuram tank	714	..	..	..	714	..	
	.. Venkatapuram tank	311	..	..	..	311	..	
	.. Thippayapalem project ..	436	3	4	..	443	..	
	.. Kurnool-Cuddapah canal ..	41,621	241	10,371	326	52,558	..	
Cuddapah	.. Do.	32,428	386	4,742	255	37,868	..	
	(Kurnool-Cuddapah canal) Total ..	74,099	629	15,113	581	90,423	..	
Bellary	.. Basavanna and Roya channel.	1,078	..	37	..	1,115	..	
Anantapur	.. Yellanur tank	486	..	..	..	486	2	
Salem ..	.. Barur tank	4,218	57	985	13	5,268	60	
Coimbatore	.. Kanniyampalalyam anicut ..	471	..	..	..	471	..	
Chingleput	.. Madras water-supply and irrigation system.	6,508	370	854	4	7,736	7	
	.. Vallur anicut system	2,099	401	..	..	2,500	3	
	.. Palar anicut system	19,581	389	1,750	654	22,324	5	
North Arcot	.. Do.	42,081	2,816	8,000	918	53,815	62	
	(Palar anicut system) Total ..	61,612	3,205	9,750	1,572	76,139	68	
South Arcot ..	.. Pelandora anicut system ..	12,813	443	1,067	253	14,576	18	
	.. Willington reservoir	17,512	43	867	24	18,446	1,90	
	Total of Unproductive Works ..	246,768	7,085	81,767	2,522	288,077	5,07	
	Total of Productive Works ..	3,687,380	126,162	719,791	86,840	4,570,182	108,31	
	Grand total ..	3,934,148	133,197	761,548	88,871	4,858,259	108,39	

NOTE.—(1) The area "under both seasons"
(2) The areas in columns (3) to (6)
(3) Area of "withered crops"

"Productive" and "Unproductive" works and the value of crops raised thereon
1360 (1950-51)—cont.

Value of crops.							
Paddy.		Ragi.		Other crops.		Total.	
Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
26,877	46,40,623	98	18,109	328	4,12,512	27,803	50,70,644
10,381	22,85,150	..	..	169	11,795	10,500	22,96,945
258	45,169	..	..	32	44,000	285	89,169
392	41,700	..	..	85	16,000	427	57,702
399	3,128	12	54	..	..	411	3,180
555	97,214	..	..	2	100	555	97,314
10,576	20,26,888	91	11,302	208	2,999	10,875	20,41,189
547	1,06,491	50	5,854	5	264	602	1,12,609
477	12,202	160	18,600	76	550	713	31,852
782	84,457	47	4,847	..	..	826	89,304
384	77,801	7	1,851	46	24,082	437	1,08,684
2,848	6,43,774	132	16,834	816	21,937	3,296	6,87,345
10,554	26,31,259	321	57,288	..	..	10,875	26,78,547
420	20,141	100	26,955	170	1,900	690	49,026
1,093	3,09,367	326	88,084	..	..	1,419	3,97,401
593	1,02,555	..	..	121	1,760	714	1,04,311
809	48,026	..	..	2	200	311	48,226
318	52,902	48	6,283	77	3,120	443	62,301
84,684	91,11,513	162	25,743	17,764	3,55,280	52,560	94,92,584
25,478	47,67,309	3,339	4,68,504	9,046	4,07,070	37,868	56,42,881
60,112	1,38,78,822	3,601	4,94,247	26,310	7,62,350	90,423	1,51,35,411
329	57,605	1	99	786	8,08,429	1,115	8,66,131
472	70,043	14	3,106	..	..	486	73,141
3,846	9,68,870	562	1,14,877	760	11,40,760	5,168	22,24,507
462	2,14,039	3	1,407	6	1,500	471	2,16,946
5,806	2,80,348	410	52,872	1,520	2,28,250	7,786	5,08,471
2,406	1,68,023	86	14,051	8	1,080	2,500	1,88,154
17,437	26,48,876	2,411	2,23,097	994	59,560	20,842	29,31,583
46,484	80,93,986	5,286	7,98,096	1,605	4,12,650	53,375	92,99,781
63,921	1,07,42,862	7,697	10,16,193	2,599	4,72,210	74,217	1,22,91,251
18,789	22,93,224	647	80,115	140	12,98,700	14,576	36,72,084
16,917	23,68,311	865	1,22,392	664	32,200	18,446	35,17,303
235,766	4,42,10,394	15,175	21,55,200	34,879	52,81,648	235,820	5,16,47,341
3,971,740	67,27,59,073	29,405	43,24,407	281,868	3,62,11,319	4,282,508	71,33,94,781
4,207,506	4,43,14,711	44,580	64,79,607	316,342	4,14,92,967	4,598,823	76,46,42,041

is included under the first and second crops.
includes extent under "withered crops" but exclude "waste charged".
is 339,931 acres.

E-IV.—Comparative statement of irrigation and rainfall in the

Districts.	Total area in acres.	Cultivable area in acres.	Cultivated area in acres.	Works supplying irrigation—Number and name.	Cultivable area commanded by the irrigation works in column (5).
(1)	(2)	(3)	(4)	(5)	(6)
Srikakulam ..	..	..	..	1 Chicacole minor river system 2 Nagavalli river system 3 Minor works	70,000 31,200 ..
Visakhapatnam ..	..	..	..	Minor works	101,200
East Godavari ..	..	..	..	1 Godavari delta system 2 Polavaram island system 3 Minor works	121,767 396,253 94,862
West Godavari ..	..	..	..	1 Godavari delta system 2 Krishna delta system 3 Minor works	565,000 43,129 ..
Krishna ..	..	..	..	1 Krishna delta system 2 Godavari delta system 3 Divi cum Krishna East Bank Canal 4 Muniyuru anicut system 5 Minor works	543,000 .. 80,000 13,024 20,908
Guntur ..	..	..	..	1 Krishna delta system 2 Bhavanasi tank 3 Dondapad tank 4 Atmakur tank 5 Jangamabeswarapuram tank 6 Minor works	357,000 2,448 2,880 1,160 960 26,584
Kurnool ..	..	..	..	1 Kurnool-Cuddapah canal 2 Venkatapuram tank 3 Cumbum tank 4 Markapur tank 5 Siddhapur tank 6 Thippayapalem project 7 Minor works	319,869 1,700 6,000 1,701 4,250 47,146 ..
Belary ..	..	..	..	1 Basavana and Raya channel 2 Minor works	55,406 ..
Anantapur ..	..	..	..	1 Yellanur tank 2 Minor works	1,641 158,233
Cuddapah ..	..	..	..	1 Kurnool-Cuddapah canal 2 Chepaud channel 3 Sagileru system 4 Nagavaram anicut and supply channel 5 Minor works	37,700 4,506 894 894 102,629
Nellore ..	..	..	..	1 Pennar river canal 2 Mopad reservoir 3 Ponnalur tank 4 Anamasamudram and Biraperu tank 5 Yerur tank 6 Hajipuram tank 7 Minor works	190,000 18,890 1,978 1,000 3,176 2,900 136,956
Chingaput ..	..	..	..	1 Palair anicut system 2 Chembarambakkam tank 3 Vallur anicut system 4 Cheyyar anicut system 5 Madras water-supply and irrigation system. Minor works	849,895 24,102 24,478 6,794 540 10,165 ..
Total ..					424,637

Madras State for the revenue year ending with 30th June 1951..

Area at present estimated as annually irrigable by the works specified in column (5).	Revenue year ending with June 1950.			Revenue year ending with June 1951.			Rainfall.	
	Kharif first crop.	Rabi second crop.	Total.	Kharif first crop.	Rabi second crop.	Total.	1949-50.	1950-51.
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	INCHES.	INCHES.
66,800	63,804	5,118	68,922	56,870	5,900	62,770	..	..
27,500	26,428	1,721	28,149	26,399	904	27,303	..	..
..	..	..	..	67,780	8,101	75,881	..	..
94,300	90,232	6,839	97,071	151,049	14,905	165,954	..	..
121,767*	121,215*	15,548*	136,763*	51,073	5,315	56,388	50.8	32.94
377,000	402,400	152,868	555,498	404,501	154,695	559,196	..	14.22
17,500	16,336	6,668	23,004	17,566	5,432	24,998	..	..
94,862	100,809	12,593	113,402	99,132	12,190	111,322	..	..
489,362	519,745	172,159	691,904	521,199	175,317	696,516	55.3	46.35
414,500	405,757	215,031	680,788	465,641	215,299	680,940	..	..
43,129	39,666	208	39,874	37,893	1,723	39,616	..	..
457,629	563,956	3,193	61,728	59,494	2,672	62,166	..	..
445,300	543,024	218,432	782,388	563,028	219,694	782,722	53.6	44.20
42,000	2,076	191	2,267	512,855	12,977	555,832	..	..
10,000	77,264	218	77,482	1,375	818	2,723	..	..
20,908	10,166	17	10,183	104,650	182	104,832	..	..
518,208	26,033	75	26,108	10,268	232	10,500	..	..
330,000	658,563	13,229	671,792	26,373	106	26,479	..	..
841	14,524	5	428,923	686,021	14,345	700,365	35.9	15.16
250	414,399	141	403,808	6,802	2	410,580	..	..
460	894	1	699	563	2	555	..	..
290	468	1	609	406	6	412	..	..
26,534	431	1	432	436	1	427	..	..
358,375	230	22	252	252	82	284	..	..
443,888	1,777	..	29,443	25,139	1,867	26,006	..	..
108,743	16,470	..	460,358	430,584	7,710	438,294	43.6	25.09
840	49,108	..	41,862	10,698	..	52,560	..	..
5,980	308	..	311	2,034	..	7,914	..	..
1,533	5,709	..	11,352	5,830	..	1,681	..	..
3,730	1,238	..	2,841	1,628	3	714	..	..
47,146	18	..	1,200	439	4	443	..	..
162,522	49,950	9,410	59,360	45,926	4,938	50,864	..	..
55,406	27,448	..	125,455	96,710	17,727	114,437	29.4	18.54
55,406	11,245	..	89,768	1,078	37	1,115	..	..
925	81,338	..	89,542	18,737	..	57,201	..	..
153,233	42,588	..	52,278	89,542	18,774	58,816	22.8	29.95
154,158	9,695	..	486	47,390	..	172,778	..	..
19,676	397	..	397	47,390	..	17,274	24.9	17.65
4,506	183,357	..	181,807	125,398	4,997	37,863	..	..
894	47,950	..	83,379	32,866	1,268	10,875	..	..
102,629	81,744	..	10,881	8,617	29	3,296	..	..
127,899	4,127	..	6,727	3,267	188	712	..	..
162,500	362	..	938	90,052	18,480	108,482	..	..
12,500	93,172	..	118,494	24,897	161,223	161,223	31.8	19.61
1,000	189,401	..	172,113	136,331	..	..	..	..
1,000	161,879	..	15,082	176,561	4,147	187,896	..	..
1,470	8,022	..	1,087	9,109	699	10,876	..	..
1,790	806	..	176	982	710	713	..	..
180,956	969	..	176	826	..	826	..	..
313,136	160	..	1,669	600	8	608	..	..
34,108	890	..	770	132,118	8,783	140,851	..	..
22,000	131,174	..	10,903	142,077	13,385	321,648	29.0	29.67
5,216	303,900	..	28,015	381,985	2,404	22,324	..	..
494	34,701	..	3,760	23,461	10,920	15,645	..	..
9,852	14,713	..	1,510	16,223	1,489	2,700	..	..
355,578	5,216	..	5,216	2,500	186	1,086	..	..
443,343	6,854	..	6,854	6,878	853	7,738	..	..
301,313	69,587	..	368,799	263,172	74,545	337,717	..	..
64,323	64,323	..	415,301	307,476	79,432	386,908	37.5	59.25

* Includes Srikakulam also.

E.IV.—Comparative statement of irrigation and rainfall in the

Districts.	Total area in acres.	Cultivable area in acres.	Cultivated area in acres.	Works supplying irrigation— Number and name.	Cultivable area com- manded by the irrigation works in column (5).
(1)	(2)	(3)	(4)	(5)	(6)
					ACS.
South Arcot	..	..	..	1 Lower Coleroon anicut system	86,000
				2 Shatlatope anicut system	43,965
				3 Vriddhachalam anicut system	16,359
				4 Mehamattur anicut system	10,851
				5 Tirukkoyilur anicut system	45,977
				6 Pelandoral anicut system	16,677
				7 Willingdon reservoir	28,800
				8 Minor works	800,198
				Total	548,627
North Arcot	..	..	..	1 Palar anicut system	80,980
				2 Cheyyar anicut system	28,921
				3 Polney anicut system	23,824
				4 Minor works	231,647
				Total	865,322
Chittoor	..	..	..	1 Polney anicut system	118,908
				2 Minor works	118,908
				Total	118,908
Salem	..	..	..	1 Barur tank	6,887
				2 Minor works	105,998
				Total	112,885
Coimbatore	..	..	..	1 Tadepalle channel	16,000
				2 Arakkankottai channel	6,000
				3 Kallangarayan channel	15,000
				4 Kaniyampalayam anicut system	1,600
				5 Minor works	72,862
				Total	111,462
Tiruchirappalli	..	..	..	1 Cauvery delta system	44,667
				2 Nandiyar channel system	9,480
				3 Kattalai scheme	40,000
				4 Minor works	120,808
				Total	214,955
Tanjore	..	..	..	1 Cauvery delta system	864,367
				2 Lower Coleroon anicut system	31,288
				3 Cauvery-Mettur project	528,487
				4 Minor works	65,961
				Total	1,490,048
Madurai	..	..	..	1 Periyar system	181,046
				2 Minor works	181,046
				Total	181,046
Ramanathapuram	..	..	..	1 Periyar system	38,362
				2 Minor works	38,362
				Total	38,362
Tirunelveli	..	..	..	1 Srivalkuntam anicut system	38,500
				2 Marudur anicut system	17,920
				3 Minor works	187,167
				Total	238,587
				Total of productive and unproductive works	4,738,167
				Total of minor works	2,528,598
				Grand total	7,266,765

Madras State for the revenue year ending with 30th June 1951—cont.

Area at present estimated as annually irrigable by the work specified in column (5).	Area irrigated in acres.						Rainfall.	
	Revenue year ending with June 1950.			Revenue year ending with June 1951.			1949-50.	1950-51.
	Kharif first crop.	Rabi second crop.	Total.	Kharif first crop.	Rabi second crop.	Total.	1949-50.	1950-51.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	INCHES.	INCHES.
84,244	89,808	8,480	97,788	88,808	8,480	97,288		
32,000	33,792	12,028	45,820	33,353	12,318	45,671		
8,829	10,311	1,016	11,327	7,386	892	8,278		
5,000	5,077	557	5,634	4,884	450	5,334		
28,000	27,081	4,478	31,559	34,512	5,482	39,994		
12,837	18,269	1,349	14,618	13,256	1,820	14,576		
25,000	18,872	1,808	20,176	17,555	891	18,446		
800,198	268,909	64,361	328,270	255,907	60,104	316,011		
496,108	461,564	93,572	555,136	456,156	89,937	546,093	31.5	30.00
54,566	18,789	16,189	64,978	44,998	8,917	53,815		
22,193	18,564	7,207	25,563	15,181	3,160	18,341		
22,462	18,806	5,787	24,623	12,944	3,566	16,510		
231,647	185,481	55,837	241,818	160,808	29,199	189,507		
330,868	271,362	85,120	356,482	233,881	44,842	278,173	37.5	29.08
118,908	1,469	877	1,846	851	82	883		
118,908	101,105	85,514	186,619	572,431	19,248	591,674		
118,908	102,574	85,891	188,465	573,282	19,275	592,557	35.6	22.79
3,750	4,339	1,695	6,084	4,270	998	5,268		
105,998	98,399	37,445	1,33,944	91,006	26,061	117,067		
109,748	100,738	39,140	1,39,878	95,276	27,059	122,335	34.3	24.75
15,400	18,724	11,656	30,380	17,367	8,578	25,945		
4,845	4,891	2,467	7,358	4,862	1,076	5,938		
12,239	12,641	18,180	28,801	12,812	12,393	25,205		
213	436	2	488			471		
72,862	69,803	27,811	96,614	68,188	23,143	91,331		
105,559	105,995	54,596	1,63,591	103,699	45,190	148,889	26.4	16.65
44,008	49,625	30,691	80,316	41,648	24,921	66,569		
7,084	7,337	2,584	9,921	6,761	2,252	9,013		
36,623	56,373	24,027	80,400	54,757	23,482	78,189		
120,808	2,03,286	59,254	262,540	198,266	48,777	247,043		
208,023	3,16,621	116,556	433,177	301,432	99,382	400,814	38.1	25.75
856,918	8,42,986	116,554	959,540	851,630	118,737	965,367		
28,695	23,926	1,803	25,229	25,164	2,838	28,002		
177,000	2,08,617	88,860	242,377	2,00,787	23,782	230,469		
65,961	31,881	6,066	87,897	38,195	4,006	87,201		
1,128,564	1,102,260	162,783	1,265,043	1,110,726	150,318	1,261,089	35.2	35.75
148,000	185,896	60,185	195,575	136,480	56,815	193,295		
131,046	118,563	40,928	159,491	122,066	29,851	151,917		
274,046	2,58,953	101,118	3,55,066	2,58,546	86,666	345,212	29.4	25.72
38,362	27,896	6,830	34,726	25,956	6,415	32,371		
38,362	127,896	6,830	34,726	25,956	6,415	32,371	32.5	17.12
35,685	24,947	18,115	43,062	25,976	17,228	43,204		
17,920	17,761	15,478	33,289	17,751	14,023	31,774		
187,167	1,63,540	82,496	246,036	171,909	86,271	257,180	20.0	18.39
230,772	2,06,945	116,089	322,337	215,686	116,522	282,158	50.3	32.94
5,774,147	3,084,531	793,084	4,777,665	4,067,840	790,419	4,858,254		
2,528,595	2,200,932	559,542	2,789,474	2,723,553	534,694	3,257,447		
6,302,742	6,185,513	1,352,626	7,538,139	6,791,193	1,324,513	8,115,706	25.4	25.39

Description of crop.	Godavari and Krishna canals.	Muniyem project.	Pertiyar system.	Bhavani tank.	Venkata- puram tank.	Mopad reservoir.	Willing- don reservoir.	Panja- pati reservoir.	Siddapur tank.	Other systems (in tracts where the differential water-rate system does not prevail). †
(1)	(2) RS. A.	(3) RS. A.	(4) RS. A.	(5) RS. A.	(6) RS. A.	(7) RS. A.	(8) RS. A.	(9) RS. A.	(10) RS. A.	(11)
a wet crop	6 4	6 4	5 0	9 6	4 3	7 13	6 4	6 4	6 0	..
b Second year crop	3 2	3 2	3 0	4 11	2 1	3 15	3 2	3 2	3 0	..
c Second wet crop (if compounded for two crops for a term of not less than five years)	10 3	..	..	..	..	..	..	..	..	..
d Second dry crop on irrigated land except where the landholder has compounded for two crops for a term of not less than five years	3 2	3 2	..	..	..	..	..	..	..	..
e For sugarcane, betel and other garden produce remaining on the ground for the time of two crops	9 6	9 6	8 0	14 1	6 4	11 12	9 6	..	9 0	..
f For sugarcane, betel and other garden produce remaining on the ground for the time of two crops, if compounded for a term of not less than five years	10 3	..	..	..	..	..	..	..	..	..
g For a dry crop, whether first or second grown on land for which irrigation has never been supplied or having been so supplied has been since discontinued	3 2	..	..	4 11	2 1	3 15	..	..	..	..
h For a third irrigated crop (wet)	3 8	3 2	2 0	..	..	..	..	..	..	..
i Do. (dry)	1 4	3 2	1 0	..	..	..	..	..	..	..
j Dry crop systematically irrigated	6 4	4 11	..	..	..	..	..	..	..	..
k Second wet crop in the case of zamindari and inam lands	6 4	3 2	..	..	..	..	..	..	..	..
l Second wet crop in the case of zamindari and inam lands where the cultivator has compounded for two crops for a term of not less than five years	10 3	..	..	..	..	..	..	..	..	..
m For sugarcane, betel and other garden produce in zamindari and inam lands remaining on the ground for the time of two crops	12 8	9 6	..	..	..	..	..	..	..	..
n For sugarcane, betel and other garden produce in zamindari and inam lands remaining on the ground for the time of two crops, if the cultivator has compounded for a term of not less than five years	10 3	..	..	..	..	..	..	..	..	..
o For a first dry crop systematically irrigated	..	..	5 0	..	..	..	..	..	..	..
p For a second dry crop systematically irrigated	..	..	3 0	..	..	..	..	..	..	..
q For a first or second dry crop occasionally irrigated	..	..	2 3	..	..	..	..	..	..	..

16 Special crops—Onions, sweet potatoes, chilies, tobacco (the same as for a dry crop systematically irrigated)
 17 Mango topos, coconut topos and other tope plantations—
 (a) If they take water for term of two wet crops
 (b) In other cases

(7) All Village Councils

† Standard scale of water-cess has been ordered to be adopted until further orders—*Vide* G.O. Ms. No. 1277, Revenue, dated 29th June 1934.

First crop on dry land.	Second crop on dry land.	Charge for	Total charge.
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

	First crop on dry land.		Second crop on dry land.		Charge for		Total charge.
	1st.	2nd.	1st.	2nd.	1st.	2nd.	
1 Wet	..	..	..	..	RS.	RS. A.	33. A.
2 Do.	..	..	..	..	..	2 0	5 0
3 Do.	..	..	..	..	..	1 8	5 3
4 Dry, systematically irrigated	..	..	..	..	..	1 0	5 0
5 Do.	..	..	..	..	..	3 2	5 3
6 Do.	..	..	..	..	..	2 0	5 3
7 Dry, occasionally irrigated	..	..	..	..	..	1 8	4 1
8 Do.	..	..	..	..	..	3 0	5 1
9 Do.	..	..	..	..	..	2 3	4 3

N.B.—The rates fixed in the Tanjore District Cauvery Water-cess Rules are not incorporated in this statement.

APPENDIX II.

I

Statement showing the financial result of irrigation under Productive and Unproductive Systems for fasli 1360 (1950-51).

Systems.	Area charged as irrigated and area irrigated free of charge.				Direct receipts.	
	First crop.		Second crop.		Total land and irrigation revenue.	Share due to irrigation.
	Old irrigation.	New irrigation.	Total.	Old irrigation.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Productive works.						
1 Godavari Delta system	156,150	776,374	932,524	..	381,590	65,78,094
2 Krishna delta system	70,710	1,018,694	1,089,404	..	28,188	61,00,840
3 Devi canal Krishna East Bank canal	9,900	99,483	109,383	..	820	6,81,032
4 Purna river canal system	99,080	73,165	172,245	1,050	3,425	8,75,939
5 Purna river canal system	2,780	2,144	4,924	10	1,070	45,636
6 Tadapalle channel	9,990	7,477	17,467	170	8,408	1,91,543
7 Kalligavayam channel	8,300	4,023	12,323	8,350	4,043	1,71,524
8 Chembarambakkam tank	11,370	3,782	15,152	1,160	328	61,170
9 Ponnaiy channel	15,550	311	15,861	2,500	1,098	95,341
10 Cheyyar ancient system	14,900	2,878	17,778	1,630	1,716	1,07,751
11 Thirukottiyur ancient system	16,080	19,386	35,466	30	5,504	1,78,846
12 Shattisrpe ancient system	7,100	27,968	35,118	..	12,318	2,02,577
13 Mahamettur ancient system	990	3,990	4,980	..	450	26,295
14 Vriddhachalam ancient system	2,490	8,421	10,911	..	892	36,363
15 Lower Ootacam ancient system	44,760	71,489	116,249	170	11,172	6,39,924
16 Quarry delta system	743,647	180,951	924,598	33,919	106,680	53,22,851
17 Nandiyar channel system	4,680	2,322	7,002	1,570	682	32,440
18 Pertyar system	65,000	79,545	144,545	16,100	41,811	11,80,116
19 Srivallur ancient system	14,580	13,095	27,675	5,850	11,434	2,48,356
20 Marudhar ancient system	17,020	1,321	18,341	590	13,566	2,13,838
21 Omban tank	4,860	1,038	5,898	2,670	—	38,588
22 Kattalai scheme	27,860	28,107	55,967	8,250	23,567	5,16,221
23 Pukavaram Island Project	..	17,821	17,821	..	8,432	1,56,178
24 Quarry-Mettur Project	69,267	169,432	238,699	1,730	30,686	18,80,047
25 Sriharsham minor river system	51,260	20,077	71,337	..	6,090	1,72,620
Total ..	1,468,914	2,633,884	4,102,798	85,749	694,133	2,57,48,900

II. Unproductive works.

26 Willingdon reservoir	2,509	15,222	17,722	260	631	1,19,353
27 Nagavalli river system	10,400	17,869	28,469	5,200	(-) 4,233	1,53,683
28 Muniyur ancient system	600	9,893	10,493	..	232	72,503
29 Jangamabharavapuram tank	150	126	276	7	25	1,334
30 Attakur tank	..	476	470	..	1	2,571
31 Doodapad tank	..	420	420	..	6	1,975
32 Bhavanesi tank	..	612	612	..	2	5,212
33 Mopad reservoir	..	10,643	10,643	..	560	83,821
34 Hajipuram tank	..	654	654	..	3	3,322
35 Ponnalur tank	..	764	764	..	3	4,970
36 Anamasandam-Hirapur tank	..	(-) 44	856	80	(-) 80	4,829
37 Yerur tank	900	685	765	..	..	4,990
38 Sagluru system	80	7	3,807	700	(-) 671	19,378
39 Markapur tank	450	1,191	1,641	50	(-) 47	8,482
40 Yellatur tank	..	561	561	..	..	2,817
41 Melbhar tank	..	714	714	..	..	5,569
42 Nagavaram sput and supply channel	452	134	586	285	(-) 52	3,222
43 Venkatasapuram tank	..	318	318	..	..	3,011
44 Kurnool-Chudupah canal	6,643	70,612	77,255	..	15,703	4,05,576
45 Doodapad channel	1,406	8,725	10,131	56	1,260	60,147
46 Barur tank	1,760	2,859	4,619	540	458	31,322
47 Kanniyampalayam ancient	..	471	471	..	..	3,539
48 Madras water-supply and irrigation system	5,630	2,021	7,651	780	195	33,323
49 Vallur ancient system	4,080	717	4,747	10	733	24,127
50 Palur ancient system	53,890	18,412	72,302	16,070	743	12,198
51 Pelsandur ancient	2,120	11,402	13,522	100	(-) 2,677	4,64,754
52 Tippayapalem project	..	644	644	..	1,220	88,345
53 Masavenna channel	..	1,082	1,082	..	4	4,505
Total ..	94,311	177,184	271,905	24,088	37	16,582
Total of productive works	1,468,914	2,633,884	4,102,798	85,749	13,313	16,60,446
Total of unproductive works	94,311	177,184	271,905	24,088	684,133	3,09,72,110
Grand total of productive and unproductive works	1,563,225	2,811,068	4,374,703	109,837	707,446	2,57,48,900
Grand total of revenue due to old and new irrigation under the Cauvery Delta System fixed by the Accountant-General with reference to G.O. No. 768, Irrigation, dated 25th March 1936, is shown below :-						
	Classification of works.	Direct receipts.	Indirect receipts.	Total.		
Old New Improvements		Rs. Rs.	Rs. Rs.	Rs.		
		35,99,393	1,12,921	37,12,314		
		17,01,476	53,381	17,54,857		
	Total ..	53,00,769	1,66,302	54,67,071		

II

Serial number and systems.	Net receipts, direct and indirect.				Gross indirect receipts.		
	Average for five years 1948-49.	Actuals, 1949-50.	1950-51.		Actuals, 1949-50.	1950-51.	
			Revised estimates.	Actuals.		Revised estimates.	Actuals.
(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
I. Productive works.							
1 Godavari delta system..	52,50,628	43,77,417	50,94,000	45,64,362	2,30,733	2,30,733	2,30,733
2 Krishna delta system ..	51,52,730	45,42,745	50,59,000	51,10,560	1,92,210	1,92,210	1,92,210
3 Divi cum Krishna East Bank canal.	6,06,639	6,62,709	6,17,000	6,78,328	87,205	87,205	87,205
4 Pennar river canals system.	4,72,893	6,71,711	6,71,000	6,41,706	73,367	73,367	73,367
5 Arakkankottai channel..	25,194	31,793	38,000	24,364	428	428	428
6 Tadepalle channel ..	1,02,386	1,27,594	1,38,000	1,15,215	2,929	2,929	2,929
7 Kalingarayan channel.	47,188	81,932	82,000	80,949	483	483	483
8 Chembarambakkam tank.	34,924	— 9,670	9,000	— 13,464	957	957	957
9 Polney anicut system ..	46,309	58,075	— 1,000	20,799	5,488	5,488	5,488
10 Cheyyar anicut system ..	57,439	15,431	12,000	— 25,115	4,735	4,735	4,735
11 Tirukkoyilur anicut system.	68,156	50,051	55,000	87,479	3,369	3,369	3,369
12 Shatlatope anicut system.	1,65,726	1,83,785	1,81,000	1,85,340	17,031	17,031	17,031
13 Mahamattur anicut sys- tem.	16,523	16,747	17,000	16,569	196	193	196
14 Vriddhachalam anicut system.	23,377	30,721	23,000	34,513	339	339	339
15 Lower Coleroon anicut system.	4,63,300	5,04,192	4,62,000	5,07,820	51,549	51,549	51,549
16 Cauvery delta system ..	19,31,462	19,66,055	19,52,000	19,74,732	1,66,301	1,66,302	1,66,302
17 Nandiyar channel system.	15,901	15,681	19,000	14,447	250	250	250
18 Periyar system ..	9,18,239	9,68,035	9,56,000	9,90,973	94,863	94,863	94,863
19 Srivaikuntam anicut system.	85,701	1,54,250	1,47,000	1,59,349	1,490	1,490	1,490
20 Marudur anicut system.	71,476	91,337	89,000	93,745	279	279	279
21 Cumbum tank ..	9,203	14,448	9,000	7,238	472	472	472
22 Kattalai scheme ..	1,75,857	3,27,175	5,01,000	2,47,948	121	121	121
23 Polavaram island project.	1,29,390	1,39,441	1,15,000	1,45,579	..	..	..
24 Cauvery-Mettur project.	15,34,444	16,44,033	16,54,000	16,97,031	30,716	31,086	31,086
25 Srikakulam minor river system.	86,564	51,124	65,000	75,429	7,874	7,874	7,874

II. Unproductive works.

26 Willingdon reservoir ..	1,26,184	93,419	1,10,000	87,254	448	448	448
27 Nagavalli river system.	97,440	97,361	99,000	1,04,038	21,804	21,804	21,804
28 Muniyeru anicut system.	47,245	51,196	50,000	51,303	62	62	62
29 Jangamaheswarapuram tank.	658	673	1,000	784	..	..	..
30 Atmakur tank ..	1,907	1,974	2,000	1,761	..	..	..
31 Dondapad tank ..	2,368	2,407	2,000	47	10	10	10
32 Bhavanasi tank ..	4,903	5,782	6,000	4,951	..	..	..
33 Mopad reservoir ..	47,663	66,689	55,000	84,356	5,170	5,170	5,170
34 Hajipuram tank ..	3,851	5,715	4,000	708	70	70	70
35 Ponnalur tank ..	4,574	5,257	4,000	3,477	..	..	..
36 Anamasamudram-Biraperu tank.	654	612	..	— 2,340	1	1	1
37 Yerur tank ..	1,240	85	..	28	86	86	86
38 Saxileru system ..	— 1,547	7,894	4,000	— 10,857	26	26	26
39 Markapur tank ..	7,275	9,965	8,000	5,218	1	1	1
40 Yellanur tank ..	3,041	3,348	3,000	3,020	1,104	1,104	1,104
41 Siddhapur tank ..	7,841	8,750	9,000	5,291	..	..	..
42 Nagavaram anicut and supply channel.	2,197	2,939	3,000	1,925	1,017	1,017	1,017
43 Venkatapuram tank ..	3,476	2,696	3,000	2,376	..	..	..
44 Kurnool-Cuddapah canal.	3,15,847	3,39,676	3,39,000	3,60,829	2,723	2,723	2,723
45 Chaped channel ..	43,924	43,866	43,000	43,003	554	554	554
46 Barur tank ..	19,319	19,767	21,000	19,751	787	787	787
47 Kanniyampalayam anicut.	2,662	3,514	4,000	3,362	..	..	..
48 Madras water-supply and irrigation system.	12,934	4,020	5,000	3,766	462	462	462
49 Vallur anicut system ..	313	— 4,013	— 3,000	1,169	1,074	1,074	1,074
50 Palar anicut system ..	1,53,963	1,12,721	24,000	23,863	16,852	16,852	16,852
51 Polandoral anicut system.	57,224	51,369	54,000	51,698	86	86	86
52 Tippayapalem project ..	4,493	6,445	4,000	4,040	..	..	..
53 Beemvanna channel ..	7,306	1,07,499	99,000	15,832	..	..	..

APPENDIX III.

Statement showing the extent irrigated and the revenue derived under "Minor Works" in fasli 1360 (1950-51).

Districts.	Area irrigated and charged and area irrigated free of charge.		Total land and irrigation revenue.	Share due to irrigation.	Deduct remissions and deductions.	Net revenue due to irrigation.
	First crop.	Second crop.				
	(1)	(2)	(3)	(4)	(5)	(6)
Works in charge of the Revenue Department.						
	ACS.	ACS.	RS.	RS.	RS.	RS.
Visakhapatnam ..	25,071	883	1,86,790	1,54,328	26,004	1,28,324
East Godavari ..	61,438	7,055	3,12,505	2,44,570	4,347	2,40,223
West Godavari ..	38,702	1,397	1,40,013	1,24,062	11,775	1,12,287
Krishna ..	25,676	316	1,57,165	1,37,368	21,142	1,16,226
Guntur ..	29,502	732	1,54,661	1,21,863	32,099	89,564
Nellore ..	87,301	4,759	4,61,193	3,90,230	1,00,101	2,90,129
Cuddapah ..	71,725	12,067	3,27,380	2,74,710	76,484	1,98,226
Anantapur ..	123,246	31,052	5,16,544	4,48,907	1,07,991	3,40,916
Bellary ..	18,285	4,060	89,743	79,317	7,095	72,222
Kurnool ..	43,867	4,521	1,67,991	1,41,515	24,728	1,17,237
Chittoor ..	91,114	16,850	5,15,380	4,11,841	2,33,100	1,78,741
Chingleput ..	172,144	24,409	7,27,703	5,14,627	2,91,071	2,23,556
North Arcot ..	133,955	23,731	9,33,283	6,83,224	5,84,741	98,483
South Arcot ..	211,318	43,346	13,55,421	9,71,467	5,53,977	4,17,490
Tanjore ..	31,859	2,769	1,12,832	88,493	13,572	74,921
Tiruchirappalli ..	153,546	27,522	8,75,595	6,85,381	2,04,687	4,80,694
Madurai ..	144,953	24,523	6,28,051	5,07,975	1,46,401	3,61,574
Ramanathapuram ..	19,400	5,149	1,22,722	1,01,835	82,639	19,196
Tirunelveli ..	92,725	36,525	5,77,650	4,96,362	86,940	4,09,422
Coimbatore ..	43,574	13,339	2,57,733	2,16,141	9,877	2,06,264
Salem ..	81,643	21,036	4,82,439	3,62,671	79,664	2,83,007
Srikakulam ..	51,150	5,233	1,63,977	1,10,090	6,301	1,03,789
Total of Minor Works — Revenue Department.	1,757,199	313,286	90,49,771	72,67,277	27,04,786	45,62,491
Works in charge of the Public Works Department.						
Visakhapatnam ..	35,842	4,060	1,75,676	1,19,650	56,594	63,606
East Godavari ..	36,088	5,140	2,07,156	1,64,788	349	1,64,439
West Godavari ..	26,356	1,288	1,06,382	90,989	12,850	78,139
Krishna ..	1,745	59	8,624	7,067	12	7,055
Guntur ..	2,420	39	14,285	12,228	2,113	10,115
Nellore ..	52,433	3,403	3,11,839	2,66,010	38,729	2,27,281
Cuddapah ..	23,601	8,467	1,54,716	1,32,989	21,104	1,11,885
Anantapur ..	36,833	12,629	2,05,950	1,80,380	31,757	1,48,623
Bellary ..	30,880	14,677	2,60,337	2,33,995	8,911	2,25,084
Kurnool ..	7,547	417	42,002	30,632	6,098	24,584
Chittoor ..	12,594	2,394	82,356	66,219	35,622	30,597
Chingleput ..	100,591	24,397	7,37,023	5,20,215	2,89,101	2,31,114
North Arcot ..	49,086	6,395	3,01,375	2,12,016	2,03,157	8,859
South Arcot ..	74,645	18,046	5,14,069	3,70,687	1,42,816	2,27,871
Tanjore ..	10,431	1,530	37,322	28,592	4,037	24,555
Tiruchirappalli ..	42,815	13,670	3,25,840	2,63,022	5,553	2,57,469
Madurai ..	22,320	4,549	1,46,772	1,18,980	8,775	1,10,207
Ramanathapuram ..	9,160	1,269	1,08,312	93,385	74,393	18,992
Tirunelveli ..	91,393	43,746	9,69,383	8,13,784	64,796	7,48,988
Coimbatore ..	34,053	8,700	2,62,200	2,20,344	11,531	2,09,313
Salem ..	26,255	5,996	2,08,603	1,55,519	24,168	1,31,351
Srikakulam ..	23,324	3,373	1,00,011	61,408	6,200	55,208
Total of Minor Works — Public Works Department.	820,912	193,249	52,82,743	41,63,449	10,43,666	31,14,733
Total of Minor Works — Revenue Department.	1,757,199	313,286	90,49,771	72,67,277	27,04,786	45,62,491
Grand total of Minor	2,578,111	506,535	1,46,02,514	1,14,30,726	37,53,452	76,77,274

Statement showing the number of wells used for irrigation in fasli 1360—Parts I and II.

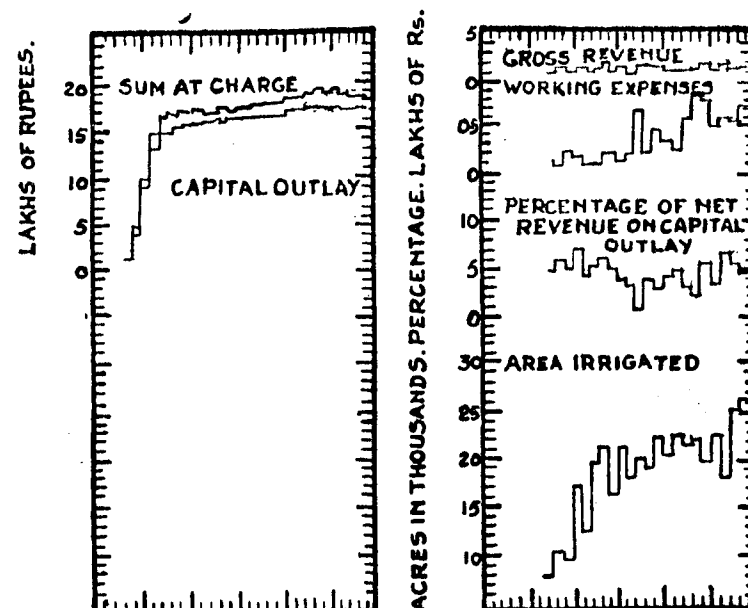
Wells which lie in the wet ayacuts of recognized source of irrigation.

Name of district.	Wells in actual use.		Number of wells in working order but not used.	Number of abandoned wells.	Total number of wells in columns (2), (4) and (5).
	Number.	Area irrigated in acres.			
(1)	(2)	(3)	(4)	(5)	(6)
Visakhapatnam ..	5,269	7,842	1,435	545	7,249
Srikakulam ..	..	..	..	..	..
East Godavari ..	79	328	..	..	79
West Godavari ..	..	33	..	..	..
Krishna ..	258	272	11	5	274
Guntur ..	1,194	1,600	209	79	1,482
Nellore ..	2,705	8,248	127	219	3,051
Cuddapah ..	11,860	6,594	..	1,051	12,911
Anantapur ..	7,445	7,414	2,310	876	10,631
Bellary ..	481	2,443	272	128	881
Kurnool ..	440	8	13	32	485
Chingleput ..	29,200	52,692	1,920	1,543	32,663
Chittoor ..	39,555	62,455	2,283	4,731	46,569
North Arcot ..	70,759	50,991	8,117	5,619	84,495
South Arcot ..	59,847	93,330	1,796	2,612	64,249
Tanjore ..	7,626	982	8	19	7,653
Tiruchirappalli ..	26,444	16,963	12,194	2,689	41,327
Madurai ..	11,734	17,130	1,306	1,074	14,114
Ramanathapuram ..	10,136	26,678	669	395	11,200
Tirunelveli ..	8,453	16,602	6,332	436	15,221
Coimbatore ..	2,908	13,624	493	374	3,775
Salem ..	24,374	52,058	1,158	1,870	27,402
Total ..	320,768	438,292	40,647	24,297	385,712

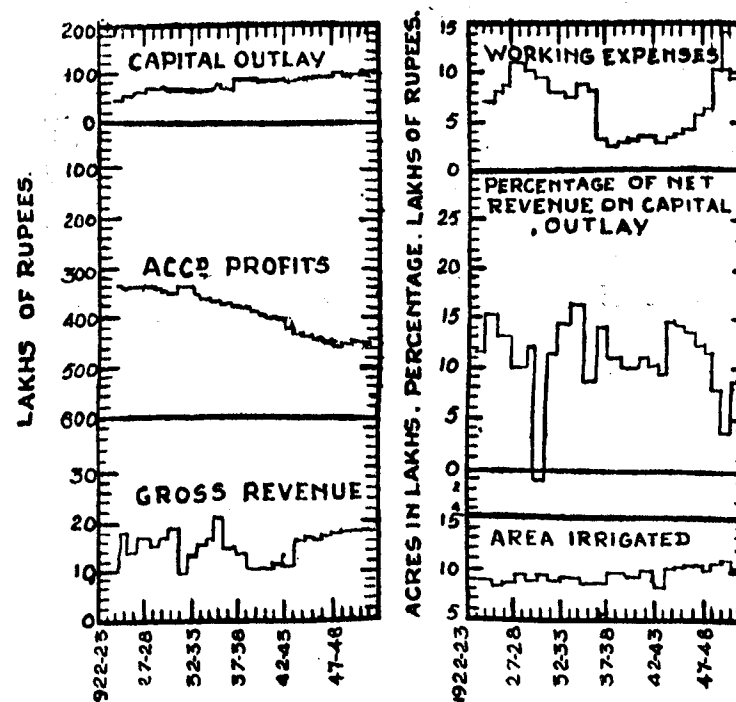
Wells which have independent ayacuts of their own.

Visakhapatnam ..	..	..	..	..	..
Srikakulam ..	..	..	..	..	..
East Godavari ..	192	349	45	53	290
West Godavari ..	43	387	..	..	43
Krishna ..	1,075	1,806	392	102	1,569
Guntur ..	4,101	15,682	884	709	5,694
Nellore ..	13,687	112,316	321	729	14,737
Cuddapah ..	12,313	110,846	..	745	13,058
Anantapur ..	18,484	65,686	2,115	2,992	23,591
Bellary ..	4,695	9,853	634	1,059	6,388
Kurnool ..	6,607	17,604	55	120	6,782
Chingleput ..	18,077	3,289	930	857	19,804
Chittoor ..	17,332	30,290	536	872	18,740
North Arcot ..	76,579	134,388	14,218	6,747	97,544
South Arcot ..	..	..	..	..	..
Tanjore ..	3,607	2,242	56	23	3,686
Tiruchirappalli ..	80,002	88,615	5,421	4,403	89,826
Madurai ..	47,350	149,759	859	3,615	51,824
Ramanathapuram ..	20,858	38,828	77	953	21,888
Tirunelveli ..	31,809	62,532	7,432	1,820	41,061
Coimbatore ..	104,996	263,621	596	6,495	112,087
Salem ..	21,013	52,508	9,541	3,005	33,559
Total ..	482,820	1,142,997	44,112	35,299	562,231

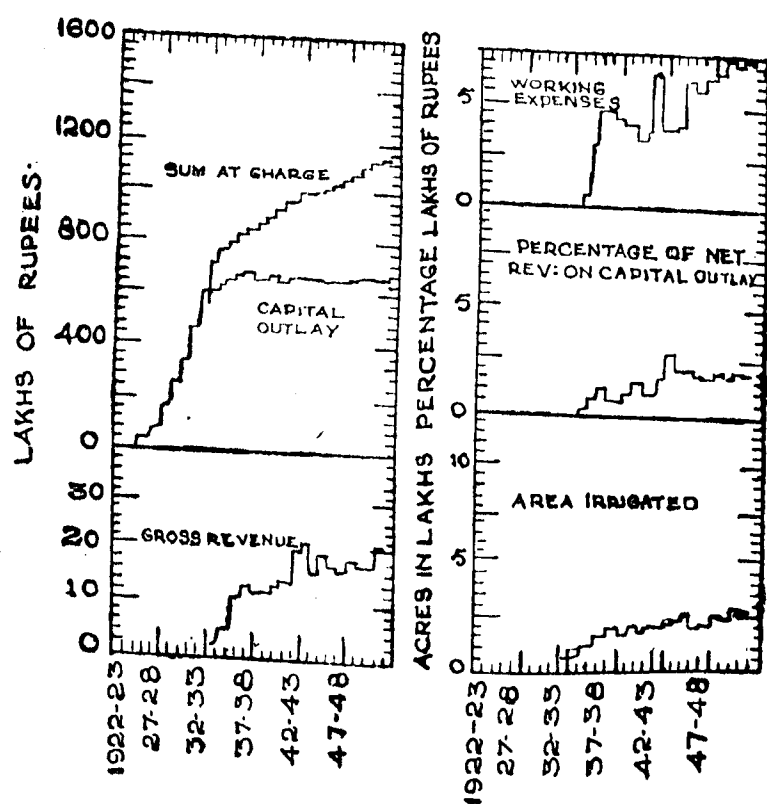
FINANCIAL RECORD POLAVARAM ISLAND PROJECT



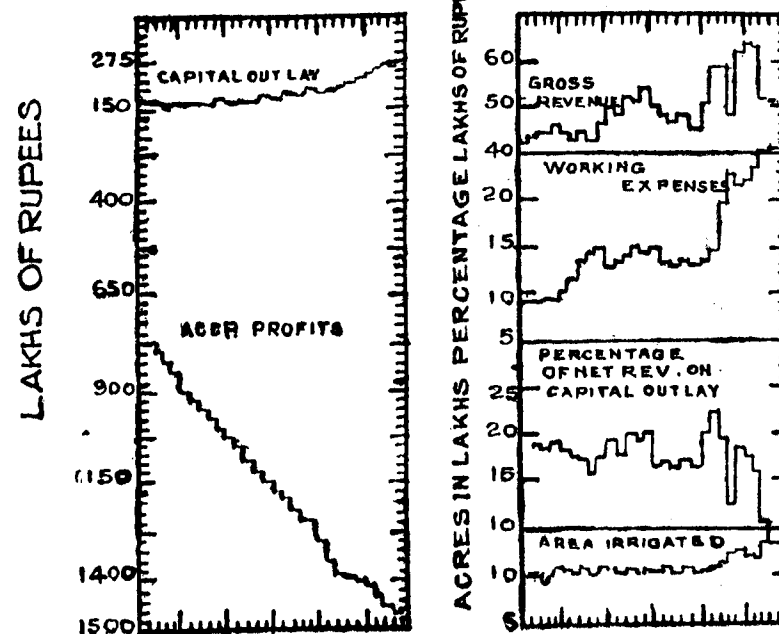
CAUVERY DELTA SYSTEM.



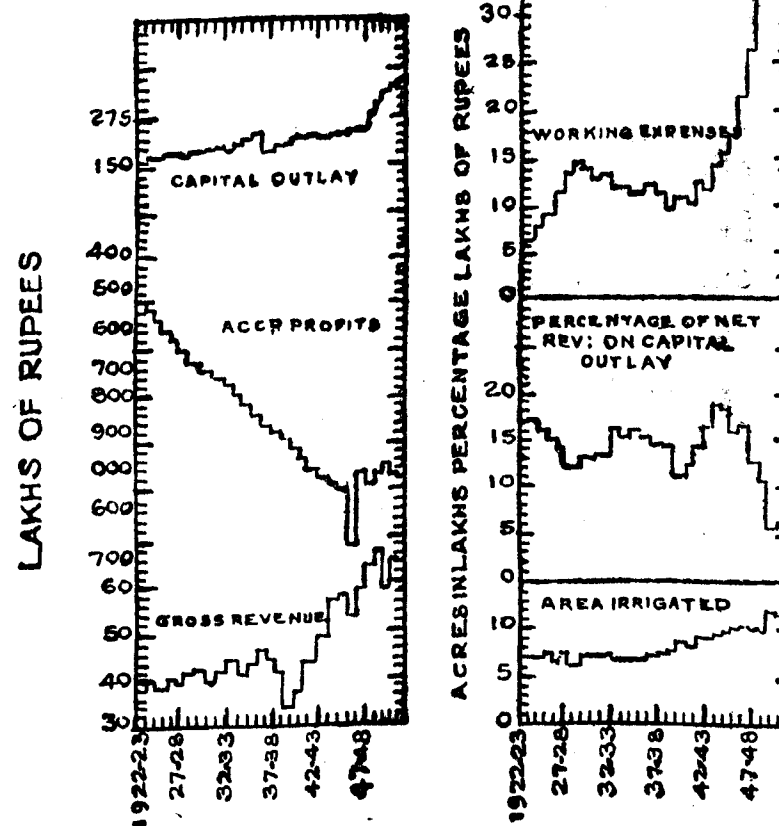
FINANCIAL RECORD CAUVERY-METTUR PROJECT



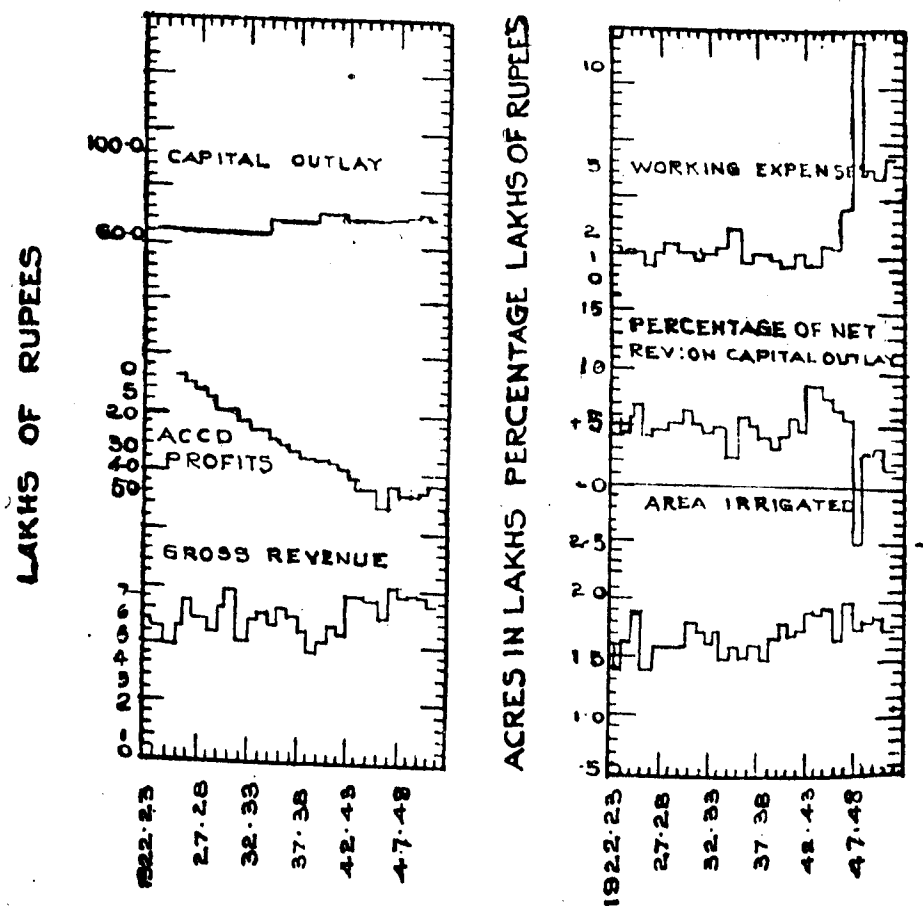
FINANCIAL RECORD GODAVARI DELTA SYSTEM



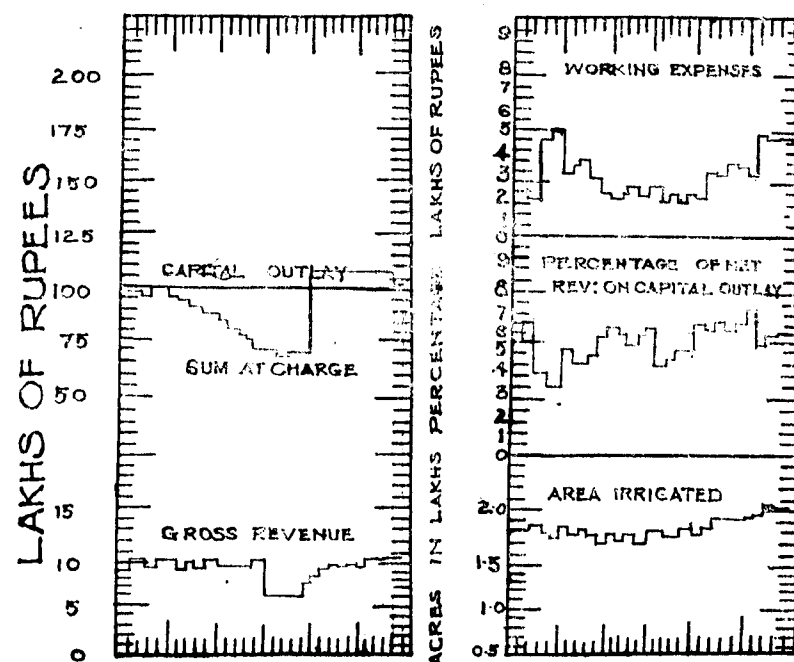
KISTNA DELTA SYSTEM



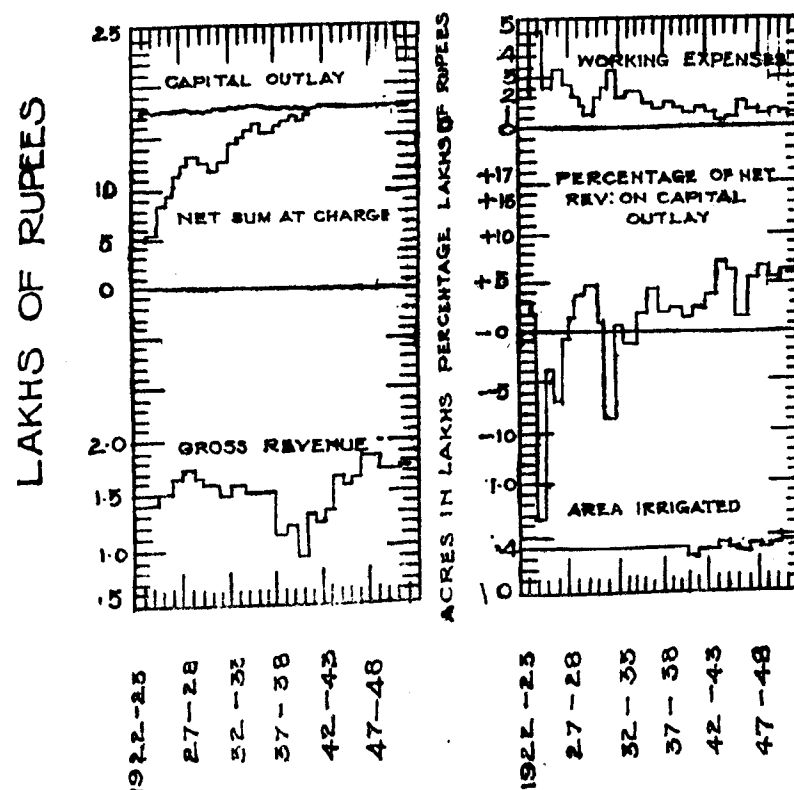
FINANCIAL RECORD PENNAR RIVER CANAL SYSTEM



FINANCIAL RECORD PERIYAR SYSTEM

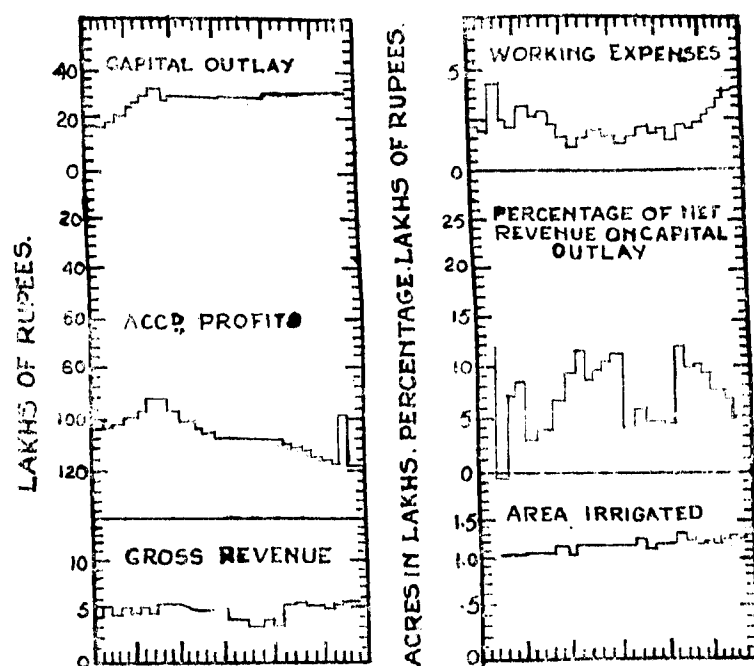


SRIVAİKUNTAM ANICUT SYSTEM

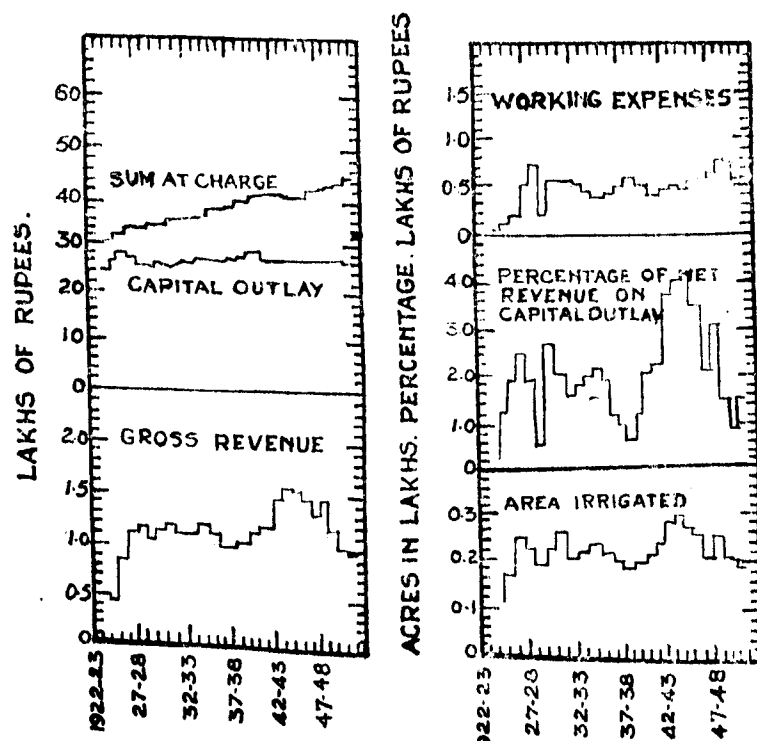
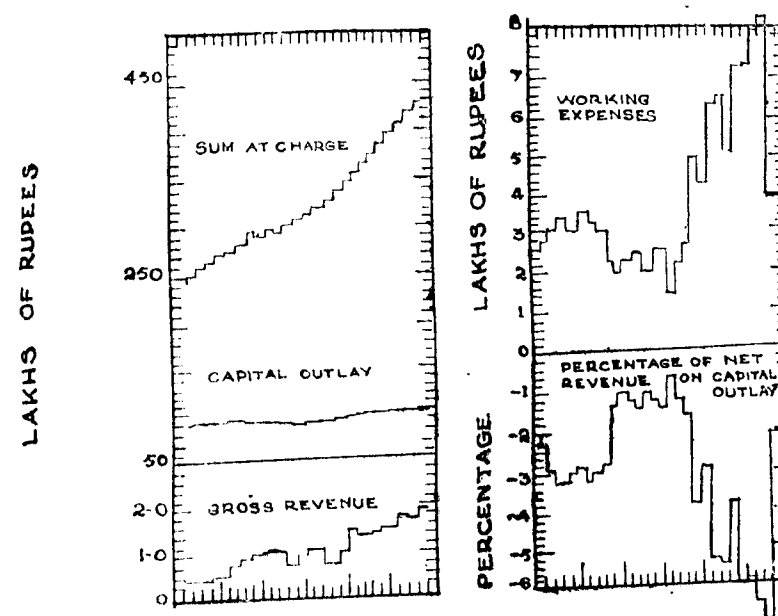


FINANCIAL RECORD

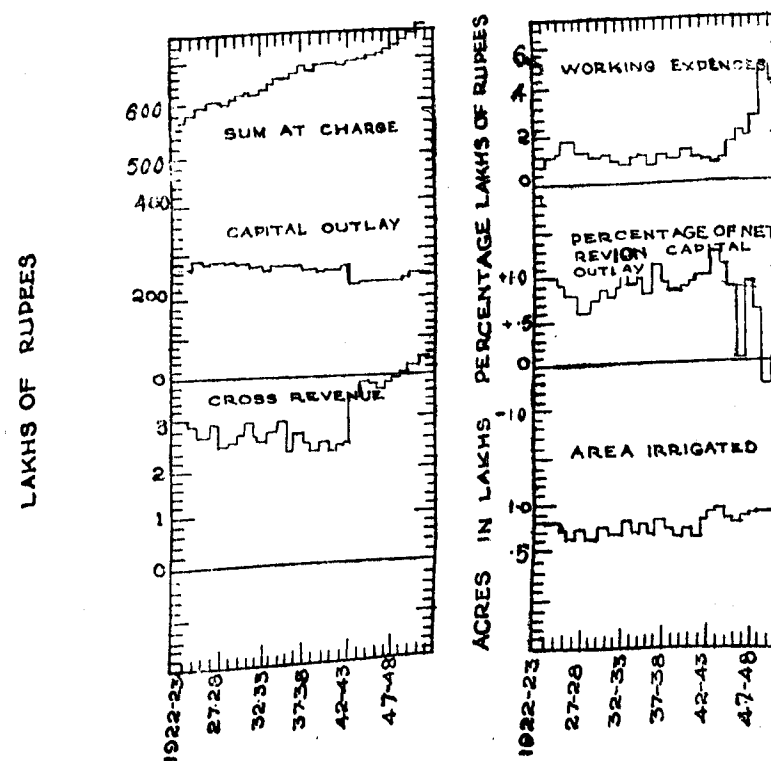
LOWER COLEROON ANICUT SYSTEM



TOLUDUR PROJECT

FINANCIAL RECORD
BUCKINGHAM CANAL

KURNOOL-CUDDAPAH CANAL



A. IRRIGATION WORKS.

(i) *Productive works.*

4. The number of productive works in the State during the year was the same as in the preceding year, viz., 24. Of these, items 1 to 22 of Account No. 1 (General Abstract) continued to be in operation. Though the construction estimate of the Cauvery-Mettur Project (item 23) was closed on 30th September 1954, the completion report has not yet been approved by Government. The Kattalai Scheme (item 24) has been completed and the completion report has not yet been forwarded to Government. The completed sections of the scheme are yielding revenue.

5. Compared with the previous year, there was a net increase of Rs. 7.74 lakhs in the gross revenue receipts made up of an increase of Rs. 10.27 lakhs in 13 systems and a decrease of Rs. 2.53 lakhs in the remaining 11 systems. The increase was marked in the Cauvery Delta system (Rs. 0.41 lakhs), the Tirukkoyilur Anicut system (Rs. 0.34 lakhs), the Periyar system (Rs. 0.31 lakhs), the Krishna Delta system (Rs. 5.92 lakhs), the Srikakulam Minor Rivers system (Rs. 0.25 lakhs) and the Cauvery-Mettur Project (Rs. 2.76 lakhs). The decrease was mainly in the Thadapalle Channel system (Rs. 0.20 lakhs), the Pennar River Canals system (Rs. 0.38 lakhs), the Cheyyar Anicut System (Rs. 0.58 lakhs), the Poiney Anicut System (Rs. 0.34 lakhs) and the Kattalai scheme (Rs. 0.79 lakhs). The decrease in the revenue is reported to be due to the grant of liberal remission on account of adverse seasonal conditions in the entire area or parts of the districts concerned.

6. The working expenses for the year showed a net increase of Rs. 3.27 lakhs made up of an increase of Rs. 10.73 lakhs in 17 systems and a decrease of Rs. 7.46 lakhs in the remaining 7 systems. The reasons for the more important variations are furnished below :—

Cauvery Delta system—Decrease Rs. 4.78 lakhs.—The decrease was mainly due to completion of most of the 12 Key Schemes in 1949–50 itself, transfer of certain works under “Intensive Cultivation Schemes” to “68. Construction, etc. of Works” and restriction of demand to actual requirements in the case of Maintenance and Repairs Works.

Godavari Delta system—Increase Rs. 5.36 lakhs.—The increase was based on actual requirements and due to increase in the cost of labour and materials, payment of enhanced rate of Dearness Allowance and completion of certain special repair works.

Thadapalle Channel system—Decrease Rs. 0.34 lakhs.—The decrease was due to reduction in annual maintenance estimate.

Pennar River Canals systems—Increase Rs. 0.90 lakhs.—The increase was due to carrying out certain minor works and repairing Pennar Flood Works.

Cumbam tank—Increase Rs. 0.25 lakhs.—The increase was due to carrying out cyclone damage works.

Krishna Delta system—Increase Rs. 1.81 lakhs.—The increase was due to carrying out special repairs to keep up the system in good working condition and to increase in cost of labour, materials, etc.

Srikakulam minor rivers system—Increase Rs. 0.54 lakhs.—The increase was due to extensive silt clearance and repairs to masonry works to ensure better irrigation facilities.

Cauvery-Mettur Project—Increase Rs. 0.54 lakhs.—The increase was due to special repairs to high and low level and Ellis Saddle surplus gates, adjustment of certain debits raised by the General Superintendent, Public Works Workshops and execution of certain urgent protective works to eroded margin in Tanjore circle.

Kattalai Scheme—Decrease Rs. 1.91 lakhs.—The decrease was due to carrying out in 1949–50, a major work, “Fixing up falling shutters to Kattalai Bed Regulator”.

Lower Coleroon Anicut system—Increase Rs. 0.56 lakhs.—The increase was for carrying out certain works to keep up the efficiency of the system.

7. Systems 1 to 23 in Account No. 1 (General Abstract) have been in operation for over thirteen years since the date of closure of the construction estimates. Of these items 2, 3, 5, 6, 9, 13, 17, 18 and 21 satisfied the test of productivity referred to in paragraphs 1 and 2 above. Items 1, 4, 11, 15, 16, 19 and 22 had failed to do so during a portion of the triennium ended 1950–51, but their retention in the productive category is permissible with reference to rule 9 (b), of Appendix I to Madras Account Code, Volume II. Items 8, 10, 14, 20 and 23 had already failed to satisfy the test of productivity, but are retained in the productive class pending receipt of orders of Government. Items 7 and 12 failed to satisfy the test in respect of the triennium ended 1950–51 and Government have to consider the desirability or otherwise of their further retention in the productive class.

(ii) *Unproductive works.*

8. The number of unproductive works in the State was 45 against 43 in the preceding year. Two new works were commenced during the year (items 44 and 45 of the General Abstract).

9. The revenue receipts during the year showed a net decrease of Rs. 1.52 lakhs made up of an increase of Rs. 0.62 lakhs in 8 systems and a decrease of Rs. 2.14 lakhs in 13 systems. The increase was marked in the Kurnool-Cuddapah canal system (Rs. 0.24 lakhs). The decrease was noticeable in the Palar Anicut system (Rs. 0.61 lakhs), Sagileru system (Rs. 0.20 lakhs) and the Basavannah Channel system (Rs. 0.98 lakhs). The decrease was stated to be chiefly due to failure of monsoon and the consequent grant of liberal remissions. But the decrease in the case of Basavannah Channel was also due to inclusion in the receipts for 1949–50 and non-inclusion in those for 1950–51 of revenue due to certain other works not pertaining to the system.

10. The working expenses during the year showed a net decrease of Rs. 1.39 lakhs as compared with the previous year, made up of an increase of Rs. 0.51 lakhs in 12 systems and a decrease of Rs. 1.90 lakhs in 17 systems. The reasons for important variations are furnished below :—

Kurnool-Cuddapah canal system—Decrease Rs. 1.00 lakhs.—The decrease was to restriction of demand to actual requirements.

Palar Anicut system—Decrease Rs. 0.30 lakhs.—The reduction was due to the Government's policy of ‘Economy Drive’.

Mopad Reservoir system—Increase Rs. 0.21 lakhs.—The increase was due to carrying out flood repair works.

Toludur Reservoir system—Decrease Rs. 0.20 lakhs.—The decrease was due to completion of a major work in 1949–50 itself and restriction of demand for maintenance and repairs based on actual requirements.

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.

11. As in the preceding years, there were two works of this category, viz., the Vedaranniyan Canal and the Buckingham Canal, both of them classed as unproductive. There was an increase of Rs. 0.30 lakhs in receipts and a marked reduction of Rs. 4.53 lakhs in working expenses, mainly in the Buckingham Canal. The decrease in working expenses in the Buckingham Canal was due to the completion of a major work in 1949–50 itself and to restriction of expenditure in 1950–51 to the barest minimum in pursuance of Government's policy of “Economy Drive”.

12. The average yearly working expenses in respect of the Buckingham Canal was Rs. 6.75 lakhs for the triennium ended 1950–51 as against an average revenue of Rs. 1.77 lakhs. The question of increasing the revenue and reducing the working expenses is under examination by Government.

MADRAS,
11th January 1951.

T. S. SUBRAMANIA IYER,
Accountant-General.

N. RAJAGOPALAN,
Assistant Accountant-General (Works).

97

Name of project works for which both Capital and Revenue Accounts are kept.	Accumulated arrears of simple interest to end of the year.	Gross Receipts during the year 1950-51.			Working Expenses and Maintenance during 1950-51 inclusive of indirect charges.			Net Revenue.		
		Total Capital invested to end of the year [columns (11) and (12)].	Direct Receipts.	Portion of land revenue due to works.	Total.	Direct charges.	Indirect charges.		Total.	Surplus. (+)
	(12) RS.	(13) RS.	(14) RS.	(15) RS.	(16) RS.	(17) RS.	(18) RS.	(19) RS.	(20) RS.	(21) RS.
A. IRRIGATION WORKS— cont.										
(1) PRODUCTIVE—cont.										
1 Cauvery delta system ..	..	97,56,606	17,55,161	58,381	18,08,542	9,42,581	7,008	9,49,569	8,58,973	..
2 Srivalkuntur ancient system.	..	17,75,063	1,76,208	1,490	1,77,698	69,028	455	69,483	1,08,215	..
3 Godavari delta system ..	..	2,57,41,913	49,47,755	2,30,783	51,78,438	30,25,717	22,992	30,48,709	21,29,779	..
4 Mohanathur ancient system.	..	87,184	17,476	196	17,672	15,911	122	16,033	1,639	..
5 Theodaspalle channel system.	..	1,92,770	1,23,276	2,929	1,26,205	55,444	408	55,852	70,833	..
6 Kalligeroyan channel system.	..	1,80,486	90,514	483	90,997	25,000	170	25,170	65,827	..
7 Vriddhachalam ancient system.	..	1,08,204	36,872	339	37,211	33,077	255	33,382	3,379	..
8 Chembarambakkam tank system.	..	7,64,143	—	14,881	—	7,109	65	7,174	..	21,099
9 Marudur ancient system ..	..	60,122	1,00,575	279	1,00,854	32,578	203	32,776	68,078	..
10 Pennar river canals system.	..	71,63,821	6,04,669	73,367	6,78,036	5,09,924	4,912	5,74,836	1,03,200	..
11 Arakankottal channel system.	..	1,44,445	25,872	428	26,300	17,975	141	18,116	8,184	..
12 Tirukkoyilur ancient system.	..	4,28,887	90,172	3,669	98,541	82,108	637	82,740	10,801	..
13 Shadiatope ancient system ..	..	10,89,372	1,79,346	17,031	1,96,377	85,624	728	86,352	1,10,025	..
14 Cheyyar ancient system ..	4,22,438	14,94,563	—	4,735	—	63,685	551	64,236	..	87,477
15 Cumbum tank system ..	2,875	89,248	7,146	472	23,234	34,907	254	35,161	..	27,547
16 Polney ancient system ..	..	3,08,918	16,049	5,488	22,137	50,878	424	51,302	..	29,100
17 Periyar system ..	..	1,08,35,654	9,72,898	94,863	10,67,761	4,68,060	3,187	4,71,247	5,96,514	..
18 Krishna delta system ..	..	3,69,37,978	61,66,580	2,79,415	64,45,995	40,29,139	30,935	40,80,074	23,85,921	..
19 Nandayar channel system ..	..	65,715	16,667	250	16,917	14,598	113	14,711	2,206	..
20 Srikakulam minor rivers system.	..	2,86,228	71,671	7,874	79,545	1,86,938	1,569	1,88,507	..	1,08,940
21 Lower Oorcoon ancient system.	..	31,02,418	5,00,997	51,549	5,52,546	3,96,165	3,037	3,99,202	1,53,344	..
22 Polavaram Island Project..	1,18,648	18,24,480	1,54,370	..	1,54,370	72,826	542	73,368	81,002	..
23 Cauvery Mettur Project ..	4,77,08,097	11,36,99,001	20,13,639	31,086	20,44,725	7,06,689	5,541	7,72,230	1,72,495	..
24 Kattalal Scheme. . . .	26,77,398	69,07,729	2,79,915	121	2,80,036	1,06,158	741	1,06,899	1,73,137	..
Total A, Irrigation Works— (1) Productive.	5,06,20,956	22,80,57,456	1,83,05,578	8,60,835	1,91,66,413	1,11,52,089	84,990	1,12,37,079	79,29,334	..

No. 1.—General Abstract of Financial Results showing the estimated cost of construction of "Productive" and "Unproductive" work the Capital outlay thereon, the Revenue derived therefrom, the Working Expenses and the Interest on the debt incurred in respect of these works for and to end of the year 1950-51—*cont.*

Name of project works for which both Capital and Revenue Accounts are kept.	Accumulated arrears of simple interest to end of the year.		Total capital invested to end of the year [(11) and (12)].		Gross Receipts during the year 1950-51.			Working Expenses and Maintenance during 1950-51 inclusive of indirect charges.			Net Revenue.	
	(12) RS.	(13) RS.	Direct Receipts. (14) RS.	Portion of land revenue due to works. (15) RS.	Total. (16) RS.	Direct charges. (17) RS.	Indirect charges. (18) RS.	Total. (19) RS.	Surplus. (20) RS.	Deficit. (21) RS.		
A. IRRIGATION WORKS—<i>cont.</i>												
(2) UNPRODUCTIVE—<i>cont.</i>												
1 Kunool Cuddapah canal system.	5,26,38,382	7,68,04,583	4,43,923	3,277	4,47,205	4,32,294	2,935	4,35,249	11,956	..	..	
2 Barur tank system.	5,11,422	9,99,066	28,494	787	29,281	20,166	162	20,328	8,953	..	6,093	
3 Vellur anicut system.	1,12,061	1,88,343	587	1,074	1,661	7,685	69	7,754	21,843	..	..	
4 Madras water-supply and Irrigation system.	33,83,936	32,02,854	39,311	462	39,773	17,764	161	17,925	..	..	..	
5 Pelandora anicut system.	4,93,444	11,85,518	56,690	86	56,785	34,375	255	34,830	21,955	..	..	
6 Palar anicut system.	28,25,832	54,35,111	15,570	16,852	32,431	1,05,425	899	1,06,324	73,893	..	..	
7 Munyuru system.	3,06,411	12,53,329	57,817	62	57,879	29,829	221	30,050	27,829	..	..	
8 Dondapad tank system.	2,94,436	10,14,468	39	10	49	26	1	264	..	..	215	
9 Yerur tank system.	96,749	1,60,102	— 57	36	29	1,454	13	1,467	..	..	1,438	
10 Sagluru system.	10,02,414	14,67,141	— 11,148	26	— 11,122	9,036	70	9,106	..	..	20,223	
11 Abnaker tank system.	1,49,692	2,86,181	1,854	..	1,854	497	3	500	1,354	..	..	
12 Jangamahevarapuram tank system.	96,123	1,67,787	825	..	825	360	4	564	281	..	..	
13 Anamasamundram Beraperu tank system.	1,47,874	2,21,447	— 2,464	1	— 2,463	459	6	465	..	..	2,928	
14 Halpuram tank system.	3,72,367	6,97,234	674	70	744	746	5	751	..	..	7	
15 Ponnalur tank system.	3,21,945	5,40,594	3,660	..	3,660	3,520	30	3,550	110	..	7,326	
16 Markapur tank system.	1,71,213	3,00,653	5,621	..	5,622	12,566	92	12,948	..	..	..	
17 Nagavalli river system.	6,56,640	24,70,870	87,396	21,804	1,09,200	60,653	473	61,126	48,074	..	..	
18 Venkatapuram tank system.	5,39,313	9,24,234	2,964	..	2,964	2,188	15	2,203	761	..	..	
19 Bhavanashi tank system.	3,48,665	6,18,674	5,235	..	5,235	3,371	43	3,414	..	..	179	
20 Yellanur tank system.	3,14,296	5,84,003	2,049	..	2,049	2,604	18	2,622	531	..	..	
21 Panjapatti Reservoir system.	6,90,617	10,29,393	135	..	135	2,835	22	2,857	..	..	2,722	
22 Siddhapur tank system.	10,63,089	18,67,575	6,340	..	6,340	3,330	21	3,351	2,939	..	10	
23 Nagavaram anicut and supply channel system.	1,42,178	2,52,063	964	1,017	1,981	1,977	14	1,991	..	..	..	
24 Mopad Reservoir system.	25,88,956	50,25,660	83,536	5,170	88,706	38,332	305	38,637	50,069	..	..	
25 Kaniyampalayam anicut system.	1,73,095	2,84,169	3,539	..	3,539	234	..	234	3,306	..	..	
26 Toludur Reservoir system.	18,27,561	44,50,342	98,477	443	98,925	57,443	425	57,868	41,057	..	5,330	
27 Thippayapalem project.	4,11,002	9,85,218	4,279	..	4,279	9,591	68	9,659	..	..	..	
28 Basavanah channel system.	2,71,635	8,61,415	16,330	..	16,330	11,004	61	11,065	5,465	..	..	

29 Duvvaleru project.	99,793	2,47,084	..	..	..	3,870	29	3,899	..	3,899
30 Uththorahalla Scheme	43,704	2,24,823	..	..	..	..	..	..	..	..
31 Mahadevarapuram tank project.	4,340	18,774	..	..	..	..	..	..	..	..
32 Tungabhadra project.	65,59,544	9,06,57,027	..	..	..	..	..	..	..	..
33 Lower Bhavani project.	18,61,453	4,74,71,548	..	..	..	..	..	..	..	..
34 Rallapad project.	40,709	8,53,375	..	..	..	..	..	..	..	..
35 Tigalera project.	23,050	6,30,683	..	..	..	..	..	..	..	..
36 Mettur Canal project.	60,258	19,86,743	..	..	..	..	..	..	..	..
37 Ponnar scheme.	59,520	12,66,240	..	..	..	..	..	..	..	..
38 Gayathiriputha project.	9,685	3,37,944	..	..	..	..	..	..	..	..
39 Malampuzha project.	2,40,249	82,62,874	..	..	..	..	..	..	..	..
40 Bedathalay project.	20,334	6,12,357	..	..	..	..	..	..	..	..
41 Kollimangalavagu project.	5,437	2,26,795	..	..	..	..	..	..	..	..
42 Pennar Kumudavathi project.	7,083	3,21,704	..	..	..	..	..	..	..	..
43 Upper Pennar project.	1,023	29,097	..	..	..	..	..	..	..	..
44 Manimuthar project.	12,932	6,26,568	..	..	..	..	..	..	..	..
45 Bhairavanthappa project.	77	3,740	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—(3) Unproductive.	8,09,51,046	26,99,77,758	9,52,863	52,337	10,05,200	8,76,561	6,440	8,83,001	1,22,199	..
Total, A. Irrigation Works ..	13,15,81,002	49,20,35,194	1,92,58,441	9,13,172	2,01,71,613	1,20,28,650	91,430	1,21,20,080	80,51,533	..

B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*

(2) UNPRODUCTIVE— <i>cont.</i>										
1 Vedaranniyam Canal	9,16,195	10,52,627	1,051	..	1,051	4,709	40	4,749	..	3,698
2 Buckingham Canal	3,26,47,974	4,25,75,005	1,93,899	..	1,93,899	3,90,377	3,624	3,94,001	..	2,00,192
Total, B. Navigation, etc., Works—(2) Unproductive.	3,35,64,169	4,36,27,632	1,94,890	..	1,94,890	3,95,086	3,664	3,98,750	..	2,03,890
Total, B. Navigation, etc., Works.	3,35,64,169	4,36,27,632	1,94,890	..	1,94,890	3,95,086	3,664	3,98,750	..	2,03,890
Total, Construction of Irrigation, etc., Works.	16,51,45,171	53,56,62,826	1,94,53,301	9,13,172	2,03,66,473	1,24,23,736	95,094	1,25,18,830	78,47,643	..

Name of project works for which both Capital and Revenue Accounts are kept.	Per centage on capital invested (column (11)).		Simple interest during 1950-51.		Percentage of Net Revenue (columns (20) and (21)) on capital invested (column (20)) during 1949-50.		Prescribed rate of interest at 4 1/2 per cent of productivity.	
	Gain.	Loss.	(22)	(23)	Net gain.	Net loss.	(24)	(25)

A. IRRIGATION WORKS—cont.

(1) PRODUCTIVE—cont.

1	Curry delta system.	8.99		4,14,957	4,44,016		7.81	3.57	8.99
2	Schikhanam ancient system.	6.10		75,036	33,179		5.42	6.20	6.10
3	Gedavari delta system.	8.27		10,20,773	11,03,006		13.86	10.54	8.27
4	Mahanathur ancient system.	1.88		3,923		2,189	0.92	8.56	1.88
5	Thadapalle channel system.	36.49		7,810	62,543		46.63	31.82	36.49
6	Kallagroyan channel system.	36.47		7,919	57,908		19.29	38.10	36.47
7	Vridhachalam ancient system.	3.58		4,656		807	19.47	4.48	3.58
8	Chembarambakkam tank system.		2.76	29,312		50,410	4.12	4.14	2.76
9	Marudur ancient system.	113.23		2,642	65,436		115.27	127.19	113.23
10	Pennar river canals system.	1.44		2,75,243		1,72,043	2.92	3.23	1.44
11	Aralikottai channel system.	5.67		6,335	1,349		15.14	2.99	5.67
12	Tirukkoyilur ancient system.	2.58		18,024		7,223	4.61	9.27	2.58
13	Shadilope ancient system.	10.01		43,341	63,084		10.67	10.30	10.01
14	Chayyar ancient system.		8.39	43,338		1,30,828	3.61	2.44	5.97
15	Cumbum tank system.		31.89	3,779		31,322	3.65	5.42	30.86
16	Ponney ancient system.		9.60	13,290		43,446	13.37	5.31	9.60
17	Periyar system.	5.51		4,70,908	1,25,696		4.85	5.31	5.51
18	Krishna delta system.	6.45		15,10,608	8,75,313		10.45	8.71	6.45
19	Nandiyar channel system.	3.36		2,845		839	8.14	10.81	3.36
20	Srikakulam minor rivers system.		37.67	12,916		1,21,451	3.15	27.70	37.67
21	Lower Coleroon ancient system.	4.94		1,33,227	20,117		7.93	6.76	4.94
22	Polarvam Island project.	4.75		75,487	5,515		6.15	5.14	4.44
23	Chayyar Mettur project.	1.92		29,28,391		16,32,896	0.94	0.94	1.32
24	Kattalai scheme.	4.00		1,83,915		10,778	1.68	0.90	2.61
Total A. Irrigation Works—(1) Productive.		4.60		72,94,228	6,35,111		4.86	3.43	3.85

4 1/2 per cent in the case of works sanctioned before 1st April 1937.
4 per cent in the case of works sanctioned between 1st April 1937 and 31st March 1941.
5 per cent in the case of works sanctioned between 1st April 1941 and 31st March 1946 and 4 per cent in the case of works sanctioned on or after 1st April 1946.

13	Kuruvol Cuddalore Canal system.	0.05		10,77,460		10,85,513	0.18	0.15	0.02
2	Barr tank system.	1.96		119,882		10,429	1.96	1.44	0.92
3	Vallur ancient system.		7.99	8,346		9,439	3.73	7.40	3.24
4	Madras water supply and Irrigation system.	1.17		73,309		51,451	0.41	0.35	0.42
5	Polandur ancient system.	3.17		52,940		6,094	1.56	1.98	1.85
6	Palar ancient system.		2.83	1,06,208		1,83,096	5.09	0.85	1.36
7	Muntyer system.	2.94		87,814		9,855	2.78	2.30	2.22
8	Dondapudi tank system.		0.03	25,541		25,760	0.39	0.27	0.02
9	Yerur tank system.	2.27		2,778		4,210	0.63	0.27	0.90
10	Sagaram system.	4.35		20,120		40,314	0.54	0.46	1.35
11	Alambur tank system.	0.99		5,325		3,971	0.58	0.54	1.56
12	Jayachandrapuram tank system.	0.36		2,764		2,405	0.96	0.18	1.32
13	Annamasandram Borapara tank system.		3.95	2,226		6,154	0.50	0.25	1.32
14	Kuppam tank system.		0.00	18,818		12,826	0.36	0.75	0.00
15	Pondur tank system.	0.06		8,684		8,374	0.72	0.27	0.02
16	Marayur tank system.		5.65	5,008		12,924	0.85	0.34	2.44
17	Kagavalli river system.	2.66		79,423		31,349	2.41	2.04	1.95
18	Vedachayam tank system.	0.30		16,751		15,090	0.69	0.65	0.04
19	Bharavathi tank system.		0.07	11,627		11,806	0.54	0.43	0.03
20	Yellamur tank system.	0.30		10,764		10,233	0.53	0.53	0.04
21	Pudupattai Boravetti system.		0.30	14,780		17,472	0.68	0.68	0.26
22	Siddapur tank system.	0.37		25,597		32,694	0.51	0.22	0.16
23	Nagavaram ancient and supply channel system.		0.01	4,324		4,638	0.04	0.24	0.00
24	Mogud Boravetti system.	2.05		1,04,870		54,901	0.49	1.00	1.00
25	Kandamphayam ancient system.	2.97		4,385		1,520	0.64	0.24	1.16
26	Talcher Boravetti system.	1.57		1,08,652		65,803	0.93	0.51	0.92
27	Talcher Boravetti project.		0.93	25,491		30,450	0.39	0.11	0.54
28	Bharavathi channel system.	0.33		26,230		20,765	8.90	10.99	0.63
29	Davuluru project.		2.65	8,506		10,494	2.40	1.79	1.54
30	Udumbachala scheme.			7,372		7,372			
31	Mahadevarayan tank project.			699					
32	Tingalashan project.			25,96,474		28,96,474			
33	Lower Bharavathi project.			19,27,294		13,27,294			
34	Bullapudi project.			27,120		27,120			
35	Tadim project.			17,300		17,300			

No. 1.—General Abstract of Financial Results showing the estimated cost of construction of “Productive” and “Unproductive” works, the Capital outlay thereon, the Revenue derived therefrom, the Working Expenses and the Interest on the debt incurred in respect of these works for and to end of the year 1950-51—cont.

Name of project works for which both Capital and Revenue Accounts are kept.	Percentage on capital invested [column (11)].		Simple interest during 1950-51.	Net gain.	Net loss.	Percentage of Net Revenue [columns (20) and (21)] on capital invested [column (13)] during			Prescribed rate of interest at test of productivity.
	Gain.	Loss.				1948-49.	1949-50.	1950-51.	
	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
	RS.	RS.	RS.		RS.				RS.
A. IRRIGATION WORKS—cont.									
(2) UNPRODUCTIVE—cont.									
36 Mettur canal project	..	..	49,318	..	49,318	..	..	..	..
37 Fommar Scheme ..	..	..	41,118	..	41,118	..	..	..	..
38 Gayathripuram project	..	..	8,205	..	8,205	..	..	..	..
39 Malanpuzha project	..	..	9,03,218	..	2,03,218	..	..	..	..
40 Badinadavay project	..	..	16,211	..	16,211	..	..	..	..
41 Kollimaruvavay project	..	..	5,062	..	5,062	..	..	..	..
42 Pennar Kundavadi project.	..	..	6,846	..	6,846	..	..	..	..
43 Upper Pennar project	..	..	800	..	800	..	..	..	..
44 Madimuttar project ..	..	..	12,932	..	12,932	..	..	..	..
45 Bhairavandhippa project	..	..	77	..	77	..	..	..	..
Total, A. Irrigation Works—	0.03	..	65,04,749	..	63,82,550	0.10	0.07	— 0.05	..
2. Unproductive.	..	..	..	..	..	..	..	..	..
Total, A. Irrigation Works ..	2.23	..	1,37,98,972	..	57,47,439	2.87	1.81	1.64	..
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—cont.									
(2) UNPRODUCTIVE—cont.									
1 Vedarannilyam canal ..	..	2.71	5,971	..	9,669	— 2.00	— 1.61	— 0.35	..
2 Buckingham canal ..	..	2.02	4,15,712	..	6,15,904	— 1.54	— 1.61	— 0.47	..
Total, B. Navigation etc.	..	2.03	4,21,683	..	6,25,573	— 1.55	— 1.61	— 0.47	..
Works—2. Unproductive.	..	..	..	..	..	..	..	..	..
Total, B. Navigation, etc., Works.	..	2.03	4,21,683	..	6,25,573	— 1.55	— 1.61	— 0.47	..
Total, Construction of Irrigation, etc., Works.	..	..	1,42,20,655*	..	63,73,012	2.42	1.50	1.46	..
* Interest at 4.50 per cent on the capital outlay to end of 1936-37									
Interest at 4.35 per cent on the capital outlay during 1937-38	..	..	..	87,01,806	Interest at 4.25 per cent on the capital outlay during 1945-46	..	..	..	RS.
Interest at 4.25 per cent on the capital outlay during 1938-39	..	..	..	88,186	Interest at 4.00 per cent on the capital outlay during 1946-47	..	..	..	87,039
Interest at 4.25 per cent on the capital outlay during 1939-40	..	..	..	89,135	Interest at 4.00 per cent on the capital outlay during 1947-48	..	..	..	2,68,540
Interest at 4.75 per cent on the capital outlay during 1940-41	..	..	..	93,195	Interest at 4.00 per cent on the capital outlay during 1948-49	..	..	..	6,27,529
Interest at 4.75 per cent on the capital outlay during 1941-42	..	..	..	15,938	Interest at 4.00 per cent on the capital outlay during 1949-50	..	..	..	10,61,898
Interest at 4.75 per cent on the capital outlay during 1942-43	..	..	..	12,736	Interest at 4.25 per cent on the capital outlay during 1950-51	..	..	..	19,37,123
Interest at 4.50 per cent on the capital outlay during 1943-44	..	..	..	16,495	Interest at 4.25 per cent on half the capital outlay during 1950-51	..	..	..	13,57,159
Interest at 4.25 per cent on the capital outlay during 1944-45	..	..	..	30,552	Total ..	..	..	..	1,42,20,655
Interest at 4.25 per cent on the capital outlay during 1945-46	..	..	..	42					

4† per cent in the case of works sanctioned between 1st April 1937 ..

4 per cent in the case of works sanctioned between 1st April 1937 and 31st March 1941.

5 per cent in the case of works sanctioned between 1st April 1941 and 31st March 1946 and 4 per cent in the case of works sanctioned on or after 1st April 1946.

36088