Public Works Department

Madras Presidency

Administration Report

1939-40

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PUBLIC WORKS DEPARTMENT
MADRAS PRESIDENCY

ADMINISTRATION REPORT

FOR THE YEAR

1939-40

PART II—IRRIGATION

MADRAS
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FOREWORD

To make the Administration Report more attractive to the general public, two chapters I and II giving a bird's eye-view of irrigation and a description of important works respectively have been added as in the previous year. A number of photographs, sketches and diagrams have also been added as in the last year.

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PUBLIC WORKS DEPARTMENT, MADRAS PRESIDENCY

ADMINISTRATION REPORT
FOR THE YEAR 1939-40

PART II—IRRIGATION

Chapter I.

A BIRD'SEYE VIEW OF IRRIGATION IN MADRAS PRESIDENCY.

Anyone that knows the large deltas in the Presidency will realize what a difference to their wealth and prosperity irrigation has made. Agriculture which is dependent on irrigation is the main industry of India at any rate of the East Coast of the Madras Province and it must continue to hold the premier place; all other industries are dependent, in a final analysis, on agriculture. If the ryot is prosperous and his purchasing capacity is improved other industries and the country generally are prosperous. If the ryot is poor, the country is poor and the money that is required to ensure the prosperity of other industries will not circulate.

A brief summary of the irrigation systems in the Presidency is given below.

In Circars, we first have the Ganjam Minor River systems comprising a number of inundation channels feeding tanks and irrigating between them 64,000 acres in Chicacole taluk, Vizagapatam district. The Nagavalli system irrigates the largest area in Vizagapatam district. By means of a regulator across the river at Thotapalli sufficient water is diverted to the land through the main canal and its branch channels to irrigate roughly 30,000 acres. The project was completed in 1909 and has been of great benefit to the ryots. Quite a large area in Vizagapatam and in that part of the old Ganjam district which still remains in this Presidency is irrigated under river channels which take off from the river without the help of regulators or anicuts. Though individually the area under each channel is small the total area irrigated is nearly 67,000 acres.

The next is Godavari delta. To those who have not the local knowledge the fact that the value of the crops now grown annually in this delta is several crores will convey a very meagre idea of

the benefits of irrigation. The Godavari ryots have recently erected at Dowlaishwaram and Chettipetta statues to commemorate the memory of Sir Arthur Cotton, the originator of the scheme, and by doing so have shown their appreciation of what he has done for the district by conveying the life-giving fluid to their lands. Roughly one million acres are irrigated by the network of canals and channels thousands of miles long, the value of the crops grown annually exceeds five crores. The canals have been designed not only for irrigation but also for navigation. Sixty locks have been built and more are being considered. About 400 miles of canals are navigable for boats up to ninety tons and the major part of the exports and imports from and to the delta is conveyed by boat. That this connected system of navigation has helped a great deal to the prosperity of the Godavari and Kistna ryots will be appreciated when it is stated that the cost of transport to Madras by water is only one-eigth to one-tenth of the cost of transport by cart or other means. For instance for the same price export (Cocanada and Negapatam) of rice, the prices at Rajahmundry and Tanjore respectively are only 6 pies and 4 annas respectively per bag even though both are at the same distance from the port, while water transport is available in the one case, it is not in the other. By means of the Godavari and Kistna canals and the Buckingham canal one can go by boat from Madras to Rajahmundry, a distance of 361 miles, and from Rajahmundry one can continue the journey by boat beyond Bhadrachalam right up to the Central Provinces, a further distance of 188 miles.

The next is the Kistna delta. A few extracts from Walch's History of the Kistna delta will not be out of place :—

> "In 1832–33 a terrible famine devastated a great part of the Madras Presidency. Through the very heart of the area where the distress was greatest and human beings were dying by hundreds of thousands, because their crops had failed from drought, the Kistna and Godavari rivers were rolling down enormous quantities of water to the sea. 'In Guntur district, lying on the right side of the river, part of which is known as the "Western delta" not less than 200,000 persons perished "by starvation" and by the fever which followed famine' whilst condition on the other side of the river in what is known as the "Eastern delta" can be realized from the following quotation.
>
> "The Europeans throughout the country have subscribed liberally to feed as many of the poor starving wretches as possible, and by this means tens of thousands are daily fed in Masulipatam alone. But ten times that number are still famishing and hundreds die daily, literally of starvation. The swamp around the fort is found each morning strewed with the bodies of those who have died during the night; and although a strong body of Police are constantly employed in collecting the dead and throwing them into a huge pit prepared for the purpose, they cannot succeed in keeping the ground clear, and numbers of bodies are left to be devoured by dogs and vultures.
>
> "The description in the 'Siege of Corinth' of the dogs gnawing human skulls is mild compared to the scenes of horror we are daily forced to witness in our morning and evening rides."

He adds some further and even more gruesome details.

The recurrent famines and the devastating losses they caused set the Government of the day thinking and they resolved to push forward the Godavari and Kistna projects. At Bezwada in Kistna district an anicut across the Kistna was built in 1855 (shortly after the Dowlaishwaram anicut). The anicut diverts water through a network of canals and channels to irrigate 1,000,000 acres in Kistna and Guntur districts. The Kistna canals are also navigable and the greater part of the trade of the deltaic portions of the two districts is carried on by boats. Our Godavari and Kistna projects are probably the most beneficial and most successful irrigation schemes ever executed by any Government in the world. They have improved the condition of the people of the districts beyond the highest expectations of their originator, while the return on the capital invested in building them has sufficed not only to maintain and keep the systems up-to-date but has provided a continuous source of revenue which has enabled Government to initiate other projects, far less attractive financially in less favoured districts.

Leaving the rich districts of Guntur and Kistna and coming down to Nellore, we meet a dry and barren district but advantage has been taken of any facilities that exist for extending irrigation. Near the sea coast, the rainfall is generally favourable, and with the addition of some extra water, supplied by means of irrigation, excellent crops are grown. Nellore rice is famous for its quality. Two anicuts across the Pennar, divert water to the Kanigiri and Survepalli reservoirs and about 160,000 acres of paddy are cultivated under them annually. Further, inland, the Mopad reservoir built in 1921 as a famine-protective work, has fulfilled the purpose for which it was intended.

It should be stated here that we have till now utilized only 6 per cent of the annual flow of the Godavari and 7 per cent of the annual flow of the Kistna and we are still a great way from utilizing the large quantity of power and irrigation that flows to the sea.

Leaving Nellore, we shall divert from our course for a few moments and strike west and north-west to have a glimpse at

Cuddapah, Kurnool, Bellary and Anantapur districts. These districts known as "Rayalaseema" are in the famine zone and are periodically liable to failure of rain and consequent shortage. Irrigation in Rayalaseema is by the very nature of the case difficult. Rainfall with its consequential river and stream flow is the first requirement for a successful irrigation scheme and when rain fails in the locality we propose to benefit, we must look to some external source, for example, a river whose main catchment area is outside the districts liable to failure, for supply. Local schemes in Rayalseema must, generally speaking, be of doubtful utility. In addition to a deficient rainfall there is the difficulty of not knowing exactly how the heavy black cotton soils very prevalent in Rayalseema will respond to systematic irrigation. The Kurnool-Cuddápah canal which flows through a black cotton belt has not been successful though in years of deficient rainfall its water is eagerly sought for by the ryots for their crops. Problems connected with the Tungabhadra are now being closely studied and it is the earnest desire of Government to initiate this most important project at the earliest possible moment.

South from Nellore we come to Chingleput where there are no major irrigation schemes, but 50,000 acres are irrigated by tanks of which there are 600. The district is peculiarly suited to tank irrigation: rainfall is generally favourable and the topography of the district favours this method of irrigation.

In South Arcot district also there is a large number of tanks which irrigate 543,000 acres. In addition, advantage has been taken of the fact that the district is traversed by two fairly large rivers, the Ponniar and the Vellar. An anicut across the Ponniar at Tirukkoyilur diverts sufficient water for 30,000 acres. Regulators combined with road bridges have been built across the Vellar at Toludur and Shatiatope, the former diverts water to Willingdon reservoir which irrigates 16,000 acres and the ayacut is still expanding, the latter diverts water through the Vellar Rajan channels and its branches to irrigate 40,500 acres between Cuddalore and Porto Novo. Coleroon water is diverted at the lower anicut to irrigate 110,000 acres in Chidambaram. Besides there are two anicuts, Vriddachalam and Mehamattur across Manimuthanadi, a branch of the Vellar, which irrigate 4,900 and 9,400 acres respectively.

Deviating from the southerly course for a few moments we meet North Arcot, Salem and Coimbatore districts. The Palar river which rises in Mysore is the main feeder for North Arcot. Water is diverted through a series of canals and channels by the Palar anicut, fifteen miles from Vellore, to irrigate 83,000 acres. The district had many old tanks which have been retained and which now form an essential part of the system. Flow in the Palar is intermittent and in the old tanks the flood flow of the

river is stored, which without tanks would be wasted over the anicut. The Poiney anicut in the same district irrigates 24,000 acres.

Salem district is not particularly favoured by nature. The largest irrigation scheme in it is Barur. An anicut across the Ponniar diverts water to the Barur reservoir which irrigates about 7,000 acres. The district depends mainly on tanks, many of which get a supply over and above that contributed by their own catchments through channels taking off from anicuts built across adjacent streams. Though Mettur reservoir is in the district it has not been possible owing to very unfavourable conditions to devise any scheme to benefit Salem from this source. The Cauvery channels in Namakkal taluk irrigate 7,000 acres of very rich and fertile lands.

Coimbatore district depends mainly on the Bhavani which irrigates at present a large area of paddy. There are in addition several tanks and the waters of the Chitrachavadi, Noyel and Amaravathi are also utilized to the greatest extent possible by means of anicuts.

Continuing the southerly route from South Arcot, Tanjore is reached. Irrigation of about 7·8 lakhs of acres has been practised in Tanjore for centuries and with the modern works recently built, the ayacut now exceeds 10 lakhs of acres. The Cauvery-Mettur Project completed in 1934 is intended to ensure supply to the old delta as well as to extend irrigation by 300,000 acres in Pattukkottai. Tanjore is by nature a specially favoured district and everything has and is being done to increase its prosperity. The benefits of Mettur reservoir to landholders in Tanjore delta are manifold. The reservoir protects the Tanjore ryots from flood damage due to Cauvery floods in the south-west monsoon and prevents drainage congestion. It secures to the ryots the benefits of early supplies in June and ensures steady and regular flow throughout the irrigation season.

Trichinopoly district, like Tanjore, depends mainly on the Cauvery for its irrigation and prosperity. Many channels take off directly from the river to irrigate 135,000 acres of fertile valuable lands.

Madura benefits mainly from the Periyar project. A dam built across the Periyar river in Travancore holds up water in the Periyar lake and a tunnel, 5,700 feet long, conveys this water to the Vaigai valley and thence to Madura. One hundred and thirty thousand acres roughly are irrigated by the Periyar project. The difference that this scheme has made to the prosperity of Madura district is enormous. The chief merit lies in its sociological effects on the population of the district. The Kallars and Maravars whose

habits of life were none too helpful to the society have now settled down in peace and prosperity to tilling land and adding to the wealth of the nation.

Tinnevelly district, which adjoins Madura depends mainly on the Tambraparni river across which several anicuts have been built to irrigate about 75,000 acres. The irrigated portion of Tinnevelly is noted for its fertility and the Tinnevelly ryots for their industry.

In Tinnevelly the Papanasam hydro-electric scheme including a dam 170 feet high on the Tambraparni is in progress. Though the reservoir is formed mainly for power, it will benefit irrigation.

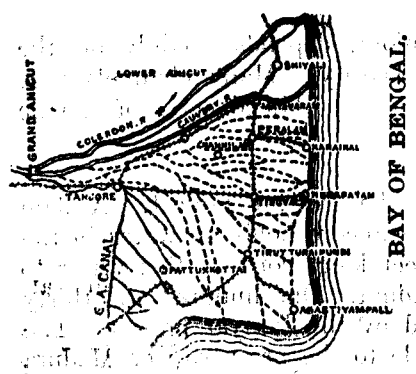
Tank irrigation is of the greatest importance especially in our Presidency where 3,000,000 acres are irrigated under tanks. Similarly well irrigation is another most important source of fertility which is responsible for irrigation of about 1,500,000 acres. Attempts are being made to extend well irrigation by means of electric pumps in suitable areas.

The diagram on page 11 shows the total area irrigated (i) by productive and unproductive major systems, (ii) by minor works in charge of Public Works Department and Revenue, and (iii) by wells, figures for which are available only from 1930.

Chapter II.

Brief Description of Important Irrigation and Navigation Works.

The Cauvery Delta System.—The Cauvery rises in Coorg and flows for a considerable distance over the Mysore plateau. It then drops into the plains of Madras at the Sivasamudram falls. The chief tributaries of the river are the Hemavathi, Lakshmanathirtha and Kabbini in Mysore and the Bhavani (rising on the Nilgiris) in Madras. The river benefits by the south-west and north-east monsoons and irrigates a large area in Mysore before it enters Madras. There are two big reservoirs on the river the Krishnarajasagara near Mysore and the Stanley reservoir near Salem. Electric power is developed at Sivasamudram and at Mettur. The Cauvery is 800 miles long and drains 31,000 square miles.



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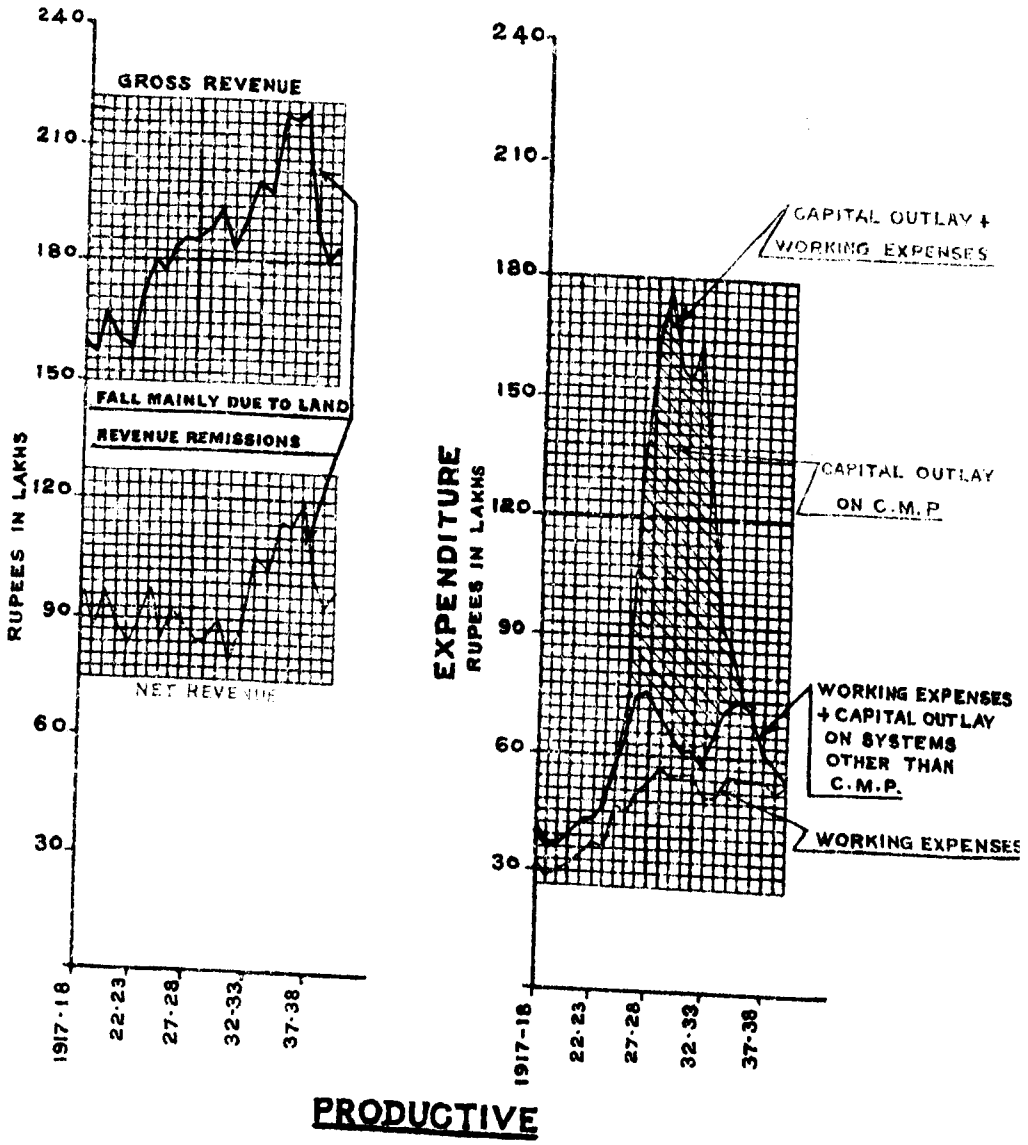
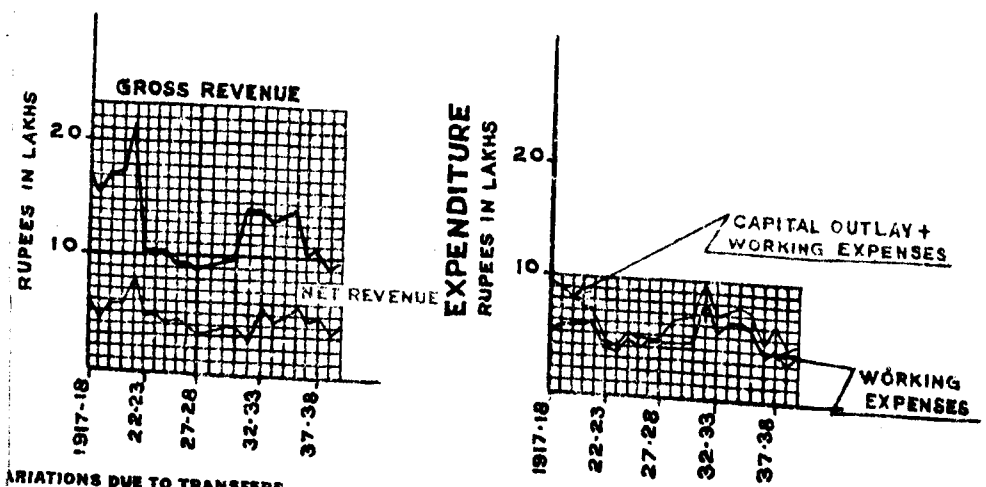


PRODUCTIVE



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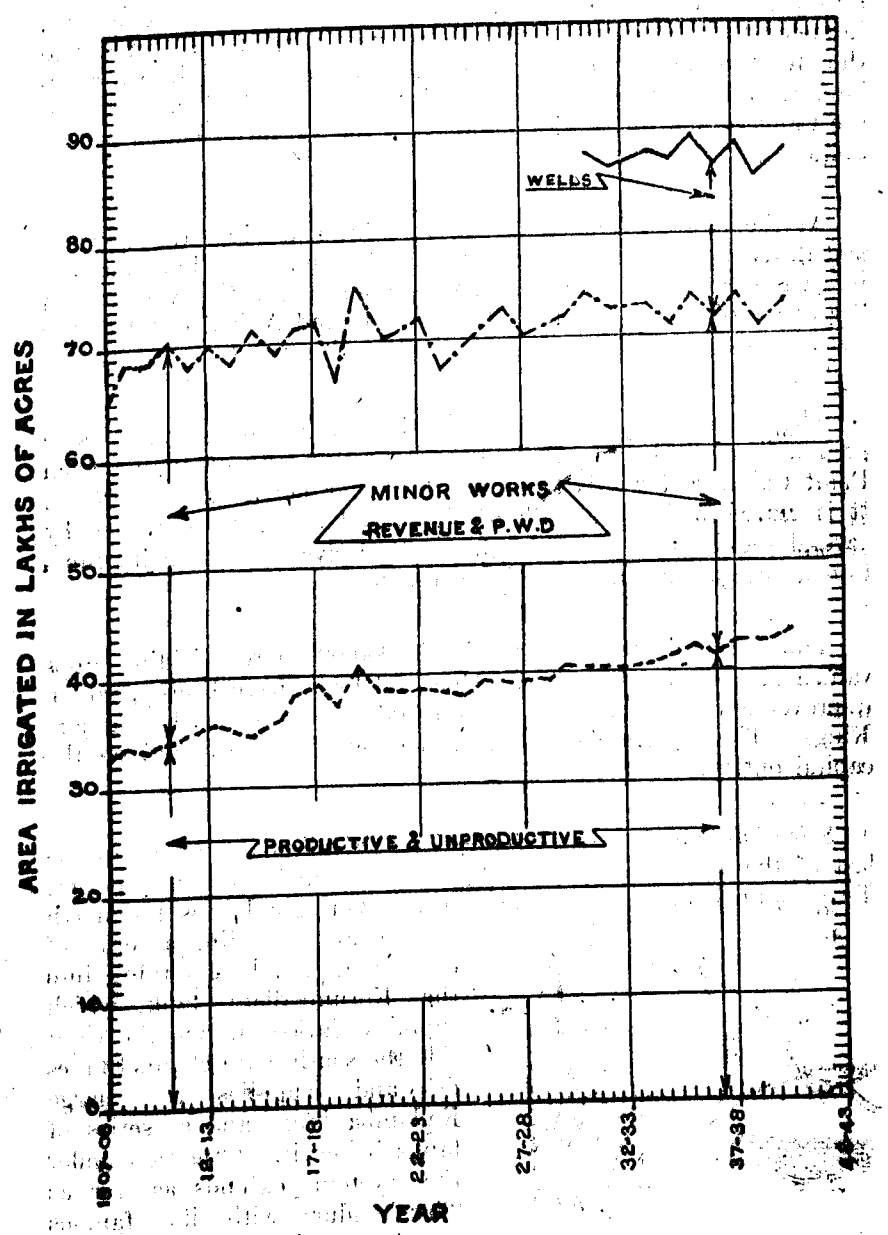
UN-PRODUCTIVE

DIAGRAM SHOWING THE AREA IRRIGATED IN MADRAS



The Cauvery Delta system is of great antiquity dating back to the ancient Hindu kings of Tanjore. The delta begins at the head of the Srirangam Island where the river divides into two, the right arm called the Cauvery carrying irrigation supplies and the left arm, the Coleroon being the flood carrier. There is a barrage with lift shutters—the Upper Anicut—across the Coleroon to divert requisite supplies to the Cauvery over the Cauvery Dam.

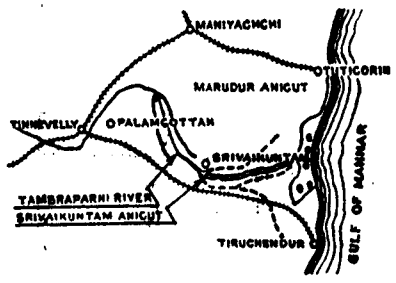
About 20 miles below the Cauvery Dam is the Grand Anicut, an ancient masonry anicut built across a by-pass from the Cauvery into the Coleroon, below the Srirangam Island. This anicut, intended to hold up and divert the normal flow of the Cauvery to the rivers supplying the Tanjore delta, was converted into a regulator with lift shutters to permit effective disposal of surplus from the Cauvery and for passing supplies to the Lower Coleroon Anicut system.

At the Grand Anicut, the Cauvery branches into the Cauvery and the Vennar, which in turn throw off a number of branches and irrigate the fertile lands of the Tanjore delta, the well-known "granary of South India." The New Grand Anicut canal of the Cauvery-Mettur Project also takes off at this point.

The delta is long, fertile and level, some 2,000 square miles in area with a sea board over a hundred miles long extending from Point Calimere towards the south to as far north as Porto Novo. It is served with a network of rivers and channels controlled by several regulators. Many of the smaller rivers of the delta function as irrigation and drainage channels.

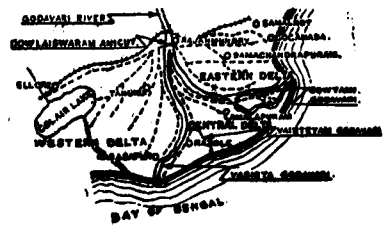
The irrigated area in the delta is 900,000 acres yielding crops valued at 5 crores of rupees. About 83 lakhs have been spent on improvements since the system was taken over from the Tanjore Kings. The system yields a return of about 10 per cent on the capital outlay.

Srivaikuntam Anicut System.—The Srivaikuntam anicut is the last of the anicuts across the Tambraparni in Tinnevelly district. Two channels take off at the anicut. On the left is the north main channel feeding a series of tanks and finally emptying into the Korumpallam tank, which supplies Tuticorin. On the right side the south main channel takes off and supplies the large Kadamba tank and a series of tanks below it. Irrigation under the system extends as far as Tiruchendur with its famous temple on the sea shore. The system irrigates about 25,000 acres. The capital expenditure was about Rs. 18 lakhs and the return is 2·09 per cent on the outlay.



The Godavari Delta System.—The Godavari rises in the Western Ghauts within 50 miles of the Arabian Sea and flows across the Peninsula for 900 miles before it falls into the Bay of

Bengal. Its chief tributaries are the Manjira from Hyderabad and the Pranahita made up of three smaller streams from the Central Provinces, the Indravathi and the Sabari. Shortly after the Sabari joins it, the Godavari, now deep and narrow, winds its way through the spurs of the Eastern Ghauts and for 2 miles it flows through a picturesque gorge clothed with luxuriant tropical vegetation. Some distance below, it leaves the last ranges of the Ghauts, enters the plains at Polavaram and flows onward as a broad and shallow river until some distance below Rajahmundry it divides into two main branches, the Gautami and the Vasista Godavari rivers. Between the two arms lies the Central delta, while the Eastern and Western deltas lie to the east and west of the two arms respectively. The two arms split up into branches, as they approach the sea, dividing the Central delta into a number of islands. The river drains about 115,000 square miles and carries 1½ million cubic feet per second in very high floods.



Prior to 1840, the district was frequently the scene of bad famines. In 1832–33 a terrible famine ravaged the district and the calamitous famine of 1840–41 followed after some more bad years. The recurring famines, the decreasing population and the dwindling revenue spurred the Government into action and Major Cotton (later Sir Arthur Cotton) who had just then completed great improvements in Tanjore, proposed the construction of an anicut across the Godavari at Dowlaishwaram with three canals, one for each of the three deltas. The works were sanctioned almost immediately and carried out expeditiously under his guidance. It is to the genius, keenness and intrepidity of Sir Arthur Cotton, that Madras owes these monumental works unprecedented both as to type and magnitude and which have proved a veritable gold mine.

The Godavari system consists of an anicut and three main canals irrigating three deltas. The anicut is in four sections, linking the islands in the broad river, the Dowlaishwaram section 4,839 feet long, the Ralli section 2,859 feet long, the Maddur section 1,550 feet long, and the Vizeswaram section 2,601 feet long. It was subsequently found necessary to raise the anicut slightly and fit up falling shutters, 2 feet high on the crest. In 1935, the two-feet shutters were replaced by three-feet shutters. These shutters which fall automatically during floods are lifted as the flood subsides by means of a power-operated plough, so as to maintain the requisite water level in the river.

The headworks of the canals consist of a headsluice, an undersluice and a head lock for each of the three deltas. The Eastern

delta is about 450 square miles, the Central delta 500 square miles while the Western delta about 1,000 square miles in extent stretches down to the Collair laks.

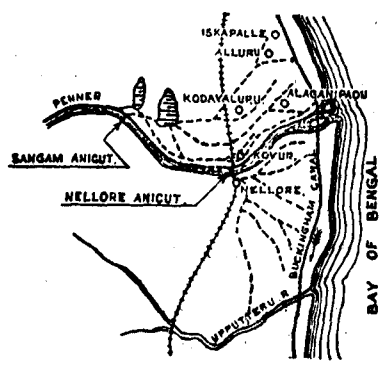
In the Eastern and Western deltas, the Samalkota and Ellore canals define the limits of irrigation to the areas enclosed between them and the river Godavari. They also form the link between Cocanada port and Ellore town where the (Kistna) Ellore canal of the Kistna system joins the (Godavari) Ellore canal. The Central delta particularly the "Nagaram" Island, is the "Garden of the Godavari district" and is noted for the Gannavaram aqueduct which was completed in about eight months in the fifties of the last century, a remarkable feat due to Captain Orr. The Polavaram aqueduct at Annampalli is a similar recent construction to irrigate Polavaram Island.

The river and its branches are banked throughout to protect the deltas from the floods.

The canal system in all the deltas is navigable throughout its length for 11 months in the year and carries annually cargo valued at nearly Rs. 6·5 crores and about Rs. 77 lakhs worth of timber in addition to the passenger traffic of about a million passengers.

The canals irrigate about 800,000 acres but the total area irrigated in a year including the second-crop area is over a million acres. The value of crops grown is over Rs. 5 crores. The capital expenditure on the system was about Rs. 1·90 crores and the return is 17·45 per cent.

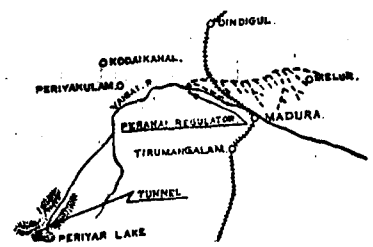
Pennar River Canals System.—The system consists of two anicuts, one at Sangam and the other at Nellore. Two canals take off at the Sangam anicut on the left, one to feed the Duvvur tank and the other the large Kanigiri tank, one of the largest tanks in the Circars. Another channel taking off at right side of the anicut feeds the Nellore tank. At the Nellore anicut, about 20 miles downstream of Sangam, a canal takes off on the right and feeds a number of tanks the largest of which is Sarvapalli. The Sangam anicut has recently been raised by 1 foot and fitted with two-feet falling shutters. The system irrigates about 165,000 acres, the capital expenditure was Rs. 70 lakhs and the return is 6 per cent.



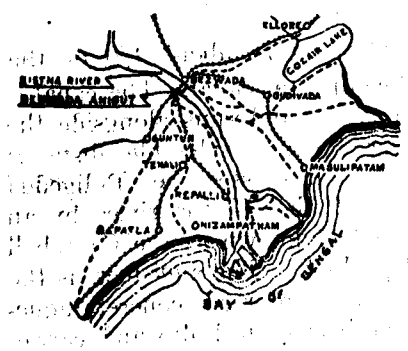
The Shatiatope Anicut System.—The system is a combined tank and canal system served by the Vellar Rajan channel taking off from the Shatiatope anicut across the Vellar. The old anicut

was converted into a bridge and regulator fitted with lift shutters about 1906. The system irrigates about 33,000 acres in South Arcot district and irrigation extends almost as far east as Cuddalore. Perumal tank is one of the largest tanks and the terminal tank of the system. The capital expenditure on the system was about Rs. 11 lakhs and the return is about 8 per cent.

The Periyar System.—The main feature of the Periyar system is the diversion across the peninsula into the Bay of Bengal of a large river which Nature had ordained should flow into the Arabian Sea. A huge dam across an inaccessible gorge in Travancore about 3,000 feet above the sea, in malaria-ridden jungle forms a picturesque lake in the hills with a useful capacity of about 9,800 million cubic feet. The project is due to the genius of Colonel Pennycuick. The dam is of concrete with a masonry facing on the lake side about 170 feet high above the river-bed at the deepest point. A tunnel 5,700 feet long has been bored through the ridge on the east to carry the waters of the lake to the plains of Madura. The water flows into the Surulaiyar, a tributary of the Vaigai and after irrigating about 12,700 acres in the Surulaiyar valley, is again picked up at the Peranai regulator across the Vaigai about 80 miles downstream of the tunnel and diverted into the Periyar main canal about 35 miles long. The system irrigates 132,000 acres in Madura district. The capital expenditure on the system was about Rs. 108 lakhs and the return is about 4·7 per cent.



The Kistna Delta system.—The Kistna rises in the Western Ghauts near Mahabaleswar some 4,000 feet above sea level and runs southwards through Bombay Presidency for some distance before it turns east into Hyderabad and receives the Bhima. Further down the Tungabhadra joins it and from here the river is for a considerable distance the boundary between Madras and Hyderabad. The last important tributary to join is the Musi. The river after flowing through a narrow gorge in the Nallamalais meets the plains of the Coromandel coast studded with hills. The last of these hills is at Bezwada where the river flows between two of them hardly 6 furlongs apart. Stretching away on both sides of the river beyond Bezwada lie the two sections of the delta, the Eastern delta lying on the left side and the Western delta lying on the right. For 40 miles below the river runs in a single



stream. It then throws out the Puligedda branch. Between this and the main river lies Divi Island. The main river then flows for 15 miles and splits into three branches before it empties into the sea. The river drains 97,000 square miles and its flood discharge is about a million cubic feet per second.

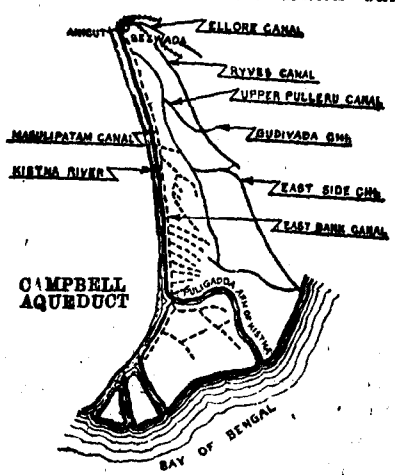
The history of the Kistna anicut follows almost the same course as that of the Godavari. Sir Arthur Cotton, who built the Godavari anicut, was again responsible for the anicut at Bezwada with its two canals, supplying the two sections of the delta on either bank of the river.

The anicut is about 6 furlongs in length and its crest was raised subsequently by one foot and fitted with three-feet falling shutters to improve the supplies to the delta. In 1925, even this was found insufficient and six-feet falling shutters were installed. The shutters are tripped by hydraulic pressure to pass floods and a steam plough is used to lift them up as the flood subsides, so as to maintain full supply in the canals.

The headworks of each canal consist of head and under-sluices and a head lock.

The Eastern delta has an area of about 1,160 square miles and stretches as far north as the Collair. The Western delta is about 950 square miles and extends to the south as far as Peddaganjam. The Kistna-Ellore canal in the Eastern delta connects the Godavari-Ellore canal in the north and the Commamur canal joins the Buckingham canal in the south. These contour canals and the interior canals form a network of irrigation and navigation canals affording means of irrigation and transport for the two deltas. Divi Island was irrigated with water pumped from the river by Diesel engines driven pumps pumping from the river till 1935 when the Puligedda aqueduct was built to carry the Kistna East Bank canal across the river to Divi. This canal now irrigates the entire area in Divi Island.

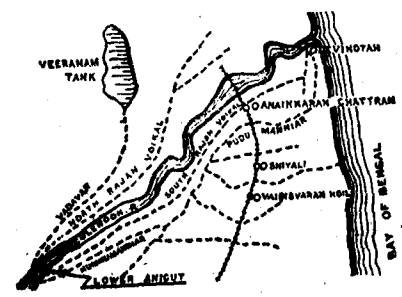
The Kistna East Bank canal takes off at about 4/0 of the Masulipatam canal. The canal is navigable and runs alongside the river for a considerable distance before it crosses the Puligedda arm of the Kistna river by an aqueduct known as the Campbell Aqueduct. The aqueduct is the longest reinforced concrete aqueduct bridge in India and carries a roadway 16 feet wide and a foot-path 4 feet wide. The aqueduct is submerged during high floods. The canal now irrigates about 77,000 acres in Kistna district. The capital expenditure on the canal was Rs. 58 lakhs and the return is 7·4 per cent.



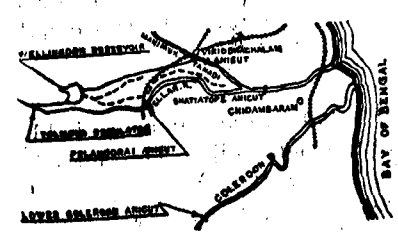
The river and its arms forming Divi Island are banked to protect the deltas from floods.

The canals are navigable for about 10 months in the year and carry annually cargo valued at about Rs. 3·4 crores, timber worth nearly Rs. 2·63 lakhs and about 150,000 passengers. The system irrigates 8·6 lakhs of acres excluding Kistna East Bank canal. The capital expenditure was Rs. 2·2 crores and the return is 13 per cent.

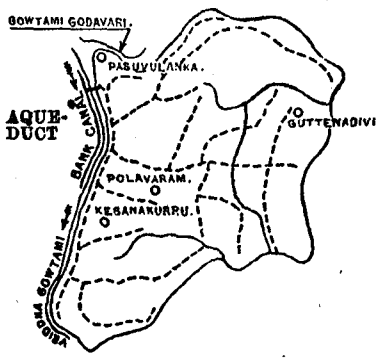
Lower Coleroon Anicut System.—The Lower Anicut across the Coleroon was built about 1840 by Sir Arthur Cotton to ensure supply to the areas originally irrigated by river channels. The old works were substantially improved in 1906. The weir was converted into a regulator fitted with lift shutters 33 feet span and 8 feet high. The Vadavar and North Rajan channels taking off on the left side irrigate lands in the Chidambaram taluk of South Arcot district. The Kamukumaniyar and South Rajan channels take off on the right and irrigate lands in Shiyali taluk in the Tanjore district. The Vadavar is a contour canal supplying the large Veeranam tank, which also supplements supplies in the river Vellar, through a sluice at its northern end. The system irrigates about 111,000 acres. The capital expenditure was Rs. 30 lakhs, returning 4·72 per cent.



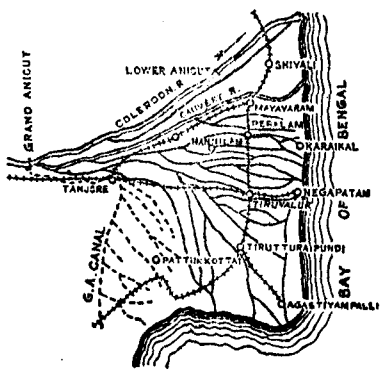
Willingdon Reservoir.—Originally known as the Toludur project, it is a comparatively new work in South Arcot district opened in 1923. There is a bridge regulator fitted with lift shutters across the Vellar at Toludur from which a canal three and a half miles long takes off and feeds the reservoir which has a capacity of about 2,400 million cubic feet. The bridge carries the Great Southern Trunk Road from Madras to Trichinopoly. From the reservoir a channel takes off and branches into the high and low level channels a short distance below the head. These are designed to irrigate about 25,000 acres. Irrigation is not yet fully developed and the system now irrigates about 16,100 acres. Development is being hastened by providing new field channels. The capital expenditure on the system was about Rs. 26 lakhs and the return is 1·71 per cent.



Polavaram Island System.—The system consists of a canal taking off the Bank canal Godavari Central delta, about half a mile above Annampalli lock. The canal crosses the Vriddha Gowtami by a masonry aqueduct and irrigates the Polavaram Island enclosed by the two branches of the Gowtami Godavari. The system irrigates about 13,200 acres in East Godavari district. The capital expenditure was about Rs. 17 lakhs and the return is 1·39 per cent.



Cauvery-Mettur System.—While the south-west monsoon on the hills is fairly copious and dependable, the north-east monsoon supplies are irregular. Caprices of this monsoon have frequently affected cultivation in Tanjore. Moreover, there is usually a break of about six weeks between the two monsoons. The chief aim of the Cauvery-Mettur system is to remedy this state of affairs by storing water in excess during floods and passing it down later when the natural flow in the river falls below requirements. It is also intended to irrigate 301,000 acres of new land chiefly in the Pattukkottai and Arantangi taluks of the Tanjore district.



The system consists of a large reservoir at Mettur known as Stanley reservoir and a canal known as the Grand Anicut canal in Tanjore taking off above the Grand Anicut.

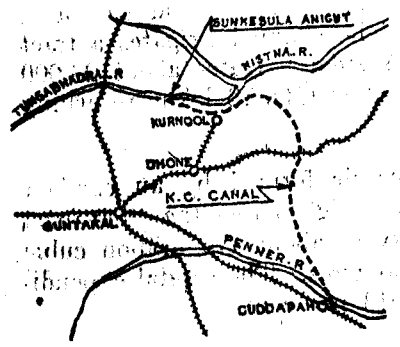
The Stanley reservoir is a lake 60 square miles in area, holding 93,500 million cubic feet of water when full. The lake is formed by a masonry dam, across the valley of the Cauvery. It is about a mile long and about 214 feet high at the deepest point. It is almost the biggest dam in the world and cost Rs. 4·8 crores. There are two sets of sluices in the dam, the high and low level sluices with sills at + 670 and + 720 while the F.R.L. is + 790. River floods are surplussed over an escape at the left flank fitted with lift shutters 60 feet long and 20 feet high. The sluices and the surplus shutters are worked by electric power but it is possible to work any of them by hand, if required. The dam also incorporates 4 sets of cast iron lined sluices 8′ 6″ diameter. These

enable supplies to be drawn for the development of Hydro-Electric Power below the dam. Irrigation supplies for the new area under the reservoir are passed into the river below the dam and picked up at the Grand Anicut about 120 miles downstream. The new canal called the Grand Anicut canal is a contour canal about 70 miles long and the capital cost was about Rs. 200 lakhs. It runs through Tanjore town, after passing which it throws out the large Kalianodai and Rajamadam branch canals. Down below there is a net work of branch channels and the system irrigates lands as far south as the Narasinga Cauvery.

The system is under development. It now irrigates about 1·5 lakhs of acres. The capital outlay is Rs. 6·6 crores and the present rate of return on capital is 1·30 per cent.

Kattalai System.—The south bank canal was excavated to replace the four old korambu channels—Marudur nattu voikal, Mahadanapuram channel, Nangam channel and Uyyakondan channel—taking off from the right bank of the Cauvery in Trichinopoly district, as irrigation under them was troublesome and uneconomical. Because the river-bed at head of the south bank canal had been badly scoured by the 1924 floods a bed regulator was constructed there. Five furlongs below its head, the canal divides into the high level channel and the south bank channel. The system irrigates about 48,700 acres. The capital expenditure was about Rs. 40 lakhs and return is 0·74 per cent.

Kurnool-Cuddapah Canal.—The Kurnool-Cuddapah canal takes off from the Tungabhadra from an anicut at Sunkesula about 15 miles upstream of Kurnool. The anicut and canal were constructed by "The Madras Irrigation and Canal Company, Limited", incorporated in England in 1858, with a guarantee of 5 per cent interest on outlay. The work was completed about 1870 and was handed over to Government on payment of Rs. 3·02 crores. The canal irrigates about 80,000 acres in Kurnool and Cuddapah districts and runs parallel to the river for about 50 miles, when it takes a turn southwards towards Cuddapah district and pierces the ridge between Pennar and Kistna valleys through a cutting called the Mittakondala cutting. Below this point the Kali and Kundu rivers are used to carry the irrigation supplies, the canal serving mainly as a navigation canal. There are anicuts across the Kundu river at Santhajuttur and at Rajoli at which the canal supplies are again picked up and used for irrigation in the Kurnool-Cuddapah canal and its branches. At about mile 180, the canal crosses the



Pennar at Adinimayapalli anicut and is continued on the right as far as Cuddapah town. The Kurnool-Cuddapah canal flows through black-cotton soil and irrigates mostly dry crops. These crops do not require canal supply in years of good and well distributed rainfall but in other years they require occasional irrigation. The canal is maintained at a heavy and recurring loss particularly because of its use in famine years. The canal was navigable throughout till 1934 when the reach below Lockinsula at mile 74/0 was closed to navigation, as there was little boat traffic, and costly replacement of a number of lock gates below Lockinsula was found necessary.

The capital expenditure on the canal was about Rs. 234 lakhs and the return is about 0·69 per cent. It is the most expensive project (excluding Cauvery-Mettur Project) in Madras.

Barur Tank System.—The system consists of an anicut across the Ponnair at Nedungal, with a supply channel feeding the Barur tank in Salem district. The supply channel also feeds a number of small tanks on the left bank while two old channels the Nedungal and Agaram channels feed small tanks on the right bank.

The work on the tail and the supply channel was commenced as a famine relief work in 1877 and subsequently revised to include the anicut, etc. The work was completed in 1899. The system irrigates an area of about 5,000 acres.

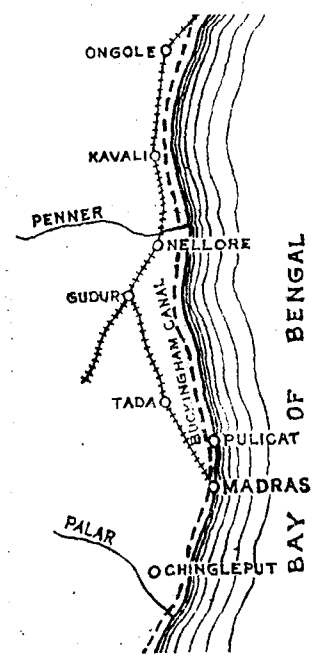
The capital expenditure was Rs. 4·5 lakhs and a return of 2·46 per cent is now obtained.

Nagavalli river System.—At Thottapalli in Vizagapatam district a regulator has been built across the Nagavalli river and a channel about 22 miles long has been dug. The channel irrigates a tract subject to precarious rainfall. The system irrigates about 28,000 acres. The capital expenditure was about Rs. 18 lakhs returning about 3 per cent.

Bhavanasi tank.—This is a reservoir formed by an earthen dam about 2,500 feet long and 30 feet high across the Bhavanasi river in Guntur district with capacity of about 175 million cubic feet. The reservoir irrigates about 556 acres. The capital expenditure was Rs. 2·65 lakhs returning 1·13 per cent.

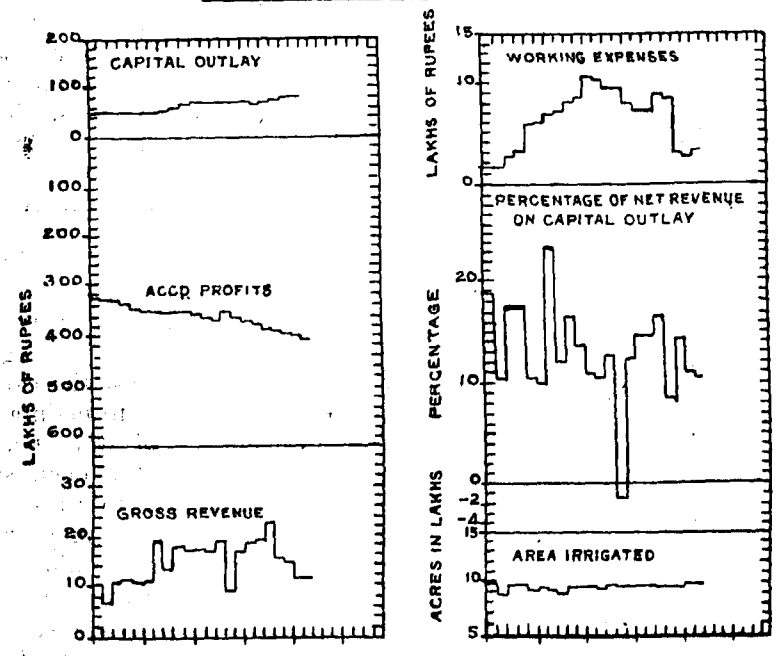
Mopad System.—The Mopad system consists of a reservoir with an earthen dam about 70 feet high at the deepest point and more than a mile long, built across the Manneru river in Nellore district. The reservoir has a capacity of about 2,100 million cubic feet and irrigates lands in a tract where famines are frequent. The ayacut of the tank has been fixed at about 7,000 acres but actual irrigation is only about 4,000 acres. The capital expenditure on the system was about Rs. 23 lakhs and the return is 0·69 per cent.

The Buckingham Canal.—The Buckingham canal is a canal used entirely for navigation. It runs through Madras parallel and close to the Coromandal coast, joining up a series of natural backwaters and connects all the coastal districts with Guntur and South Arcot at the ends. The canal is 196 miles long north of Madras and 62 miles long south of Madras. At its northern end it connects with the Commamur canal of the Kistna delta which in turn is connected to the Godavari canals running as far north as Cocanada. Due to its alignment close to the coast the canal is difficult and costly to maintain. The navigability of the north canal depends on the open sea bars at Ennore and Pulicat. In a bad year water levels may drop and lead to considerable difficulty in navigation. The canal carries a large traffic in salt, shells, firewood, building materials and food grains and is one of the main feeders to the Madras market. It carries cargo of an estimated value of about Rs. 90 lakhs and about 71,000 passengers every year. The capital expenditure on the canal was about Rs. 91 lakhs and the return is minus 1·25 per cent.

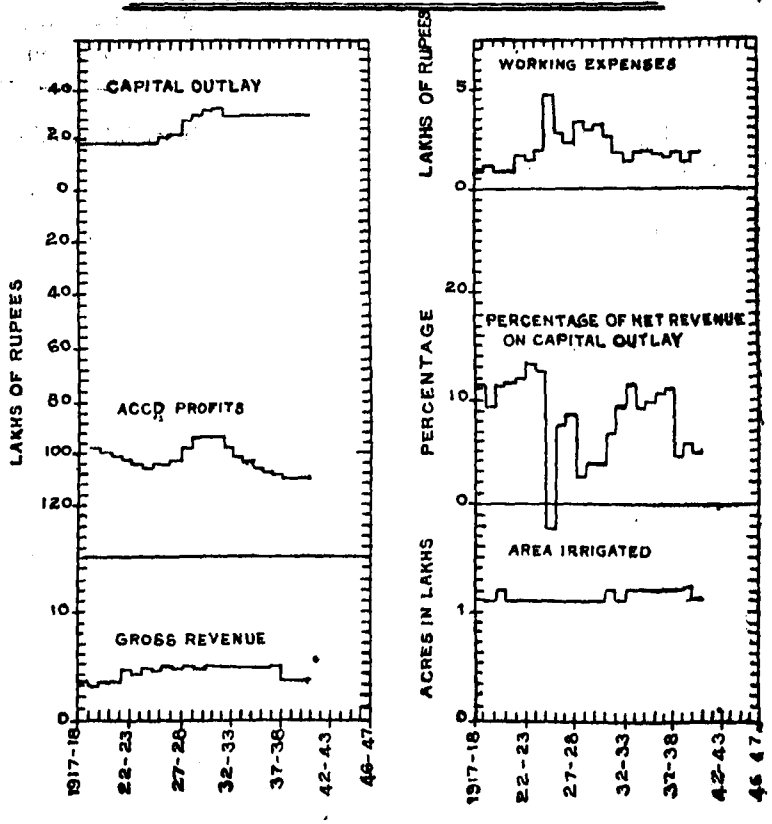


The diagrams on pages 18–24 show the financial results of important irrigation systems.

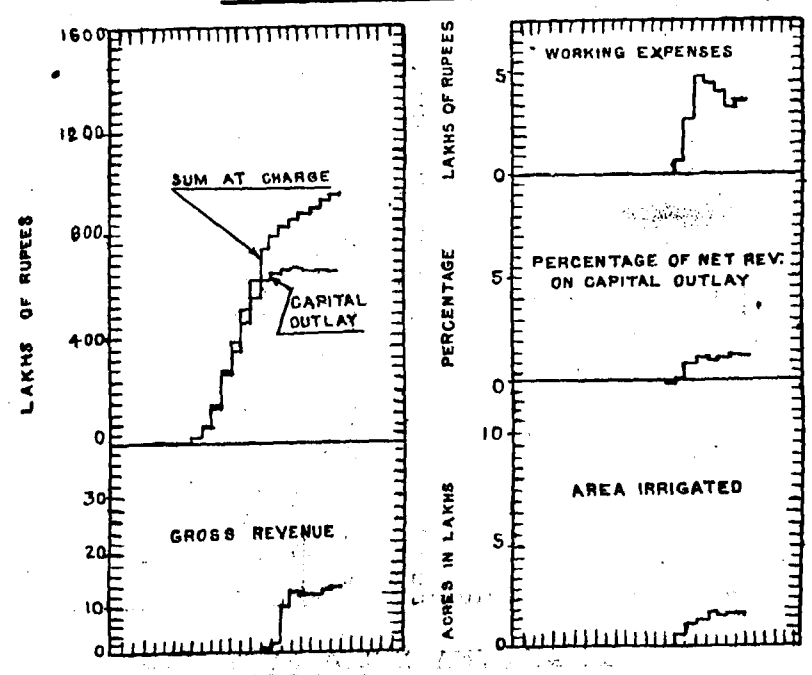
FINANCIAL RECORD
CAUVERY DELTA SYSTEM



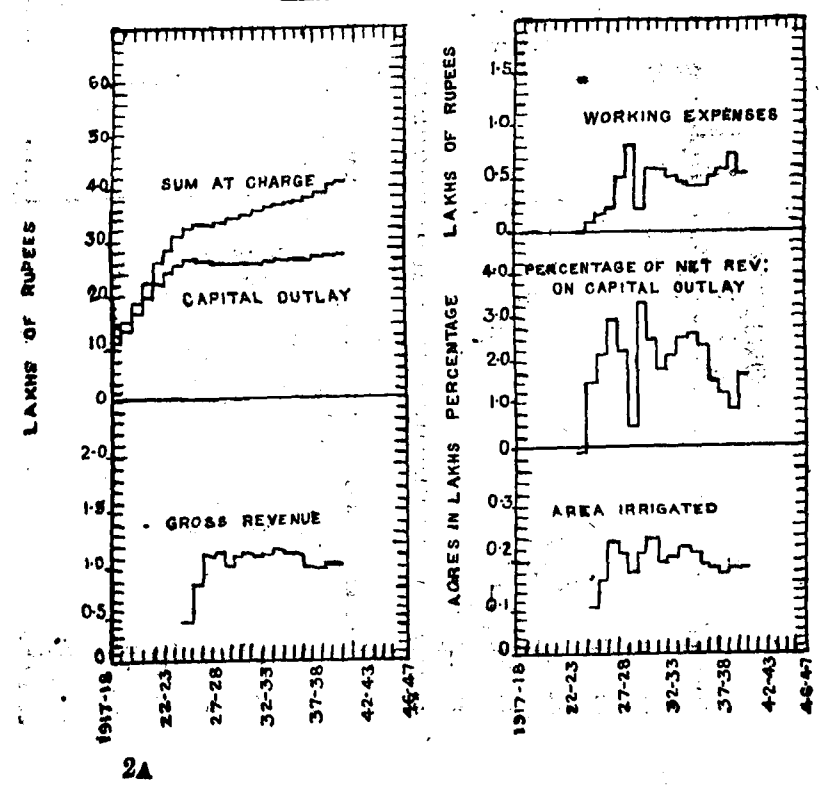
LOWER COLEROON ANICUT SYSTEM



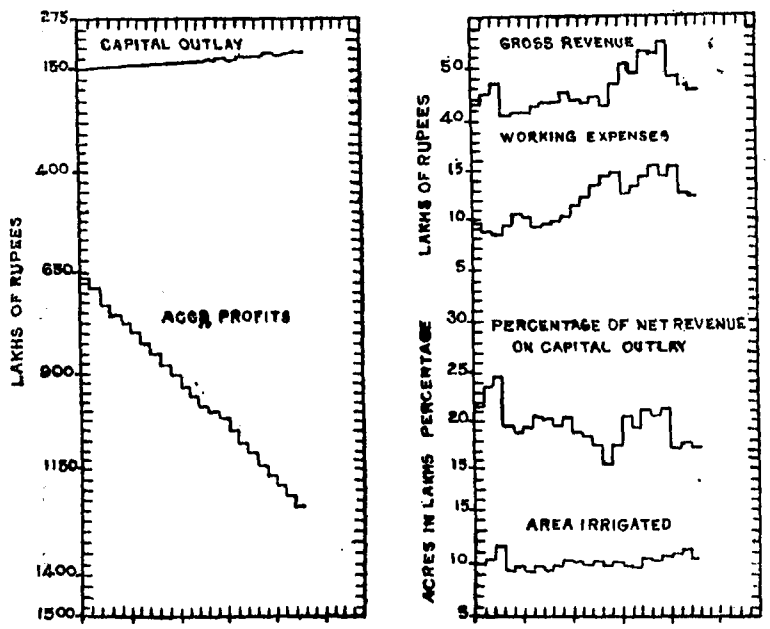
FINANCIAL RECORD
CAUVERY METTUR PROJECT



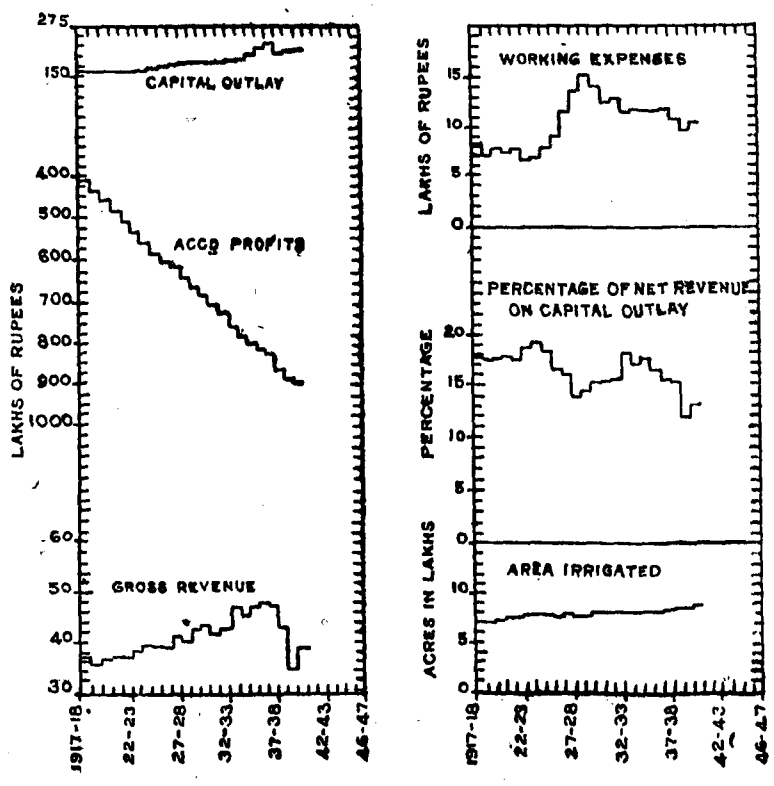
TOLUDUR PROJECT



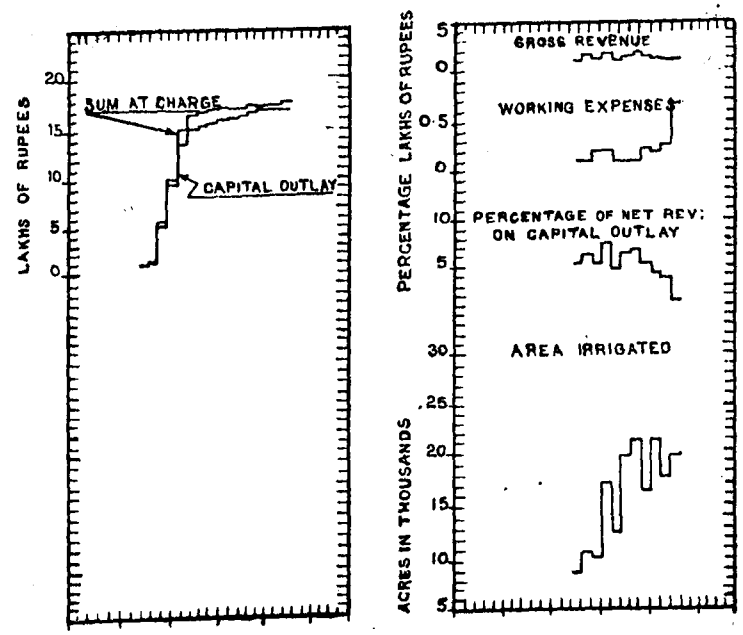
FINANCIAL RECORD
GODAVARI DELTA SYSTEM



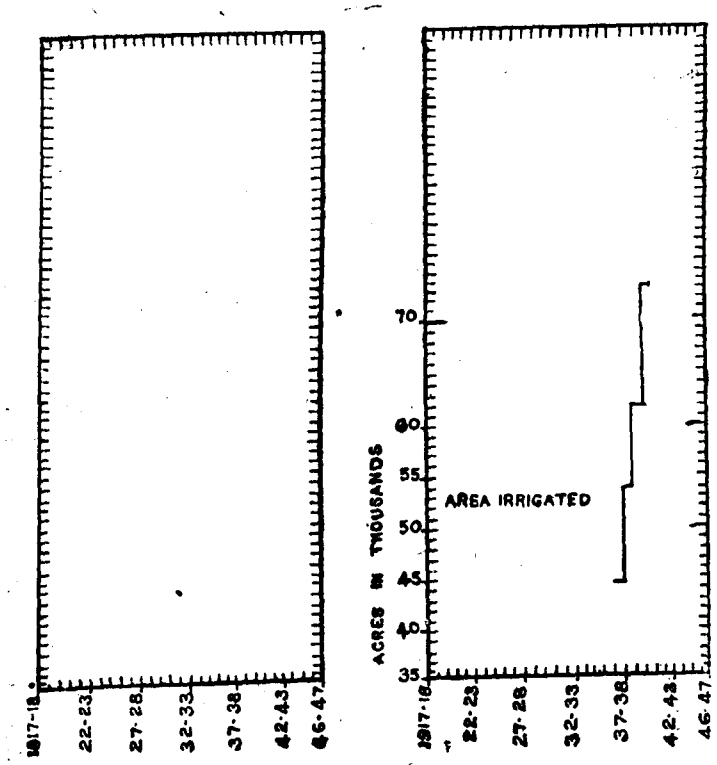
KISTNA DELTA SYSTEM



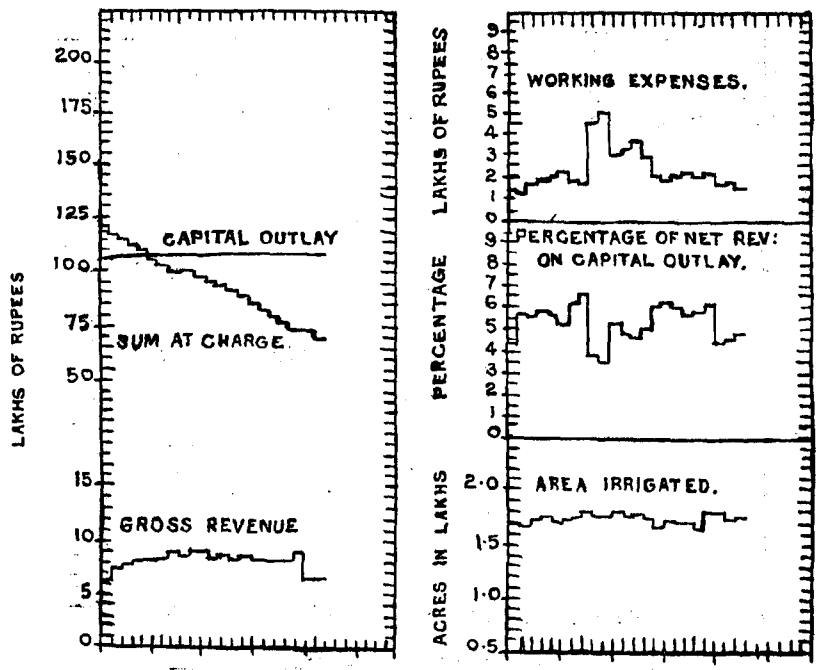
FINANCIAL RECORD
POLAVARAM ISLAND



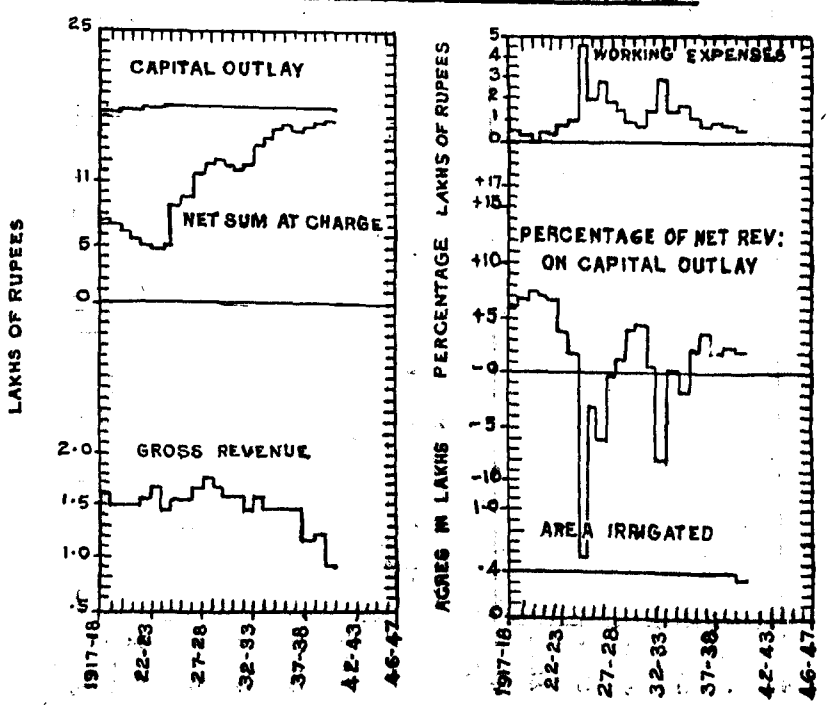
KISTNA EAST BANK CANAL



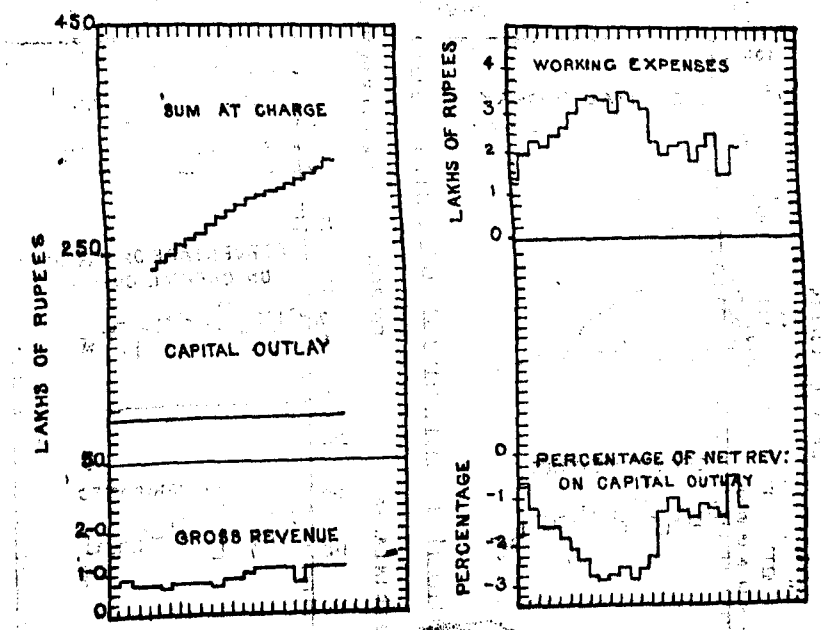
FINANCIAL RECORD
PERIYAR SYSTEM



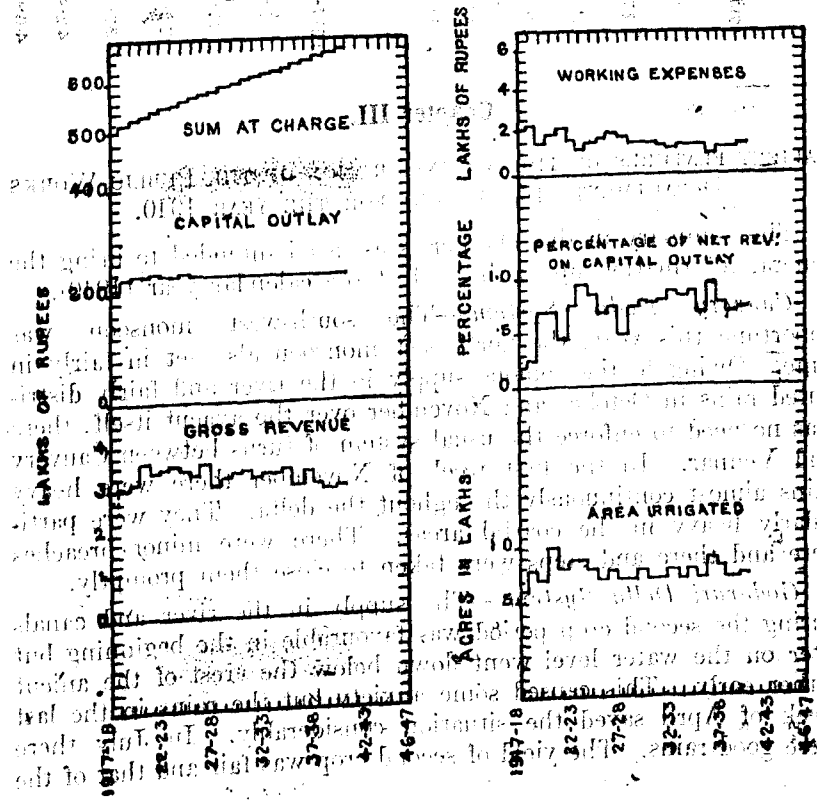
SRIVAIKUNTAM ANICUT SYSTEM

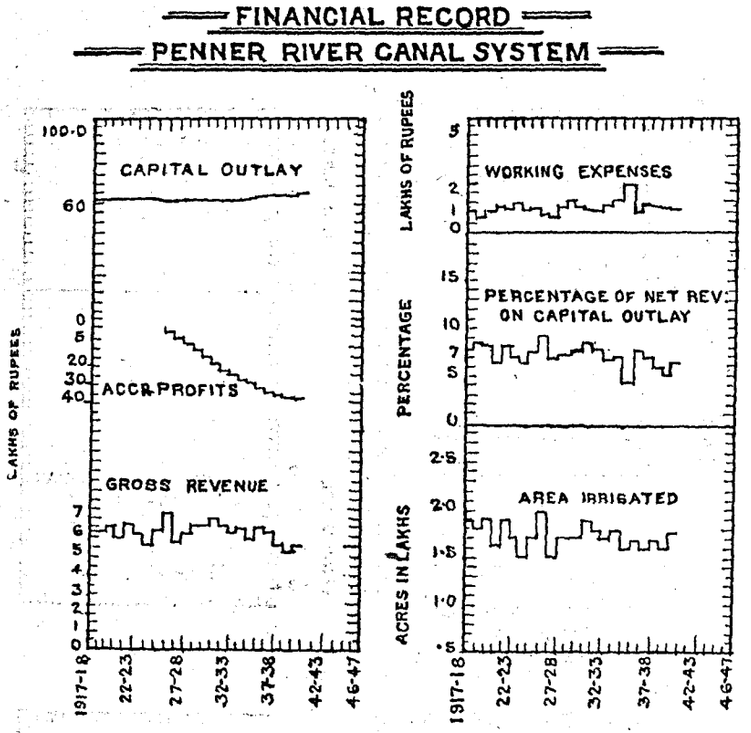


FINANCIAL RECORD
BUCKINGHAM CANAL



KURNOOL - CUDDAPAH CANAL





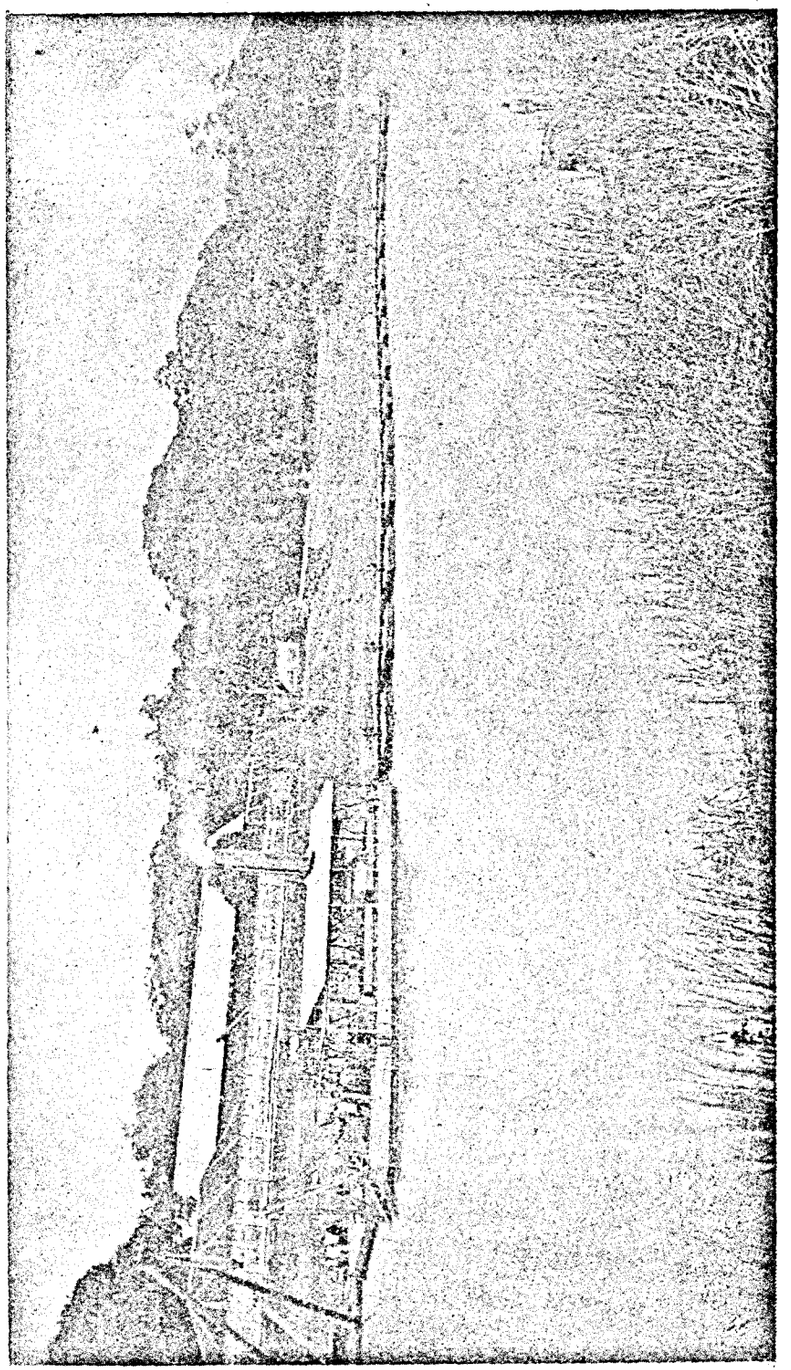
Chapter III.

Salient features of the Administration of the Public Works Department (Irrigation) for the year 1940.

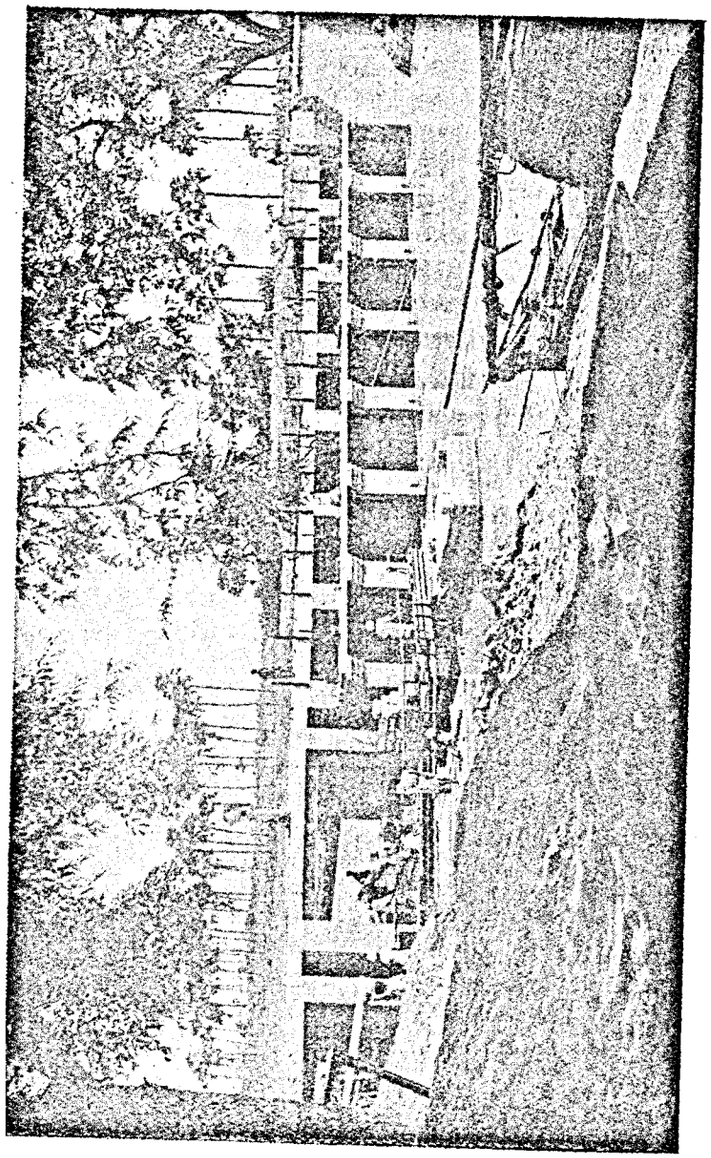
The summary in this chapter is as usual intended to bring the general information up to the end of the calendar year (1940).

Cauvery Delta System.—The south-west monsoon was opportune this year, the north-east monsoon also set in fairly in time. Owing to the copious supply in the river and fairly distributed rains in October and November over the ayacut itself, there was no need to enforce the usual system of turns between Cauvery and Vennar. In the first week of November there were heavy rains almost continuously throughout the delta. They were particularly heavy in the coastal areas. There were minor breaches here and there and steps were taken to close them promptly.

Godavari Delta System.—The supply in the river and canals during the second crop period was favourable in the beginning but later on the water level went down below the crest of the anicut rather early. This caused some anxiety but the rains in the last week of April saved the situation considerably. In July there were good rains. The yield of second crop was fair and that of the



DREDGER "AKHANDA GODAVARI" AT WORK.



COMBINED BRIDGE, LOCK AND REGULATOR ACROSS BANDAR CANAL AT YENAMALAKUDURU—FRONT VIEW.

first crop was also fair except in flood affected areas. This year's flood in the Godavari was remarkable not only for its magnitude but also for its long duration and the flood banks had to be patrolled continuously for ten days. Slips were noticed at a few places in the flood banks. There was an overflow of 5 feet over Annampalli aqueduct and 1·5 feet over Gannavaram aqueduct. The raised crest of the Dowlaishwaram branch of the anicut together with shutter equipment for about 400 feet length was washed away and a stone bund had to be thrown across the gap to prevent wastage of water. Kalipatnam, Vemuladevi and Losari projects are expected to be completed by the middle of next year.

Pennar River Canals System.—The Kanigiri Reservoir which is the main source of irrigation to Sangam delta did not receive full supplies from the Pennar river till the middle of September 1939. It received good supplies after the middle of September 1939 and the crops thrived very well during the period but the cyclonic winds and heavy rains caused heavy damage to crops. From September till the end of the irrigation season the reservoir was full which gave the advantage for raising the second crop in addition to the late sown first crop on the flooded area.

Fitting up of falling shutters over the Nellore and Sangam anicuts had been practically completed.

Periyar System.—The Periyar lake was opened for irrigation on 1st June 1940 when the lake level was + 124·00. There was a gradual fall of 3·2 feet in the lake level, up to 22nd June 1940 when it began to rise and reached the F.T.L. of 152·00 by 15th August 1940. Again from 28th August to 1st November 1940, the lake level was going down. Thereafter the level went on increasing and reached F.T.L. on 19th November 1940 and continued to be at F.T.L. practically till the end of the year. The water-supply and condition of crops were quite good.

Kistna Delta System.—The irrigation season began well with early freshes in the river and without high floods. Due to favourable circumstances, transplantation began in the first week of June and was completed by the end of July. There were floods in Budameru resulting in high water level in Collair lake and submersion of lands bordering Collair lake which caused damage to some crops. The owners of lands submerged in Kaikalur taluk have asked for permission to raise Dalva crop this year. Supply of water under Polraj and Campbell canals to certain lands as an experimental measure this year, is being considered. Rainfall from September was normal and there were no heavy winds during the period. The standing crops are good and a bumper harvest is expected this year. The area under sugarcane cultivation is gradually increasing due to the sugar factory at Vuyyur.

A regulator was constructed across Bandar canal below Kistna East Bank canal head sluice to improve supplies to the Bank Canal, secure better distribution of supplies as between Bandar and Ryves canals and facilitate regulation and navigation.

Vizagapatam District.—The rains started early and the wet lands were transplanted in time. Later in the season scarcity of supply was felt and korambu works had to be done for some river channels in Chicacole Subdivision.

Cauvery-Mettur System.—From 5th to 15th April 1940 the usual summer supply of 1,000 cusecs from the Stanley reservoir was increased this year ranging from 1,300 to 1,750 cusecs. In all 39 millions cubic feet of extra water was issued as an experimental measure to examine how best such extra supply can be utilized for irrigation in the summer months. The reservoir level fell down to 92·90 on 25th June 1940 and thereafter began to rise steadily and the F.R.L. was reached on 9th July 1940. The period 9th July to 16th September 1940 is the maximum continuous period during which the lake had been at or above F.R.L. ever since the completion of the reservoir. The breaches caused by the floods of 1939 in the Grand Anicut Canal were all brought to the standard during the last closure. Repairs and extensions to the Agniar aqueduct were also completed during the closure period.

Besides the two Industrial concerns, the Mettur Industries, Limited, and the Sandalwood Factory which are progressing, the Mettur Chemical and Industrial Corporation, Ltd., have resumed work.

Poondi Reservoir Scheme.—The scheme was sanctioned by Government in June 1940 at an estimated cost of Rs. 52·89 lakhs (works only).

A special division was constituted on 5th July 1940 for its execution. The foundation stone was laid by His Excellency the Governor on the 8th August 1940. Within the short working season available in 1940, work on the regulator was started and is in good progress. Buildings required for the staff were nearing completion.

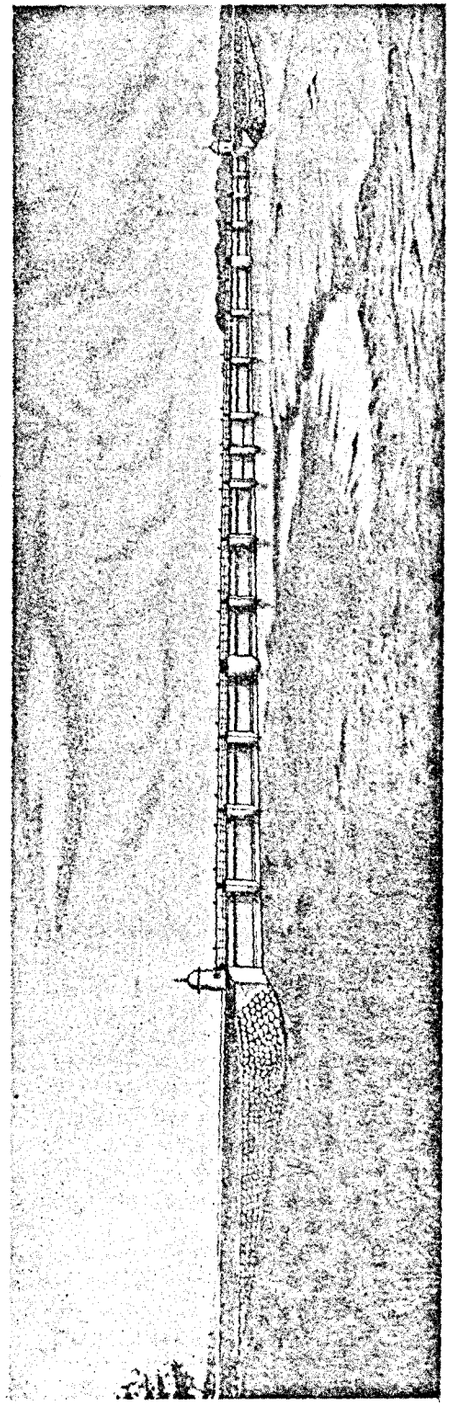
Tungabhadra Project.—Investigation by a Special Executive Engineer with necessary staff is in progress. Agricultural experiments were continued during the year.

Cauvery Gauging.—In accordance with the rules of regulation of the Krishnarajasagar joint cross sections of the rivers at the standard stations were taken in June and October. The river Lakshmanathirtha was jointly gauged and the results are being worked out jointly. The Krishnarajasagara channels are being gauged.

Buckingham Canal.—Repairs locks and flood gates on the canal and silt clearance wherever necessary were carried out during the year and the navigation in the canal was fairly satisfactory. The girder bridge at Kothapatam at 178th mile collapsed in October 1939. Arrangements have been made to reconstruct it.

General.—Breach closing in Kundamadakala tank was affected by the rains of May 1940 and the breach became wider. Arrangements have been made to close the breach in 1941.

EXTENSION TO THE AGNIAR AQUEDUCT IN GRAND ANICUT CANAL CARRIED OUT IN SUMMER OF 1940.



MADRAS WATER SUPPLY—POONDI REGULATOR—FRONT VIEW AS IT WOULD APPEAR WHEN COMPLETED.

Chapter IV.

PERSONNEL, CLASSIFICATION OF WORKS—FINANCIAL RESULTS.

Mr. J. S. Westerdale continued as Chief Engineer for Irrigation till 29th September 1939 afternoon when he reverted as Superintending Engineer. Mr. F. M. Dowley returned from leave, resumed charge of the office of the Chief Engineer for Irrigation from 30th September 1939 and continued as Chief throughout the year. Sri Rao Bahadur A. R. Venkata Acharya, Deputy Chief Engineer for Irrigation, proceeded on leave from 3rd August 1939 afternoon and Mr. N. J. Joseph succeeded him and continued throughout the year.

2. Irrigation works in the Presidency are classified as shown below :—

(*a*) Works for which capital and revenue accounts are kept—
- A. Irrigation works—
  - (i) Productive.
  - (ii) Unproductive.
- B. Navigation, Embankment and Drainage Works—
  - (i) Productive.
  - (ii) Unproductive.

(*b*) Works for which capital and revenue accounts are not kept—
- (i) Irrigation Works.
- (ii) Navigation, Embankment and Drainage Works.

A work is classed productive or unproductive on the financial results of three consecutive years. There are no works in the Presidency under B. Navigation, Embankment and Drainage Works—Productive.

3. The total outlay on irrigation works during the year was Rs. 90,93,486 against Rs. 93,72,233 in 1938-39. The total revenue realized was Rs. 2,75,00,244 against Rs. 2,52,88,442 in the previous year. The area charged as irrigated was 7,492,110 acres against 7,296,157 acres in the previous year. The net revenue after deducting working expenses was Rs. 1,39,32,770 against Rs. 1,18,34,661 in the previous year. The expenditure figures include indirect charges. If direct charges alone are considered, the expenditure during the year was Rs. 83·61 lakhs against the budget allotment of Rs. 84·79 lakhs. The total area in the Presidency during 1939-1940 under the chief food and industrial crops both irrigated and dry was 36,277,212 acres or 316,136 acres more than in the previous year. The area irrigated by Government irrigation works was 7,492,110 acres or 20·65 per cent of the total cropped area. This area was 195,953 acres more than in 1938-39. The increase was due to the favourable season and development of irrigation under new systems.

4. *Financial Results*—(i) *Productive works.*—The capital outlay during the year was Rs. 4,90,891 and to the end of the year Rs. 15,60,62,885. The area charged as irrigated was 4,146,044

acres and the estimated value of crops raised was Rs. 21,69,83,166. The net revenue derived was Rs. 97,46,369 representing a return of 6·25 per cent on the capital outlay. The accumulated profits to end of the year amounted to Rs. 33·05 crores.

(ii) *Unproductive works.*—The capital outlay during the year was Rs. 70,456 and to the end of the year Rs. 3,87,56,452. The area charged as irrigated was 281,686 acres and the estimated value of crops raised was Rs. 1,25,17,634. The net revenue derived was Rs. 3,95,211 representing a return of 1·02 per cent on the capital outlay.

(iii) *Minor works for which capital and revenue accounts are not kept*—(*a*) *Irrigation works.*—There are 34,477 works in this class against 34,400 in 1938–39. The outlay on them during the year was Rs. 33,33,316. The area charged as irrigated was 3,064,380 acres.

(*b*) *Navigation, etc., works.*—The outlay incurred was Rs. 5,63,319 and the revenue derived was Rs. 87,465.

5. *Irrigation works—Productive.*—(1) As in the previous year there are 26 works in this class. The canals in the Godavari and the Kistna delta systems are used both as irrigation and navigation. The remaining works are for irrigation.

(2) The total length of the main and branch canals at the end of the year was 3,938⅝ miles. Of this length, 911⅜ miles were for irrigation and navigation combined and the remainder for irrigation. The length of the distributaries was 10,566⅞ miles.

(3) The capital outlay (direct and indirect) during the year was Rs. 4,90,891 against Rs. 9,09,770 in the previous year. The bulk of the expenditure during 1939–40 was incurred on the Godavari, the Kistna and the Cauvery delta and the Pennar river canals systems. Details of works carried out are given in Chapter V.

(4) The total area charged as irrigated was 3,553,906 acres first crop and 592,138 acres second crop against 3,504,991 and 619,071 acres respectively in 1938–39. The increase in first crop was mainly under the Kistna delta system, Kistna East Bank canal and Cauvery-Mettur Project. The decrease in second crop was mainly under Cauvery delta and Srivaikuntam anicut systems and Cauvery-Mettur Project.

(5) The gross working expenses of the year, Rs. 51,47,371 against Rs. 50,88,575 in the previous year.

(6) The gross revenue of the year was Rs. 1,86,24,538 against Rs. 1,81,62,320 in 1938–39. The increase in revenue was chiefly due to less refunds under many systems.

(7) The net revenue derived and the net profits after deducting interest charges amounted to Rs. 97,46,369 and Rs. 30,49,691 against Rs. 92,91,357 and Rs. 26,28,544 respectively in the previous year. The net profit works out to 1·95 per cent on the

total capital outlay of Rs. 15,60,62,885 against 5·86 per cent 25 years ago, i.e., in 1914–15. The fall in profits was due chiefly to the large outlay on the Cauvery-Mettur Project which has recently commenced to function and also to the expenditure incurred on the Godavari, the Kistna and the Cauvery delta systems.

(8) The estimated value of irrigated crops raised during the year amounted to Rs. 21,69,83,166 against Rs. 19,41,79,325 in the previous year.

(9) The average revenue per acre amounted to Rs. 4·49 on the gross area and 5·33 on the new irrigation. The working expenses per acre were 1·24 on the gross area and 1·57 on new irrigation.

(10) The remissions granted during the year amounted to Rs. 42,92,075 against Rs. 46,20,422 in the previous year. The areas affected were mainly in the Godavari, Kistna and Cauvery delta systems. Cyclone damage was responsible for large remissions during the year.

6. *Irrigation works—Unproductive works.*—(1) There were 28 works of this class as in the previous year. The Kurnool-Cuddapah canal is used for irrigation and navigation, navigation being confined to the first 75 miles. The other works are used only for irrigation.

(2) The capital outlay (direct and indirect) during the year was Rs. 70,456 against Rs. 36,999 in 1938–39. The bulk of expenditure was on the Palar Anicut System, Thippayapalem Project and Nagavalli river systems.

(3) The total lengths of the main and branch canals at the end of the year was 831⅛ miles of which 75 miles were for irrigation and navigation combined and the remainder only for irrigation. The length of distributaries was 675⅝ miles.

(4) The area irrigated during the year was 281,686 acres against 269,395 acres in 1938–39. The increase in area was mainly under Palar Anicut and Sagileru systems and Markapur and Barur tanks.

(5) The gross working expenses amounted to Rs. 3,71,143 against Rs. 3,80,810 in the previous year.

(6) The gross revenue amounted to Rs. 9,93,468 against Rs. 9,56,079 in 1938–39.

(7) The net revenue due to improvements was Rs. 3,95,211 against Rs. 3,47,773, in the previous year. This represents a return of 1·02 per cent on the capital outlay of Rs. 3,87,56,452 to end of the year. The net revenue fell short of interest charges by Rs. 13,06,065 of which Rs. 8,88,338 pertained to Kurnool-Cuddapah canal. This deficit represents 3·37 per cent on the outlay.

(8) The estimated value of crops amounted to Rs. 1,25,17,634 against Rs. 99,87,885 in the previous year.

(9) The average revenue per acre amounted to Rs. 3·53 on the gross area and Rs. 4·48 on the new irrigation. The working expenses per acre were Rs. 1·32 on the gross area and Rs. 2·10 on new irrigation.

(10) The remission granted during the year amounted to Rs. 1,63,525 against Rs. 2,26,736 in the previous year. The area affected was mainly under Palar Anicut system, Kurnool-Cuddapah canal and Nagavalli systems.

7. *B. Navigation, Embankment and Drainage Works—Unproductive.*—There were two works of this class, viz., the Buckingham Canal and the Vedaranyam canal the total length being 313⅝ miles. The gross receipts amounted to Rs. 1,08,046 and the charges to Rs. 2,33,550 against Rs. 1,08,040 and Rs. 1,56,368 respectively in the previous year. There was thus a loss of Rs. 1,25,504 on the working of these canals against a loss of Rs. 48,328 in 1938–39. The value of goods carried during the year was Rs. 97,22,719.

8. *Navigation canals.*—Navigation was carried on as usual on the Dummagudem, Godavari, Kistna (Kistna East Bank canal being shown separately for account purposes) Kurnool-Cuddapah, Buckingham, West Coast and Vedaranyam canals. As in the previous year navigation in the Kurnool-Cuddapah canal was limited to the first 75 miles. The total direct receipts amounted to Rs. 4·71 lakhs showing an increase of Rs. 0·09 lakh over the figures of the previous year and this was due mainly to increase in the licence fees in the Kistna and Buckingham canals.

9. *Works for which capital and revenue accounts are not kept—Irrigation works.*—The outlay incurred, the area irrigated and the revenue derived from the works of this class are compared below with the figures of 1938–39 and the average of the previous triennium :—

	Outlay incurred.	Area irrigated.	Gross revenue.
	RS.	ACS.	RS.
During 1939–40	33,33,316	3,064,380	76,86,727
During 1938–39	33,21,384	2,902,700	59,73,528
Average of the triennium ending 1938–39	34,74,635	3,035,925	77,78,795

10. *Tank Restoration Scheme works.*—The total area coming within the scope of Tank Restoration Scheme investigation is 102,500 square miles. Investigations were taken up in basins of a total area of 94,660 square miles of which 87,630 square miles had been investigated by 1931 when the Tank Restoration divisions and subdivisions were abolished, as a measure of retrenchment. Since April 1931 up-to-date, the area investigated, by the regular staff is 1,257 square miles. No investigation was done during the current year. The areas investigated up to 31st March 1931, 1939 and 1940 are 85·49 per cent, 86·72 per cent and 86·72 per cent respectively of the total area of 102,500 square miles.

In the area investigated, necessary works were completed in 85,899 square miles and works are in progress or yet to be started in the remaining area of 2,988 square miles.

The number and amount of estimates sanctioned up-to-date are shown in the statement in paragraph 6, section E-I of Chapter V. The total amount of estimates sanctioned from the commencement of Tank Restoration Scheme operations up to the end of the year was Rs. 203 lakhs nearly, against which the total expenditure incurred was Rs. 1,71,17,666 (exclusive of charges for establishment and tools and plant). The expenditure during the year amounted to Rs. 6,618.

11. *Works for which capital and revenue accounts are not kept—Navigation, Embankment and Drainage Works.*—The outlay incurred on and the revenue derived from the works of this class are compared below with figures of the previous year and the average of the previous triennium :—

	Outlay incurred.	Revenue derived.
	RS.	RS.
During 1939–40	5,63,319	87,465
During 1938–39	5,78,655	88,475
Average of the triennium ending 1938–39	8,02,542	83,716

12. *Projects under consideration.*—To relieve submersion, caused by floods in the Coringa river, alternative proposals for (*a*) a vented cross-bund and lock at Tallarevu or (*b*) a lock and regulator at Yanam were considered. The Government to whom the former scheme was submitted for consideration as a Part II Scheme for 1939–40 raised the question of contribution recoverable from the ryots. This was examined and a report sent to the Board of Revenue.

The smaller scheme to irrigate 7,500 acres in Coringa island was considered by Government and they raised the question of availability of water for the project. As the prospects were favourable a report on the matter was sent to Irrigation Development Board for favourable consideration.

The report on the localization of the second crop zones in the Godavari Eastern and central deltas submitted to the Government is still under consideration.

The preliminary report on the scheme to irrigate 3,750 acres of high level lands at the head of the Godavari Central Delta was examined and detailed investigation of the scheme was recommended to Government.

Proposals to irrigate 4,000 acres and improve drainage facilities in Kanur, West Godavari district and in the area lying between Nidadayole-Narsapur road by a channel from Vizeswaram were postponed by Government for consideration as a Part II Scheme for 1941–42.

The scheme to rebuild the Torrigedda outfall sluice to reduce submersion of crops by floods in the Godavari was sanctioned by Government towards the close of the year. Special staff was also sanctioned for the execution of the scheme.

Reports on the agricultural and financial aspects of the proposal to irrigate by pumping 3,750 acres at the head of the Godavari Western delta were received from the departments concerned. Preliminary proposals framed by the local officers were examined and the scheme is proposed to be deferred till the Godavari Central delta pumping scheme matures.

A report regarding the probabilities of extension of sugarcane and other valuable garden crops in the delta due to assured supply in summer obtainable from the proposed reservoir across the Sabari, a tributary of the Godavari, was called for from the local officers. Report is awaited.

A scheme to construct a reservoir on the Yerracalva in West Godavari district to serve as a flood moderator and to irrigate roughly 25,000 acres was considered. Field work and preparation of plans and estimates were completed by a special staff. The opinion of the Revenue Department is awaited.

Preliminary proposals for a scheme to irrigate about 1,340 acres by pumping water from Godavari Western Ellore canal at M. 40—3—450 feet to Seethanagana tank of Dendulur framed by the local officers after preliminary investigation are under examination. The opinion of the Revenue Department on the financial aspect is awaited.

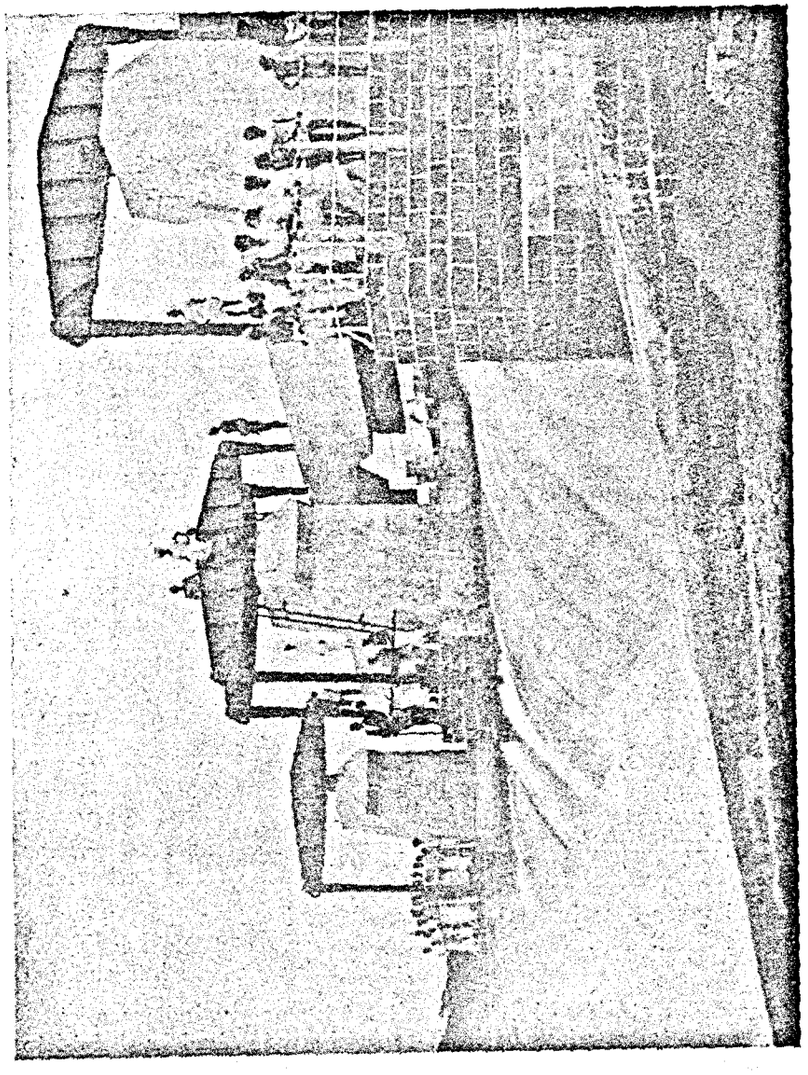
A scheme to utilize the flood waters of the Yeleru river in East Godavari district by diverting some of the flood flow into the Thimmaraju tank of Lingamparti village with an ayacut of 5,000 acres was investigated and preliminary proposals were being framed by the local officers.

Government ordered the detailed investigation of a scheme to extend irrigation to about 4,800 acres under the Nagarikatakam channel in the Chicacole taluk, Vizagapatam district. The investigation is in progress.

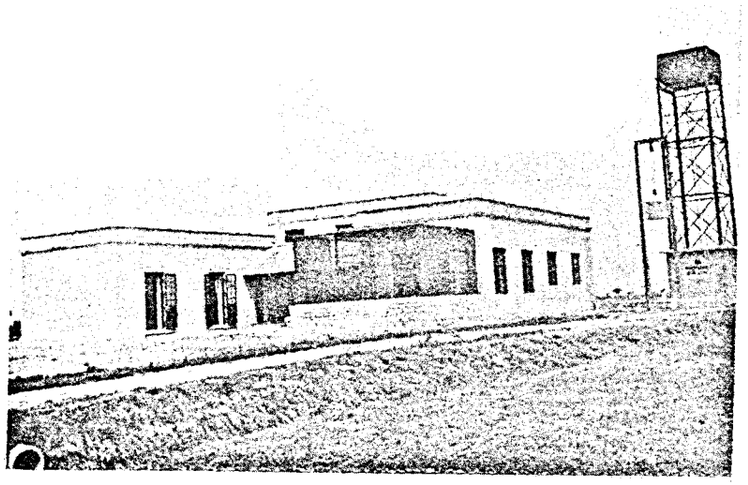
The special subdivision sanctioned by Government for the detailed investigation of the Gundlakamma scheme began work in January 1940.

Final report on the results of gauging the Pillaperu to augment the supply to the Mopad system was received and alternative proposals for direct and indirect irrigation within the limits of the ultimate ayacut of the Mopad project are under examination by the local officers.

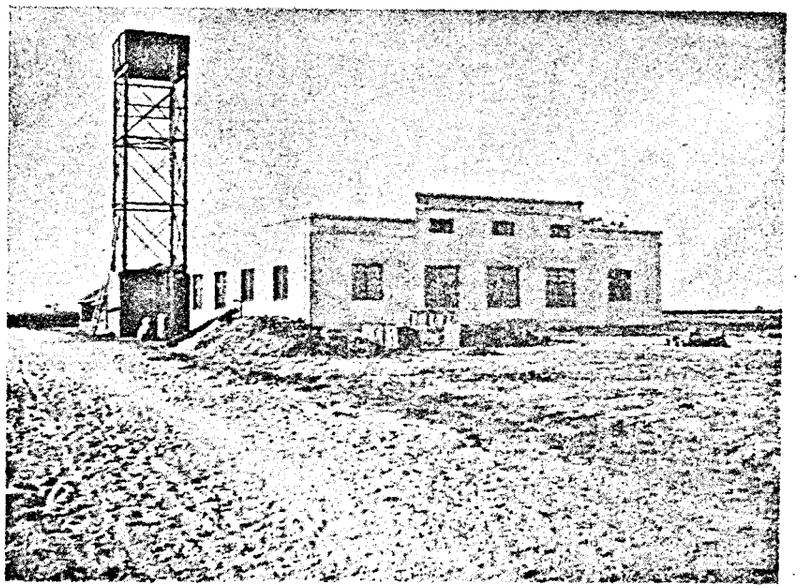
The reports sent to the Government through the Board of Revenue on the Ballapad and the combined Ballapad-Machavaram schemes (Nellore district) were under the consideration of the Board.



RED HILLS TANK—AUTOMATIC SHUTTERS—FRONT VIEW.



SIRUGUPPA AGRICULTURAL RESEARCH STATION—OFFICES AND LABORATORY.



SIRUGUPPA AGRICULTURAL RESEARCH STATION—OFFICES AND LABORATORY.

A preliminary report on the schemes for relieving submersion of lands bordering the Collair lake, Kistna district, by widening the Upputeru and diverting the Budameru river into the Kistna above Bezwada was examined. The opinion of the Revenue Department on the scheme is awaited.

The Chief Engineers of the Madras and Hyderabad Governments inspected the dam site for the Tungabhadra Project and discussed at Hospet certain matters relating to the project. Proposals for forming a special investigation division for the project were sent up to Government and the Division was sanctioned to be formed from 15th June 1940. Preliminary work of marking the alignment of the main canal on ground was done during the year. The experiments on important crops such as cotton, cholam, etc., were continued during the year also at the experimental farm, Siruguppa. Proposals for a demonstration farm at Bhagavadi submitted to Government were sanctioned in May 1939 and the farm is working.

The sanctioned scheme to extend the wharf at Bezwada from the girder bridge at M/O2 of the Kistna Eastern Delta main canal down to the railway girder bridge in order to relieve traffic congestion has been postponed for consideration as a Part II Scheme till better financial conditions prevail.

Gaugings of the Papagni river at Velligallu and Tummalur for the Papagni (anicut) scheme were continued.

The scheme to excavate a supply channel to Gotur Mallidevaroya cheruvu and an alternative proposal are under examination by the local officers.

The scheme to construct an anicut across the Pambaleru river for augmenting supplies to Thippaguntapalem tank and extending irrigation was re-examined and an approximate estimate prepared. The Collector's opinion on the financial aspect of the scheme is awaited.

The plans and estimates for excavating a spring channel from the Penner right bank to irrigate lands in Gangavaram and other villages of the Cuddapah district are under revision.

Jothivagu and two neighbouring streams are being gauged in connexion with a scheme to improve supply to Ganganapalli tank in Narasapuram village, Badvel taluk, Cuddapah district, by leading into it a channel from Jothivagu.

A scheme for a reservoir across the Penner river in Gandikota village limits, Cuddapah district, to irrigate about 100,000 acres of dry and 150,000 acres of wet crop was examined. The question of availability of supply is under examination.

Gauging the Penner for the Penner-Kumudavathi project was continued during the year also.

For the proposal to utilize the surplus waters of the Siruvani river for irrigation in the Noyyel valley, deferred pending a decision on the Lower Bhavani project, gauge readings were continued.

Gauge readings of the Uduthorahalla river in Kollegal taluk were continued during the year also. Preliminary proposals for an anicut to irrigate 750 acres and a reservoir to irrigate 2,500 acres are under consideration.

The Hebbahalla scheme in the same taluk for an anicut across the Hebbahalla river and a channel from it to augment supplies to Kottakarai and five other tanks was completed during the year.

The report of the special officers appointed to investigate and formulate proposals for making navigation in the West Coast canals pay its way was under the consideration of Government.

Improvements to the Wyakondan channel in Trichinopoly and Tanjore districts were in progress.

The scheme for a reservoir on the Kortlayar river at Poondi in Chingleput district to augment the water-supply to Madras City was investigated in detail at the cost of the Corporation by a special staff sanctioned by the Government in December 1939. Detailed plans and estimates for the scheme were prepared and submitted to Government for consideration.

13. *Character of the season.*—The south-west monsoon appeared early in June but was not very active in the month with the result that the rainfall was below normal except in Kurnool, Anantapur, Nellore, Chittoor, Salem, Trichinopoly, Tanjore, Madura and Ramnad where it was up to or above normal. In July also the rainfall was below normal excepting East Godavari and West Godavari. In August it was above normal in the Deccan except Cuddapah, Coimbatore, Trichinopoly, Madura and Tinnevelly. In September, it was below normal in all the districts excepting Guntur, Cuddapah, Chingleput and Salem. On the whole the rainfall was below normal in all districts except Bellary.

The rainfall in October was below normal only in Anantapur, Chingleput and Tinnevelly districts. There were floods in the districts of West Godavari, Kistna and Guntur which caused damage to standing crops. In November also the rainfall was above normal in all districts except Vizagapatam. There were also floods in Tanjore and Trichinopoly districts which caused damage to standing crops. In December the rainfall was below normal throughout the Presidency. On the whole the north-east monsoon was fairly satisfactory.

The average rainfall in the Presidency exclusive of the West Coast and the Nilgiris for the year 1939–40 was 37·81 inches against 32·46 inches in the previous year and against the average of 33·17 inches for the five years ending 1938–39.

14. *Floods.*—The highest flood in the Godavari river was 11·2 feet on 23rd August 1939, over the crest of Dowlaishwaram anicut against 12·5 feet of the previous year. The record flood of 1891 was 17 feet over the anicut which was then 0·75 foot lower. The Tulyabaga drain was in floods during the year and they were the highest on record. The maximum flood in the Kistna at

Bezwada was 12·95 feet over the anicut on 20th July 1939 against the record flood of 23·50 feet in October 1903. The maximum flood level in Tungabhadra at Sunkesula was 4·5 feet on the crest of the anicut on 12th August 1939 against the record of 10·40 feet on 31st October 1916. The Penner at the Adinimayapalli anicut had a maximum flood of 4·90 feet on 18th September 1939 against the record of 13·90 feet on 26th October 1874. The highest reading on the Cauvery dam was 10·42 feet on 17th November 1939 against the record of 14·65 feet on the 20th July 1924.

15. *Breaches and accidents.*—Heavy floods of September and November 1939 in the Yerracalva in West Godavari district damaged to some extent several irrigation works in the Tanks subdivision. Steps are being taken to repair these damages. Damages caused to certain rivers and channel banks in Vizagapatam district by the floods of 1938 were repaired during the year. The cyclone of October and November 1939 caused serious damage to several irrigation works and standing crops, etc., in the Kistna delta. The greatest damage was on Commamur canal which breached in seventy places. Small breaches were caused to the Basavannah extension channel; the masonry works on the supply channel to Yellanur tank were also damaged. These damages were promptly attended to. On account of the floods of October 1939 most of the tanks in Kavali and Kandukur taluks, Nellore district, breached causing considerable damage. Arrangements were made to carry out necessary repairs to these tanks. To prevent recurrence of the flooding in Madras City as occurred in November 1937, suitable remedial measures were suggested to Government in June 1938. These were considered along with the question of apportionment of cost of these works. Heavy rains in August 1939 caused damages to certain anicuts and tanks in Salem district. Estimates for repairing these damages were promptly sanctioned and works put on hand. The restoration works necessitated by the heavy rains in Salem district in 1938 were continued during the year. The special supervisor section formed for the execution of these works was abolished on 30th June 1939. Due to abnormal rains in November 1939 extensive damages were caused to banks, anicuts, channels and tanks in Tanjore, Trichinopoly and South Arcot districts. Prompt action was taken to close the breaches and to allow timely supply to existing crops. Repair works were also attended to by the special staff sanctioned by Government. On 16th November 1939 there was a breach of about 600 feet in the upland drainage channel near Arasangudi village. A temporary protective bund was immediately formed at a cost of Rs. 7,888 and the supply of water for irrigation was ensured. Owing to unprecedented rains on the 15th November 1939 several breaches occurred in Grand Anicut Canal from head to 6/50 and in the lower reaches from 30/25 downwards. Two vents of the Agniar aqueduct were washed away. Temporary arrangements were at once made to take water across the aqueduct at a cost of Rs. 10,720 and water was supplied to the crops. An estimate for Rs. 1,98,000 for reconstructing the

aqueduct was sanctioned and the work is in progress. Breaches occurred also in Karaipatnam in the branches of North Bank canal, Upper Peruvalai channel, Upper Panguni channel and Uyyacondan channel. They were all promptly and effectively closed without affecting irrigation. The heavy rains of November 1939 also caused considerable damage to several tanks, anicuts, channels and flood banks in Trichinopoly and Ramnad Division. The breaches were closed promptly and other damages were repaired later in the year.

A passenger boat foundered in the Commamur canal on 24th August 1939 resulting in one death.

16. *Irrigation Advisory Boards.*—There are no advisory boards in the districts of Vizagapatam, Cuddapah, Anantapur, Chingleput, Chittoor, North Arcot, South Arcot, Ramnad and Coimbatore these being non-deltaic. The boards in Kurnool, Bellary and Salem were abolished and no new boards were constituted. Of the existing boards, viz., those for Ravur tanks and the Karedu tank in Nellore district were abolished and the remaining two boards in the same district were reconstituted. The two boards in East Godavari were reconstituted on the expiry of the term of the members of the old boards. The Godavari Eastern and Central Delta Boards functioned satisfactorily. In Kistna, Guntur, Nellore, Tanjore, Trichinopoly and Tinnevelly districts the boards did some useful work. The Cumbum Valley Advisory Board in Madura district was abolished.

17. *Irrigation panchayats.*—During the year under review eleven new panchayats were formed. Four panchayats were dissolved and six did not function, leaving on the whole one hundred and nine panchayats working at the end of the year. All the panchayats except twenty-six worked satisfactorily during the year.

Chapter V.

A. Important works carried out during the year.

I. Works for which Capital and Revenue Accounts are kept.

Cauvery Delta System.—(1) *Remodelling the Odambogiar from 74/80 to the Kilavur dam (Estimate Rs. 88,700, Work slip Rs. 92,380).*—The work was under execution during the year. The expenditure during the year was Rs. 6,015 and to the end of the year Rs. 76,895.

(2) *Constructing a regulator across the Cauvery below Vikraman head (Estimate Rs. 23,500).*—Outlay during the year was Rs. 13,233. The work was completed.

(3) *Constructing a regulator across the Nattar and Vanjiyar at their bifurcation (Estimate Rs. 16,100).*—The outlay during the year was Rs. 3,090. The work was completed.

(4) *Extension of Uyyacondon channel (Estimate Rupees 45,000).*—The work is in progress. Outlay was Rs. 15,924 during the year and Rs. 21,879 to end of the year.

General—Development of irrigation.—A Special Revenue Officer has been appointed to look into the development of irrigation and he is carrying necessary investigation.

Piping of channels as a preliminary to remodelling is in progress.

In order that all Cauvery irrigation above the grand anicut may be under one control as far as possible all Cauvery channels in the Trichinopoly Division and a few channels on the Salem side were transferred to the River Conservancy Division of the Tanjore Circle from 1st August 1939.

Godavari Delta System—(1) *Providing irrigation facilities for Government waste lands in Vempa, Mutyalapalli and Losarigutlapadu ranges (Estimate Rs. 88,885, Work slip Rs. 98,400).*—Outlay during the year was Rs. 6,833 and to the end of the year Rs. 84,804. The work was completed during the year but damages in certain portions of the work caused by the cyclone have to be repaired.

(2) *Excavating a channel to Losarigutlapadu village (Estimate Rs. 1,01,000, Work slip Rs. 98,400).*—The expenditure during the year was Rs. 8,538 and to the end of the year Rs. 79,813.

(3) *Excavating a channel to Vemuladevi village (Estimate Rs. 1,10,000).*—Outlay during the year was Rs. 1,748 and to the end of the year Rs. 85,935.

(4) *Remodelling Pallamkurru Nos. I and II channels of Bank canal (Estimate Rs. 31,700).*—Outlay during the year was Rs. 9,719 and to the end of the year Rs. 27,251. The work is in good progress.

Pennar River Canals System—(1) *Fitting falling shutters to the Sangam anicut and extending irrigation under the Kanigiri Reservoir (Estimate Rs. 1,36,500).*—The expenditure during the year was Rs. 31,000 and to the end of the year Rs. 98,080. The sub-work of fitting falling shutters was completed and the shutters fixed acted very beneficially for irrigation during the whole of the irrigation season. The other sub-works are in progress.

(2) *Fitting falling shutters to Nellore anicut to improve supply to the Survepalli canal and reservoir (Estimate Rs. 31,000).*—The outlay during the year was Rs. 16,527. Almost all the shutters were fixed in position.

Kistna Delta System—(1) *Kistna East Bank Canal (Estimate Rs. 28,49,320).*—The expenditure during the year was Rs. 60,443 and to the end of the year Rs. 26,91,889.

(2) *Campbell canal (Estimate Rs.* 4,28,690).—The expenditure during the year was Rs. 293 and to the end of the year Rs. 3,71,515. The whole work except a few minor items was completed during the year.

(3) *Excavating the Peddakondur channel, Kistna Western delta (Estimate Rs.* 47,286).—The expenditure during the year was Rs. 272 and to the end of the year Rs. 52,118. The work was completed.

(4) *Excavating the Tumur, Duvvalur and Kollipara new channels (Estimate Rs.* 54,071).—The expenditure in the year was Rs. 2,884 and to the end of the year Rs. 44,114. The work is nearing completion.

(5) *Excavating the Kistna West High Level channel (Estimate Rs.* 7,11,431).—Outlay during the year was Rs. 25,765 and to the end of the year Rs. 5,37,076. The project work is nearing completion.

(6) *Excavating the Appapuram channel (Estimate Rupees* 10,75,700).—The expenditure in the year was Rs. 2,41,620 and to the end of the year Rs. 6,65,159.

(7) *Excavating a straight cut to the Kollimerla drain (Estimate Rs.* 54,700).—Outlay during the year was nil and to the end of the year Rs. 52,429. The work was completed.

Cauvery-Mettur Project—*Constructing a stepped apron in rear of Ellis Saddle surplus bridge (Revised Estimate Rs.* 2,40,000).—The work was completed in all respects during the year. The expenditure during the year was Rs. 175 and to the end of the year Rs. 2,06,983.

Maintenance works.—The underside of the R.C. decking, arch ribs and beams in all the sixteen vents of the surplus bridge were gunited.

Disposal of surplus materials.—The value of the special tools and plant sold during that year was Rs. 78,130. Consequent on the shifting of the headquarters of the Salem Division from Salem to Mettur Dam all the superior types of quarters, the hospital and its out buildings were transferred to "Provincial" the transfer to be effected in the accounts of 1940–41. Credits by sale of motor engines and spare parts of the excavators to the extent of Rs. 16,000 were adjusted during the year.

Mettur Township Committee.—The maintenance of water-supply, drainage and roads in the Township area continued to be in charge of the Public Works Department.

The Committee's revenue for the year showed a surplus of Rs. 14,600 over the anticipated expenditure of Rs. 51,500 for the year. The Government have ordered that the revenue derived from lease of lands, etc., should be credited to the Cauvery-Mettur Project with effect from 1940–41. Proposals to constitute the Township into a Municipality with statutory powers were under consideration.

Industrial development.—The Mettur Industrials, Limited, and the Sandalwood Distillery were the two concerns which were working during the year.

Kattalai Scheme—*Excavating the Kattalai High Level channel (Estimate Rs.* 15,91,000).—Outlay was Rs. 4,529 during the year and Rs. 14,71,220 to end of the year.

Nagavalli River System—*Excavating the Palavalasa distributary (Work slip Rs.* 19,075).—Outlay during the year was Rs. 508 and to the end of the year Rs. 18,107. The work was completed during the year.

Duvvaleru Project—*Constructing an anicut across the Duvvaleru and excavating a supply channel to feed the Tripurantakam and other tanks, Kurnool district (Estimate Rs.* 1,14,000).—The expenditure during the year was Rs. 36,890 and to the end of the year Rs. 43,753. The work was in good progress.

Navigation Works.

Buckingham Canal.—As an experimental measure silt clearance in the Chintamani-Coramandal reaches between miles 24–26 of the Buckingham canal by means of a grab dredger obtained on loan from the Bezwada Circle was done during the year and found satisfactory. The dredger has been retained permanently for use in the canal.

II. Works for which Capital and Revenue Accounts are not kept.

Godavari Northern Division—*Constructing a reservoir in Annavaram village, Peddapur taluk (Estimate Rs.* 22,300).—The expenditure during the year was Rs. 1,543 and to the end of the year Rs. 19,920.

Kurnool Division—*Restoration of Peddasettipalli spring channel (Estimate Rs.* 44,900).—Outlay during the year was Rs. 3,301 and to the end of the year Rs. 33,322. The main work including the excavation of the leading channel was already completed in 1938–39. Plantation was thriving well.

Nellore Division—(i) *Formation of a new tank in Gundamadakala village, Udayagiri taluk, Nellore district (Estimate Rs.* 43,850).—The expenditure during the year was Rs. 6,305 and to the end of year Rs. 30,355. Major portion of the work was completed in August 1939 but the abnormal floods of October 1939 breached the bund for a width of about 100 feet. The breach was being repaired.

(ii) *Closing the Nethiletivarava breach in Tsallacalva (Estimate Rs.* 50,000).—The outlay during the year was Rs. 1,046 and to the end of the year Rs. 44,301. The work was completed in all respects except land acquisition.

River Conservancy Division—*Excavation of Puduvoithalai High Level channel for the irrigation of sanded areas of Murugapatti block (Estimate Rs.* 73,000).—Outlay during the year was Rs. 251 and to the end of the year Rs. 67,156. The work has been completed

B. Season, Rainfall and Supply.

Godavari Delta.—As there was no rain in the beginning of the first-crop season, special steps had to be taken to regulate the supply of water during transplantation. Freshes arrived on the last day of June 1939. The supply was sufficient for the first and second-crop seasons. The heavy rains of October and November 1939 damaged the ripening crops and the yield was consequently disappointing to some extent. To compensate for the loss of first crop caused by the rains, water was supplied as in the previous year for an additional extent of about 35,200 acres of second crop.

Nagavalli River System.—As in the previous year there was sufficient supply in the Nagavalli main canal throughout the year under report.

Kistna Delta System.—Consequent on the scanty supply in the river and a severe summer and rains in early part of the season, transplantation could be completed only late in the year, and with great difficulty. The first freshes arrived on the 23rd June 1939, i.e., much later than usual but good supply was not received till August. The heavy rains of October and November 1939 throughout the delta submerged the lands damaging the standing crops. As there were no further rains the harvesting in the delta was not affected but the yield was below normal. Due to failure of crop in Kaikalur dalwa crop was permitted to be raised on about 3,000 acres of which about 2,000 odd acres matured but the yield was poor.

Kistna East Bank Canal System.—The conditions of supply were similar to those under Kistna Delta System. The heavy rains of October 1939 submerged some of the lands but crops were not badly affected. The lands in the Divi Island did not yield well.

Pennar River Canals System.—Due to sufficient rains in the Nellore delta supply of water for the irrigation season was satisfactory. It was possible to raise second crop over a large area of 10,000 acres in the whole delta and the yield was almost satisfactory.

Cauvery Delta System.—Owing to the late setting in of the south-west monsoon there was limited storage in Stanley Reservoir for the early part of irrigation season but later on there was sufficient inflow for storage and supply. The condition of the season was fair throughout and there was no difficulty for irrigation supplies except that the floods of November 1939 affected the crops over a small area by submersion.

Grand Anicut Canal.—The rainfall was moderate during the year. There was low supply in the canal in the beginning and cultivation was rather slow.

Madras Water-supply and Irrigation System.—Due to the failure of the 1939 north-east monsoon the Sholavaram and Red Hills tanks did not receive good supplies. Consequently the supply to the City was restricted this year also with a view to make the available supplies last out until the next monsoon and

water could not also be supplied for the second crop under the system. It is expected that the Poondi reservoir scheme investigated during the year will after completion meet City supplies for many years to come.

Periyar System.—Due to low water level, irrigation under the Periyar Reservoir was commenced on 15th June instead of 1st June. The south-west monsoon was very weak in the lake area. There were good rains in October and November 1939 which filled the lake in the latter part of November and also the tanks in the system. There were no rains afterwards and hot weather conditions prevailed. The maximum available supply was distributed economically for the whole of the Periyar area and also to non-Periyar ayacuts to the extent of 3,000 acres to save the crops from failure. On the whole, irrigation was satisfactory and the harvest was good.

Tambraparni Anicut.—The rainfall during the year was 22·42 inches against 34·49 inches in the previous year and the triennial average of 35·06 inches. The south-west monsoon was disappointing. The kar crop at the tail end was badly affected. The north-east monsoon was worse. The pishnam crop was very poor.

C. Closure of Canals.

The following table shows the dates of closure and reopening of canals in the Godavari and Kistna deltas :—

Godavari Delta.

Canals.	Date of closure.	Date of reopening.
Eastern delta canals ..	1st May 1939 ..	1st June 1939.
Central delta canals ..	15th April 1939	15th May 1939.
Western delta canals ..	1st May 1939 ..	1st June 1939.
Dummagudem canal ..	15th April 1939	15th June 1939.

Kistna Delta.

Canals.	Date of reopening.	Date of closure.
Kistna Eastern delta—		
Main canal	15th May 1939	17th April 1940.
Bandar canal	Do.	Do.
Ryves canal	Do.	1st March 1940.
Ellore canal	1st June 1939 ..	15th March 1940.
East bank canal	15th May 1939	1st March 1940.
Kistna Western delta—		
All canals	1st June 1939 ..	15th March 1940.

D. Industrial Crops.

The area under sugarcane in the various systems for which capital and revenue accounts are kept during the year was 25,801 acres (chiefly in the Godavari and Kistna delta systems against 18,881 acres in the previous year). Upper Pulleru and upper portion of Bandar canal were kept open in the first half of April 1940 to supply water for sugarcane. The cultivation of sugarcane progressed rapidly during the year due to the high price of sugar. The area under indigo cultivation was 814 acres under the Pennar river canals system against 2,474 acres in the previous year.

E. General Report on Works for which Capital and Revenue Accounts are not kept.

I. Irrigation Works.

The number of works in this class during the year was as shown below :—

	Channels.	Tanks.	Other works.	Total.
In charge of Public Works Department.	509	2,525	..	3,034
In charge of Revenue Department.	5,395	24,411	1,637	31,443
Total ..	5,904	26,936	1,637	34,477

2. The area irrigated, the outlay and the revenue from works of this class are dealt with in paragraph 9 of Chapter IV.

3. The statement below shows the details of outlay during 1939–40 on works by minor heads.

Statement showing by minor heads the expenditure incurred on works for which no capital accounts are kept.

Minor heads.	Ordinary minor works. Public Works Department Works.	Ordinary minor works. Revenue Department Works in charge of Public Works Department.	Old maintenance charges.	Tank Restoration Scheme works.	Total.
(1)	(2)	(3)	(4)	(5)	(6)
	RS.	RS.	RS.	RS.	RS.
Works	29,306	..	..	..	29,306
Extensions and improvements	34,615	882	81,850	..	1,17,347
Maintenance and repairs.	8,33,904	5,263	5,76,782	11,442	14,27,391
Establishment	2,62,013	2,112	2,55,750	3,485	5,23,360
Tools and plant	— 54	— 8	— 865	66	869
Miscellaneous expenditure	45,815	..	..	..	(*a*) 45,815
Total ..	12,05,599	8,249	9,15,247	14,993	21,44,088
Add outlay incurred by Civil officers on minor irrigation works ..	..	..	..	..	(*b*) 11,89,228
Grand total ..	..	..	..	..	33,33,316

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

(*b*)	RS.
Works	19,915
Maintenance and repairs	9,23,836
Establishment	2,45,467
Tools and plant	10
Total ..	11,89,228

4. The particulars of revenue from the works during the year are compared below with those of the previous year 1938–39 :—

	1938–39.	1939–40.
	RS.	RS.
Irrigation revenue	59,14,582	76,17,976
Receipts collected by the Public Works Department	58,946	68,751
Total ..	59,73,528	76,86,727

5. The net revenue of the year after deducting working expenses amounted to Rs. 43,92,209 against Rs. 27,07,187 in the previous year. The increase during the year was due to large receipts.

6. The progress made in the investigation and execution of Tank Restoration Scheme works is dealt with in paragraph 10 of Chapter IV. The following table shows by districts, the works done during and up to end of the year 1939–40 :—

Circle.	District.	Approximate area investigated. During the year 1939–40.	Approximate area investigated. To the end of the year 1939–40.	Number of estimates sanctioned. During the year 1939–40.	Number of estimates sanctioned. To the end of the year 1939–40.	Amount of estimates sanctioned. During the year 1939–40.	Amount of estimates sanctioned. To the end of the year 1939–40.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			SQ. MILES.			RS.	RS.
Dowlaiswaram.	Vizagapatam		1,350	1	498	4,591	15,74,896
	East Godavari		147	..	924		
Bezwada ..	West Godavari		2,412		160	..	2,40,888
	Kistna		1,491	..	257	..	2,04,724
	Guntur		4,411	..	340	..	3,33,682
	Kurnool		7,648	..	1,319	..	11,82,207
	Cuddapah		4,650	..	251	..	3,44,321
	Bellary		10,518	..	789	..	10,69,692
	Anantapur		7,830	..	474	..	6,13,994
Madras	Nellore		7,300	..	2,050	..	32,45,026
	Chittoor		5,093	..	602	..	5,86,118
	Chingleput		2,227	..	2,006	6,125	27,09,957
	North Arcot		..	..			
Coimbatore ..	North Arcot		4,659	6	151	..	3,10,986
	Coimbatore		8,097	..	1,273	..	11,36,457
	Salem		6,052	..	723	..	16,29,113
Tanjore	South Arcot		850	..	610	..	7,94,940
	Tanjore		1,140	..	601	..	12,37,649
Trichinopoly ..	Trichinopoly		4,564	..	1,644	..	14,95 984
	Madura		4,836	..	969	..	13,42,766
	Tinnevelly		1,969	..	3	..	2,33,325
	Ramnad		1,643	..			
	Total ..	..	88,887	7	15,639	10,716	2,02,86,725

II. Navigation, Embankment and Drainage Works.

The receipts realized by the sale of plantation and produce of trees along river embankments amounted to Rs. 87,465 against Rs. 88,475 in the previous year.

2. The expenditure on maintenance was Rs. 5,63,319 against Rs. 5,78,655 in the previous year as detailed below :—

	1939–40.	1938–39.
	RS.	RS.
Works	249	19,635
Extensions and improvements	16,226	2,230
Maintenance and repairs	3,97,340	4,01,259
Establishment	1,43,664	1,45,451
Tools and plant	2,165	2,083
Other charges	3,675	7,997
Total ..	5,63,319	5,78,655

MADRAS,
18*th December* 1940.

L. VENKATAKRISHNA AYYAR,
Chief Engineer, General and Irrigation.

APPENDIX I

STATISTICAL STATEMENTS (PRESCRIBED BY THE SECRETARY OF STATE).

A-I.—Statement of Canals in the Madras Presidency for the year 1939–40.

	Cauvery delta system.					Srivaikuntam anicut system.					Godavari delta system.					Mehamattur anicut system.					Tadapalli channel.					Kalingarayan channel.					Vriddhachalam anicut system.					Marudur anicut system.				
	(1)					(2)					(3)					(4)					(5)					(6)					(7)					(8)				
	River Cauvery.					River Tambraparni.					River Godavari.					River Manimuktanadi.					River Bhavani.					River Bhavani.					River Manimuktanadi.					River Tambraparni.				
Source of supply of water																																								
Minimum discharge of river .. .. C.ft. per second	..					..					100					163					..					..					17					..				
Maximum discharge of main canals as designed. "	45,030					1,860					14,510					263					725					893					351					1,595				
Maximum discharge during the year .. "	24,071					1,975					14,225					192					904					802					513					1,324				
Average rainfall for the year .. .. Inches.	54·47					22·42					58·46					41·04					33·67					32·96					32·79					22·42				
Gross area commanded .. .. Acres.	1,706,023					80,000					1,295,000					18,792					20,693					23,696					19,993					35,840				
Culturable area commanded .. .. "	909,034					33,500					1,122,500					10,651					19,332					12,805					16,359					17,920				
Area irrigable by complete project .. .. "	908,374					26,000					840,000					5,200					19,332					11,843					15,559					17,920				
Area irrigable at present .. .. "	895,340					26,000					810,000					5,000					15,183					11,386					8,829					17,920				
Sanctioned estimate—																																								
Direct charges .. .. .. Rs.	13,61,520					1,15,286					1,10,89,332					87,184					1,70,380					1,76,780					1,08,204					50,541				
Indirect charges .. .. .. "	7,49,577					7,49,577					19,34,864					..					11,050					4,506					..					1,265				
Interest during construction .. .. "											1,11,33,052										..					..										..				
Total, Estimate .. "	22,26,393					22,26,393					2,41,62,248					87,184					1,81,430					1,83,286					1,08,204					51,806				
Expenditure to end of 1939–40—																																								
Direct charges .. .. .. Rs.	83,01,543					16,67,459					1,65,70,789					1,24,219					1,66,383					1,75,980					1,51,564					58,721				
Indirect charges .. .. .. "						1,07,604					20,60,350					..					11,063					4,506					..					1,401				
Interest during construction .. .. "						8,67,827					99,82,397					..					..					..					..					..				
Total, Expenditure .. "	83,01,543					26,42,890					2,86,13,536					1,24,219					1,77,446					1,80,486					1,51,564					60,122				
Works completed at end of 1939–40—																																								
Main canals, irrigation .. .. Miles.	1,258½					28					509-5/8					7					48					57					17					29				
Branch canals, irrigation .. .. "	3,205					46					1,887					8					37					54					16					..				
Distributaries .. .. "																9·26					..					..					16					7½				
Of above—																																								
Navigable	..					..					491-3/8					..					..					..					..					..				

A-I.—Statement of Canals in the Madras Presidency for the year 1939-40—*cont.*

—		Pennar river canals system. (9)	Arkankota channel. (10)	Tirukkoyilur anicut system. (11)	Shatiatope anicut system. (12)	Cheyyar anicut system. (13)	Poiney anicut system. (14)	Kistna delta system. (15)	Nandiyar channel system. (16)
Source of supply of water		River Pennar.	River Bhavani.	River Ponniar.	River Vellar.	River Cheyyar.	River Poiney.	River Kistna.	River Nandiyar
Minimum discharge of river	C.ft. per second	..	..	134	136	Nil.	Nil.	..	..
Maximum discharge of main canals as designed.	,,	8,392	552	1,271	850	1,542	3,217	13,284	237
Maximum discharge during the year ..	,,	7,587	555	955	966	1,430	2,116	14,283	291
Average rainfall for the year	Inches.	38·10	33·67	44·22	40·08	30·54	40·78	47·22	57·31
Gross area commanded	Acres.	256,900	6,000	54,895	108,069	29,461	42,560	1,350,400	9,480
Culturable area commanded	,,	190,000	5,000	45,977	43,965	29,461	23,824	1,000,000	9,480
Area irrigable by complete project ..	,,	165,385	5,000	28,000	34,000	23,629	23,824	968,000	7,295
Area irrigable at present	,,	177,221	4,821	28,000	33,000	22,687	22,462	820,000	7,280
Sanctioned estimate—									
Direct charges	Rs.	47,80,289	1,47,006	3,99,190	9,15,245	4,42,925	2,67,178	1,42,13,010	63,231
Indirect charges	,,	10,06,096	3,676		57,271	11,754	6,379	9,81,130	2,484
Interest during construction	,,	22,88,418	..		..	..	..	1,28,24,716	..
Total, Estimate ..	,,	80,74,803	1,50,682	3,99,190	9,72,516	4,54,679	2,73,557	2,80,18,886	65,715
Expenditure to end of 1939-40—									
Direct charges	Rs.	58,58,203	1,40,769	5,94,167	11,97,142	5,22,995	2,95,106	2,08,00,553	63,231
Indirect charges	,,	10,15,451	3,676			15,187	8,812	11,78,851	2,484
Interest during construction	,,	25,84,125	..			..	..	96,15,269	..
Total, Expenditure	,,	94,57,779	1,44,445	5,94,167	11,97,142	5,38,182	3,03,918	3,15,94,673	65,715
Works completed at end of 1939-40—									
Main canals, irrigation	Miles.	26½	20	57	3	21	55	359¾	..
Branch canals, irrigation	,,	..	4	80	38	40	49	..	31
Distributaries	,,	455¼	..	28·23	149	120	78	2,027-3/8	..
Of above—									
Navigable		..	..	..	..	..	..	384½	..

A-I.—Statement of Canals in the Madras Presidency for the year 1939-40—*cont.*

—		Chicacole minor rivers system. (17)	Lower Coleroon anicut system. (18)	Kistna East Bank canal exetnsion scheme (Divi-pumping system). (19)	Polavaram island project. (20)	Kattalai scheme *Total of (a), (b) and (c). (21)	Kurnool-Cuddapah canal. (22)	Valluru anicut system. (23)	Pelandorai anicut system. (24)
Source of supply of water		Rivers Langulya, Vamsadhara and Caribula-gedda.	River Coleroon.	River Kistna.	Godavari Central Delta Bank canal.	River Cauvery.	River Tunga-bhadra.	River Kortalyar.	River Vellar.
Minimum discharge of river	C.ft. per second.	..	..	..	19	..	227	..	208
Maximum discharge of main canals as designed.	,,	..	3,456	1,257	292	1,671	2,000	113	740
Maximum discharge during the year.	,,	..	3,456	1,220	267	1,380	1,665	3,566	384
Average rainfall for the year	Inches.	35·77	51·22	60·10	95·87	48·59	25·78	42·48	38·82
Gross area commanded	Acres.	88,000	158,526	170,000	23,135	78,597	383,115	10,124	60,670
Culturable area commanded	,,	70,000	117,233	136,000	18,648	74,978 *	357,569	6,974	16,677
Area irrigable by complete project ..	,,	67,000	110,308	88,000	17,500	72,207	130,282	5,216	16,000
Area irrigable at present	,,	66,800	107,929	88,000	17,500	66,632	123,419	5,216	12,837
Sanctioned estimate—									
Direct charges	Rs.	2,58,182	18,69,597	58,18,267	17,97,191	45,13,712	2,33,87,114	74,535	6,42,823
Indirect charges	,,	10,203	71,259		24,463			1,666	47,800
Interest during construction	,,	..	..		..			..	..
Total, Estimate ..	,,	2,68,385	19,40,856	58,18,267	18,21,657	45,13,712	2,33,87,114	76,201	6,90,623
Expenditure to end of 1939-40—									
Direct charges	Rs.	2,78,196	34,31,837	57,68,297	16,96,575	38,72,546	2,33,13,676	74,366	7,19,198
Indirect charges	,,	11,030				98,873	73,438	1,916	
Interest during construction	,,	..				12,91,508	..	..	
Total, Expenditure ..	,,	2,89,226	34,31,837	57,68,297	16,96,575	52,62,927	2,33,87,114	76,282	7,19,198
Works completed at end of 1939-40—									
Main canals, irrigation	Miles.	87½	94	37	..	74-3/8	417-5/8	5-5/8	15
Branch canals irrigation	,,	191-7/8	289	..	..	..	..	..	24
Distributaries	,,	78-3/8	620¼	294	44-5/8	44-¼	294-7/8	8	25
Of above—									
Navigable		..	..	35½	..	..	75	..	..

* Kattalai.

South bank canal. (a)	High level channel. (b)	Srirama-samudram canal. (c)
42,000	25,597	11,000
41,000	23,378	10,600
40,000	21,807	10,400
35,164	21,318	10,150

A-I.—Statement of Canals in the Madras Presidency for the year 1939–40—*cont.*

—		Palar anicut system.	Muniyeru system.	Sagileru system.	Nagavalli river system.	Nagavaram anicut and supply channel.	Kaniyam-palayam anicut.	Veda-raniyam canal.	Buckingham canal.
		(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
Source of supply of water		River Palar.	River Muniyeru.	River Sagileru.	River Nagavalli.	River Gunjaneru.	River Bhavani.	..	..
Minimum discharge of river	C.ft. per second.	..	..	..	40	77·08	..	..	..
Maximum discharge of main canals as designed.	,,	5,631	300	477	414	78	27·56	..	..
Maximum discharge during the year ..	,,	4,479	292	1,543	459	78	..	..	..
Average rainfall for the year	Inches.	34·30	33·95	22·48	45·39	23·81	35·17	..	..
Gross area commanded	Acres.	140,131	14,471	33,576	49,920	894	1,600	..	..
Culturable area commanded	,,	105,032	13,024	26,576	31,200	894	432	..	..
Area irrigable by complete project ..	,,	82,718	10,580	4,500	27,658	894	400	..	..
Area irrigable at present	,,	78,668	10,000	4,500	27,500	894	377	..	..
Sanctioned estimate—									
Direct charges	Rs.	23,28,492	6,09,601	4,47,108	17,47,770	1,07,295	1,36,343	1,32,699	85,56,015
Indirect charges	,,	1,16,752		17,619	68,530	2,595	3,757	3,733	4,88,256
Interest during construction	,,	..		..	2,93,217	..	..	..	..
Total, Estimate ..	,,	24,45,244	6,09,601	4,64,727	21,09,517	1,09,890	1,40,100	1,36,432	90,44,271
Expenditure to end of 1939–40—									
Direct charges	Rs.	23,48,502	6,09,601	4,47,108	17,02,165	1,07,295	1,07,221	1,32,699	90,84,027
Indirect charges	,,	1,17,304		17,619	42,506	2,595	3,853	3,733	
Interest during construction	,,	..		..	2,93,217	..	..	..	
Total, Expenditure ..	,,	24,65,806	6,09,601	4,64,727	20,37,888	1,09,890	1,11,074	1,36,432	90,84,027
Works completed at end of 1939–40—									
Main canals, irrigation	Miles.	156	26¾	12	64½	2	10½	31¾	262
Branch canals, irrigation	,,	..	..	..	..	..	..	..	..
Distributaries	,,	139	28-7/16	..	47½	..	..	..	..
Of above—									
Navigable		..	..	..	..	..	..	..	262

A-II.—Statement of Reservoir Projects in the Madras Presidency for the year 1939–40.

—		Chembram-bakkam tank.	Cumbum tank.	Periyar system.	Toludur (Willingdon) reservoir.	Cauvery-Mettur Project.	Barur tank.	Madras water-supply and irrigation system.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Source of supply of water		Cooum river.	Gundlakamma and Jampaleru rivers.	Periyar and Vaigai rivers.	Vellar river and rainfall.	Cauvery.	Ponniar river and local rivers.	Kortalayar river.
If supplied by rainfall. Area of catchment ..	Sq. miles.	100	430	239	50	16,300	2,082	34
If supplied by rainfall. Average rainfall during the year ..	Inches.	44·20	25·90	83·44	57·68	99·25 hills portion. 31·68 plains portion.	35·87	35·11
Contents of tank between levels of surface of full supply and sill of canal head sluice	Mill. c.ft.	3,146	2,942·17	9,815	2,591·58	93,500	248·6	2,729·864
Area of surface at full supply ..	Acres.	5,729	5,697	10·20	3,946	59·25* sq.miles.	26·35 mills. sq.ft.	5,361
Gross area commanded	,,	32,554	7,860	768,000	38,400	497,200	6,887	16,129
Culturable area commanded ..	,,	24,478	6,000	Not known.	28,800	497,200	6,887	10,165
Area irrigable by complete project.	,,	15,300	6,000	143,000	27,670	332,000	6,887	9,852
Area irrigable at present	,,	13,000	5,980	143,000	25,000	332,000	3,750	7,500
Sanctioned estimate—								
Direct charges	Rs.	6,48,970	83,935	84,71,000	29,60,000	7,23,11,000	4,00,000	15,47,123
Indirect charges	,,	1,12,547	2,338	2,79,000	2,50,000	13,97,000	25,300	2,38,945
Interest during construction ..	,,	..	..	16,23,606	2,10,270	1,42,81,366	41,439	..
Total, Estimate ..	,,	7,61,517	86,273	1,03,73,606	34,20,270	8,79,89,366	4,66,739	17,86,068
Expenditure to end of 1939–40—								
Direct charges	Rs.	6,51,348	83,985	1,04,64,627	25,33,754	6,47,71,888	4,19,375	16,71,682
Indirect charges	,,	1,12,795	2,388	3,71,027		10,46,337	23,738	2,50,037
Interest during construction ..	,,	..	..	16,06,402		2,41,45,532	80,175	..
Total, Expenditure ..	,,	7,64,143	86,373	1,24,42,056	25,33,754	8,99,63,757	5,23,288	19,21,719
Works completed to end of 1939–40—								
Dam (height completed) ..	Feet.	25 (earth).	56 (earth).	173	50 (earth).	214 (masonry).	28 (earth).	30 (earth).
Canals	Miles.	10¾	..	152	31¼	113¾	11	11½
Distributaries	,,	1¾	23¾	118	40	594¾	26	..

* Square miles.

A-II.—Statement of Reservoir Projects in the Madras Presidency for the year 1939–40—*cont.*

—		Doudapad tank.	Yerur tank.	Atmakur tank.	Janga-maheswara-puram tank.	Anama-samudram-Beraperu tank.	Hajipuram tank.	Ponnalur tank.
		(8)	(9)	(10)	(11)	(12)	(13)	(14)
Source of supply of water		Rainfall ..	Rainfall and surplus of upper tanks and spill from Challakalva branch of Swarnamukhi.	Catchment of Chandravanka and Kolagunda vagus.	Catchment of Dondi vagu.	Beraperu river.	Damaleru diverted into the tank.	Gudiseleru diverted into the tank.
If supplied by rainfall. Area of catchment ..	Sq. miles.	56	60·50	105	60	23·62	100·20	32·14
If supplied by rainfall. Average rainfall during the year ..	Inches.	44·19	31·99	17·5	35·12	45·64	37·09	41·15
Contents of tank between levels of surface of full supply and sill of canal head sluice	Mill. c.ft.	288·38	317·69	164	79	90·57	309	180·512
Area of surface at full supply ..	Acres.	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
Culturable 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	"	250	1,470	460	290	1,000	700	1,000
Sanctioned estimate—								
Direct charges	Rs.	1,24,786	61,741	1,09,951	61,253	71,687	2,78,774	1,90,887
Indirect charges	"	15,218	1,612	13,428	10,411	1,886	33,109	25,011
Interest during construction ..	"	..	..	..	..	..	..	..
Total, Estimate ..	"	1,40,004	63,353	1,23,379	71,664	73,573	3,11,883	2,15,898
Expenditure to end of 1939–40—								
Direct charges	Rs.	1,24,786	61,741	1,11,959	61,253	71,687	2,78,774	1,92,975
Indirect charges	"	15,218	1,612	13,444	10,411	1,886	33,109	25,674
Interest during construction ..	"	..	..	..	..	..	..	..
Total, Expenditure ..	"	1,40,004	63,353	1,25,403	71,664	73,573	3,11,883	2,18,649
Works completed to end of 1939–40—								
Dam (height completed) ..	Feet.	23 (partly in masonry and partly in earth.)	..	33	24	..	6 (masonry).	21½
Canals	Miles.	..	..	..	..	..	..	..
Distributaries	"	6½	..	4½	5½	2½	4½	7

A-II.—Statement of Reservoir Projects in the Madras Presidency for the year 1939–40—*cont.*

—		Markapur tank.	Venkata-puram tank.	Bhavanasi tank.	Yellanur tank.	Panjapatti reservoir.	Siddapur tank.	Mopad reservoir.
		(15)	(16)	(17)	(18)	(19)	(20)	(21)
Source of supply of water		Gundlakamma river.	Free basin and supply from Dhona vagu.	Rainfall.	Catchment basin and supply from Chitravati river.	Drainage basin.	Bhavanasi and other vagus.	Manneru
If supplied by rainfall. Area of catchment ..	Sq. miles.	270·25	51	43	20·25	103	45	250
If supplied by rainfall. Average rainfall during the year	Inches.	30·73	18·00	41·13	20·75	44·36	33·23	37·21
Contents of tank between levels of surface of full supply and sill of canal head sluice	Mill. c.ft.	124·52	237	174·64	342·5	225	636	2,007
Area of surface at full supply ..	Acres.	811	448	650	2,617	609	1,125	3,100
Gross area commanded	"	1,931	1,700	2,700	1,707	2,900	4,900	13,890
Culturable area commanded ..	"	1,701	1,700	2,448	1,641	*	4,250	12,500
Area irrigable by complete project.	"	1,701	340	841	925	*	1,000	12,500
Area irrigable at present	"	1,583	340	841	925	*	1,000	12,500
Sanctioned estimate—								
Direct charges	Rs.	1,16,657	3,31,776	2,02,289	2,35,711	3,36,090	9,21,980	21,97,000
Indirect charges	"	4,001	14,824	6,711	30,089	68,510	26,620	1,00,000
Interest during construction ..	"	..	..	47,173	..	..	..	..
Total, Estimate ..	"	1,20,658	3,46,600	2,56,173	2,65,800	4,04,600	9,48,600	22,97,000
Expenditure to end of 1939–40—								
Direct charges	Rs.	1,24,481	3,72,250	2,54,395	2,39,192	3,27,781	7,91,038	22,90,575
Indirect charges	"	4,859	12,671	11,096	30,515	11,495	13,448	
Interest during construction ..	"	..	71,315	29,806	..	..	..	
Total, Expenditure ..	"	1,29,340	4,56,236	2,95,297	2,69,707	3,39,276	8,04,486	22,90,575
Works completed to end of 1939–40—								
Dam (height completed)	Feet.	22 (earth).	31	20	15	.. 40 ft. (core wall).	27·5	71½
Canals	Miles.	7½	3½	6½	..	..	6-7/8	..
Distributaries	"	..	..	..	3-7/8	1½ miles length.	9	84

* The reservoir breached in 1930 and it never had a wet ayacut.

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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 Presidency for the year 1939–40.

Works or systems.		Direct charges (net expenditure). Works.	Establishment.	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)
A. IRRIGATION WORKS.										
1. PRODUCTIVE WORKS.		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Cauvery delta system.	To end of previous year.	64,44,373	14,20,800	1,34,956	— 1	14,793	79,85,335	2,68,402	82,53,737	95,45,953
	During the year ..	22,323	8,691	41	..	..	31,055	249	31,304	3,59,692
Srivaikuntam anicut system.	To end of previous year.	13,23,683	3,33,353	10,792	..	369	16,67,459	1,07,604	17,75,063	36,69,510
	During the year ..	..	..	..	..	..	..	..	..	75,036
Godavari delta system.	To end of previous year.	1,26,51,560	32,95,093	9,58,546	..	8,421	1,68,96,778	20,70,006	1,89,66,784	3,39,07,850
	During the year ..	31,689	12,206	345	..	153	44,087	458	44,545	7,61,178
Mehamattur anicut system.	To end of previous year.	67,745	17,320	26	..	..	85,091	2,093	87,184	1,86,338
	During the year ..	..	..	..	..	..	..	..	..	3,828
Thadepalli channel ..	To end of previous year.	1,36,531	29,836	16	..	..	1,66,383	11,063	1,77,446	3,63,039
	During the year ..	..	..	..	..	..	..	..	..	7,487
Kalingarayan channel.	To end of previous year.	1,43,789	32,191	..	..	..	1,75,980	4,506	1,80,486	2,94,558
	During the year ..	..	..	..	..	..	..	..	..	7,919
Vriddhachalam anicut system.	To end of previous year.	82,956	21,125	63	..	..	1,04,144	4,060	1,08,204	1,75,965
	During the year ..	..	..	..	..	..	..	..	..	4,686
Chembrambakkam tank.	To end of previous year.	5,14,255	1,28,958	8,249	..	114	6,51,348	1,12,795	7,64,143	15,80,492
	During the year ..	..	..	..	..	..	..	..	..	29,311
Marudur anicut system.	To end of previous year.	47,925	10,820	— 24	..	..	58,721	1,401	60,122	1,05,338
	During the year ..	..	..	..	..	..	..	..	..	2,642
Pennar river canals system.	To end of previous year.	47,93,551	10,17,205	1,44,979	..	2,858	59,52,877	10,16,156	69,49,033	1,16,88,734
	During the year ..	47,531	14,207	49	..	..	61,787	475	62,262	2,69,052
Arkenkota channel ..	To end of previous year.	1,14,505	26,264	..	..	..	1,40,769	3,676	1,44,445	3,14,960
	During the year ..	..	..	..	..	..	..	..	..	6,335
Tirukkoyilur anicut system.	To end of previous year.	3,18,375	70,709	105	..	..	3,89,189	10,001	3,99,190	7,67,269
	During the year ..	..	..	..	..	..	..	..	..	17,514
Shatiatope anicut system.	To end of previous year.	9,03,113	1,26,113	660	..	..	10,29,886	59,675	10,89,561	11,90,283
	During the year ..	..	..	..	..	..	..	..	..	46,345
Cheyyar anicut system.	To end of previous year.	4,20,163	1,03,941	744	..	50	5,24,798	15,201	5,39,999	10,15,870
	During the year ..	..	..	..	..	..	..	..	..	23,616
Cumbum tank ..	To end of previous year.	68,701	15,284	..	..	..	83,985	2,388	86,373	1,51,372
	During the year ..	..	..	..	..	..	..	..	..	3,779
Poiney anicut system.	To end of previous year.	2,34,263	60,576	267	..	..	2,95,106	8,812	3,03,918	6,56,071
	During the year ..	..	..	..	..	..	..	..	..	13,280
Periyar system ..	To end of previous year.	80,28,303	16,90,738	7,66,897	..	21,311	1,04,64,627	3,71,027	1,08,35,654	1,63,80,525
	During the year ..	..	..	..	..	..	..	..	..	4,70,908
Kistna delta system..	To end of previous year.	1,57,52,495	38,61,565	7,22,825	..	43,468	2,02,93,417	12,10,332	2,15,03,749	3,32,97,965
	During the year ..	2,71,240	94,011	501	..	7	3,65,745	13,232	3,78,977	9,19,203
Nandiyar channel system.	To end of previous year.	51,476	11,755	..	..	..	63,231	2,484	65,715	93,164
	During the year ..	..	..	..	..	..	..	..	..	2,845
Chicacole minor river system.	To end of previous year.	2,27,662	50,107	427	..	..	2,78,196	11,030	2,89,226	3,80,182
	During the year ..	..	..	..	..	..	..	..	..	12,519
Lower Coleroon anicut system.	To end of previous year.	24,57,252	4,42,566	16,780	..	3,175	29,13,423	88,246	30,01,669	38,94,854
	During the year ..	..	..	..	..	..	..	..	..	1,31,104
Kistna East Bank canal extension scheme.	To end of previous year.	41,50,392	7,75,233	6,88,557	..	24,038	55,90,144	1,05,579	56,95,723	30,89,765
	During the year ..	62,499	24,061	116	..	14,727	71,949	625	72,574	2,52,569
Toludur reservoir project.	To end of previous year.	15,99,196	4,75,135	3,05,959	..	9,815	23,70,475	2,51,753	26,22,228	21,63,797
	During the year ..	394	153	1	..	..	548	4	552	1,06,641
Polavaram island project.	To end of previous year.	12,89,934	3,68,930	14,344	..	4,099	16,69,109	27,466	16,96,575	9,23,722
	During the year ..	..	..	..	..	..	..	..	..	75,102
Cauvery-Mettur project.	To end of previous year.	6,04,14,603	62,27,362	2,97,378	1,00,804	21,46,659	6,48,93,488	10,47,544	6,59,41,032	2,96,75,822
	During the year ..	— 62,659	15,414	134	— 1,442	79,058	— 1,27,611	— 626	— 1,28,237	29,17,315
Kattalai scheme	To end of previous year.	34,11,001	4,64,894	52,590	1	10,540	39,17,946	96,789	40,14,735	14,62,735
	During the year ..	20,452	8,244	13	..	..	28,709	205	28,914	1,76,772
Total A. Irrigation works—1. Productive Works.	To end of previous year.	12,56,47,802	2,10,77,873	41,25,136	1,00,804	22,89,710	14,86,61,905	69,10,089	15,55,71,994	15,72,76,133
	During the year ..	3,93,469	1,76,987	1,200	— 1,442	93,945	4,76,269	14,622	4,90,891	66,96,678

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 Presidency for the year 1939–40—*cont.*

Works or systems.		Direct charges (net expenditure). Works.	Establishment.	Tools and plants.	Suspense.	*Deduct* receipts on capital account.	Total.	Indirect charges.	Total excluding interest.	Simple interest.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. IRRIGATION WORKS.		RS.	RS.	RS.		RS.	RS.	RS.	RS.	RS.
2. UNPRODUCTIVE WORKS—*cont.*										
Kurnool-Cuddapah canal.	To end of previous year.	1,90,93,092	3,80,864	40,84,003	..	2,44,283	2,33,13,676	73,438	2,33,87,114	4,67,53,207
	During the year ..	..	..	..	..	..	..	..	..	10,49,115
Barur tank	To end of previous year.	3,42,783	78,506	6,961	..	22	4,28,228	23,809	4,52,037	7,96,861
	During the year ..	..	..	..	..	..	..	..	..	19,264
Vallur anicut system.	To end of previous year.	60,662	13,679	25	..	..	74,366	1,916	76,282	1,77,337
	During the year ..	..	..	..	..	..	..	..	..	3,346
Madras Water-supply and Irrigation system.	To end of previous year.	13,92,995	2,30,243	6,928	..	1,302	16,28,864	2,40,054	18,68,918	40,30,903
	During the year ..	..	..	..	..	..	..	..	..	73,299
Pelandoral anicut system.	To end of previous year.	5,20,637	1,17,426	6,037	..	798	6,43,302	48,772	6,92,074	12,48,013
	During the year ..	..	..	..	..	..	..	..	..	28,949
Palar anicut system..	To end of previous year.	18,61,872	4,72,410	30,054	..	672	23,63,664	1,17,422	24,81,086	55,73,519
	During the year ..	5,794	1,872	— 8	..	..	7,658	58	7,716	1,06,490
Muniyeru system ..	To end of previous year.	4,70,736	1,06,584	3,748	..	1,732	5,79,336	29,809	6,09,145	8,47,207
	During the year ..	..	..	..	..	..	..	456	456	26,064
Dondapad tank ..	To end of previous year.	1,05,848	18,945	..	..	7	1,24,786	15,218	1,40,004	2,01,969
	During the year ..	..	..	..	..	..	..	..	..	5,615
Yerur tank	To end of previous year.	50,219	11,522	..	..	..	61,741	1,612	63,353	73,017
	During the year ..	..	..	..	..	..	..	..	..	2,778
Sagileru system ..	To end of previous year	3,54,321	80,339	12,449	..	1	4,47,108	17,619	4,64,727	6,92,570
	During the year ..	..	..	..	..	..	..	..	..	20,120
Atmakur tank ..	To end of previous year.	92,765	19,191	3	..	..	1,11,959	13,444	1,25,403	1,31,982
	During the year ..	..	..	..	..	..	..	..	..	5,038
Jangamaheswarapuram tank.	To end of previous year.	52,561	[illegible]	..	..	..	61,253	10,411	71,664	75,034
	During the year ..	..	..	..	..	..	..	..	..	2,756
Anamasamudram-Beraperu tank.	To end of previous year.	58,421	13,266	..	..	..	71,687	1,886	73,573	79,129
	During the year ..	..	..	..	..	..	..	..	..	3,226
Hajipuram tank ..	To end of previous year	2,30,686	48,308	..	..	220	2,78,774	33,109	3,11,883	3,21,747
	During the year ..	..	..	..	..	..	..	..	..	12,545
Ponnalur tank ..	To end of previous year.	1,61,263	31,658	54	..	..	1,92,975	25,674	2,18,649	2,28,381
	During the year ..	..	..	..	..	..	..	..	..	8,684
Markapur tank ..	To end of previous year.	1,01,374	23,066	41	..	..	1,24,481	4,859	1,29,340	1,29,334
	During the year ..	..	..	..	..	..	..	..	..	5,602
Nagavalli river system.	To end of previous year.	13,49,300	2,82,771	93,502	..	5,308	17,20,265	44,368	17,64,633	17,63,561
	During the year ..	1,095	422	12	..	..	1,529	11	1,540	77,419
Venkatapuram tank.	To end of previous year.	3,03,994	64,539	4,236	..	519	3,72,250	12,671	3,84,921	3,49,873
	During the year ..	..	..	..	..	..	..	..	..	16,751
Bhavanasi tank ..	To end of previous year.	1,85,879	43,103	25,710	..	297	2,54,395	11,096	2,65,491	2,32,016
	During the year ..	..	..	..	..	..	..	..	..	11,448
Yellanur tank ..	To end of previous year.	1,91,292	41,156	7,087	..	343	2,39,192	30,515	2,69,707	2,30,742
	During the year ..	..	..	..	..	..	..	..	..	10,764
Panjapatti reservoir	To end of previous year.	2,24,998	43,411	60,075	..	703	3,27,781	11,495	3,39,276	2,91,900
	During the year ..	..	..	..	..	..	..	..	..	14,750
Siddapur tank ..	To end of previous year.	5,22,751	96,255	1,72,474	..	442	7,91,038	13,448	8,04,486	6,99,741
	During the year ..	..	..	..	..	..	..	..	..	35,597
Nagavaram anicut and supply channel.	To end of previous year.	88,757	18,538	..	..	..	1,07,295	2,595	1,09,890	94,801
	During the year ..	..	..	..	..	..	..	..	..	4,828
Mopad reservoir system.	To end of previous year.	16,67,216	3,20,610	2,34,214	..	27,894	21,94,146	96,429	22,90,575	21,09,565
	During the year ..	..	..	..	..	..	..	..	..	98,736
Kaniyampalayam anicut.	To end of previous year.	97,391	27,035	495	..	17,700	1,07,221	3,853	1,11,074	1,16,393
	During the year ..	..	..	..	..	..	..	..	..	4,825
Tippayapalem project.	To end of previous year.	4,37,845	1,29,734	960	..	656	5,67,883	11,988	5,79,871	1,28,567
	During the year ..	1,597	554	3	..	..	2,154	16	2,170	25,332

B-I.—Capital Accounts of Irrigation, Navigation, Embankment and Drainage Works (classed "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency for the year 1939-40—*cont.*

Works or systems.		Direct charges (net expenditure). Works.	Establishment.	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)
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*										
2. UNPRODUCTIVE WORKS—*cont.*										
Basavannah channel	To end of previous year.	4,63,839	1,12,166	2,197	..	..	5,83,202	6,578	5,89,780	2,88,428
	During the year ..	..	..	..	..	..	..	..	..	26,230
Duvvaleru project.	To end of previous year.	6,863	4 100	8	..	..	10,971	69	11,040	368
	During the year ..	36,890	21,266	3	..	..	58,159	415	58,574	1,705
Total A. Irrigation works—2. Unproductive works.	To end of previous year.	3,04,95,363	28,38,114	47,51,261	..	3,02,899	3,77,81,839	9,04,157	3,86,85,996	6,76,66,165
	During the year ..	45,376	24,114	10	..	..	69,500	956	70,456	17,01,276
Total, A. Irrigation Works.	To end of previous year.	15,61,43,165	2,39,15,987	88,76,397	1,00,804	25,92,609	18,64,43,744	78,14,246	19,42,57,990	22,49,42,298
	During the year ..	4,38,845	2,01,101	1,210	— 1,442	93,945	5,45,769	15,578	5,61,347	83,97,954
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.										
2. UNPRODUCTIVE WORKS.										
Vedaranniyam canal.	To end of previous year.	1,07,885	24,814	..	..	.	1,32,699	3,733	1,36,432	3,56,084
	During the year ..	..	..	..	..	..	..	..	..	5,971
Buckingham canal.	To end of previous year.	68,23,104	16,14,766	1,81,040	..	24,365	85,94,545	4,89,482	90,84,027	1,84,07,433
	During the year ..	..	..	..	..	..	..	..	..	3,86,750
Total, B. Navigation etc. Works—2. Unproductive Works.	To end of previous year.	69,30,989	16,39,580	1,81,040	..	24,365	87,27,244	4,93,215	92,20,459	1,87,63,517
	During the year ..	..	..	..	..	..	..	..	..	3,92,721
Total, B. Navigation etc., Works.	To end of previous year.	69,30,989	16,39,580	1,81,040	..	24,365	87,27,244	4,93,215	92,20,459	1,87,63,517
	During the year ..	..	..	..	..	..	..	..	..	3,92,721
Total, Construction of Irrigation etc., Works.	To end of previous year.	16,30,74,154	2,55,55,567	90,57,437	1,00,804	26,16,974	19,51,70,988	83,07,461	20,34,78,449	24,37,05,815
	During the year ..	4,38,845	2,01,101	1,210	— 1,442	93,945	5,45,769	15,578	5,61,347	87,90,675

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 Presidency for the year ending 1939-40.

Works or systems.	Revenue (actual receipts). Irrigation. Irrigation revenue.	Share of land revenue.	Total.	Navigation.	Plantation.	Miscellaneous.	Total.	Less refunds of revenue
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS.								
1. PRODUCTIVE WORKS.								
1 Cauvery delta system	39,77,270	1,24,043	41,01,313	676	5,447	4,435	10,558	163
2 Srivalkuntam anicut system	1,60,691	1,490	1,62,181	..	409	7,096	7,505	800
3 Godavari delta system	42,39,251	2,30,509	44,69,760	1,76,161	5,337	39,301	2,20,799	1,509
4 Mehamattur anicut system	22,062	196	22,258	..	70	557	627	..
5 Thadapalli channel system	1,26,097	2,929	1,29,026	..	959	407	1,366	26
6 Kallingarayan channel system	1,17,694	483	1,18,177	..	1,483	85	1,568	..
7 *Vriddhachalam* anicut system	29,093	339	29,432	..	364	15	379	..
8 Chembrambakkam tank system	36,240	957	37,197	..	..	93	93	..
9 Marudur anicut system	1,76,816	279	1,77,095	..	36	1,008	1,044	..
10 Pennar river canals system	7,48,021	72,675	8,20,696	428	160	2,606	3,194	739
11 Arkenkota channel system	33,573	428	34,001	..	277	33	310	..
12 Tirukkoyilur anicut system	1,07,293	3,369	1,10,662	2	314	238	554	1
13 Shatiatope anicut system	1,40,421	17,031	1,57,452	..	223	276	499	..
14 Cheyyar anicut system	64,461	4,735	69,196	..	67	1,174	1,241	1
15 Cumbum tank system	34,248	461	34,709	..	..	..	..	..
16 Poiney anicut system	84,569	5,488	90,057	..	68	191	259	..
17 Periyar system	7,52,186	94,863	8,47,049	515	2,011	6,387	8,913	56
18 Kistna delta system	35,66,163	1,91,028	37,57,191	1,22,317	4,187	53,695	1,80,199	2,147
19 Nandiyar channel system	29,143	250	29,393	..	276	51	327	6
20 Chicacole minor rivers system	1,25,814	7,874	1,33,688	..	..	215	215	..
21 Lower *Coleroon* anicut system	4,13,925	51,515	4,65,440	4	1,901	2,464	4,369	3
22 Kistna East Bank canal extension scheme ..	4,32,662	87,205	5,19,867	577	10	2,404	2,991	128
23 *Toludur* reservoir system	1,07,726	448	1,08,174	..	277	96	373	..
24 Polavaram island project..	91,183	..	91,183	..	125	138	263	..
25 Cauvery-Mettur project	13,16,323	..	13,16,323	4	2,456	11,690	14,150	89
26 Kattalai scheme	3,32,810	121	3,32,931	3	2,559	1,443	4,005	46
Total, A. *Irrigation* Works—1 Productive works	1,72,65,735	8,98,716	1,81,64,451	3,00,687	29,016	1,36,098	4,65,801	5,714
2. UNPRODUCTIVE WORKS.								
1 Kurnool-Cuddapah canal	3,23,892	3,019	3,26,911	72	3,750	3,717	7,539	..
2 *Barur* tank	21,937	782	22,719	..	..	1,166	1,166	36
3 Vallur anicut	3,871	1,074	4,945	..	..	125	125	1
4 Madras Water-supply and Irrigation system ..	12,416	462	12,878	..	..	29,473	29,473	..
5 Pelandoral anicut system	48,742	86	48,828	..	397	183	580	..
6 Palar anicut system	2,59,681	16,852	2,76,533	..	378	1,482	1,860	20
7 Muntyeru anicut system	41,752	62	41,814	..	..	942	942	..

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 Presidency for the year ending 1939-40—*cont.*

Works or systems.	Revenue (actual receipts). Irrigation. Irrigation revenue.	Share of land revenue.	Total.	Navigation.	Plantation.	Miscellaneous.	Total.	Less refunds of revenue.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
A. IRRIGATION WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
8 Dondapad tank	1,801	10	1,811	..	..	..	..	..
9 Yerur tank	—550	86	—464	..	..	..	..	..
10 Sagileru system	21,403	26	21,429	..	9	40	49	..
11 Atmakur tank	2,003	..	2,003	..	5	58	63	..
12 Jangamaheswarapuram tank	1,242	..	1,242	..	..	..	..	..
13 Anamasamudram-Beraperu tank	3,684	1	3,685	..	..	..	..	..
14 Hajipuram tank	3,327	70	3,397	..	..	..	..	..
15 Ponnalur tank	5,181	..	5,181	..	..	..	..	..
16 Markapur tank	8,836	1	8,837	..	15	5	20	..
17 Nagavalli river system	96,097	21,566	1,17,663	9	..	630	639	4
18 Venkatapuram tank	1,667	38	1,705	..	..	..	..	..
19 Bhavanasi tank	5,124	..	5,124	..	..	34	34	..
20 Yellanur tank	1,844	1,104	2,948	..	..	..	..	..
21 Panjapatti reservoir project	..	..	..	..	..	..	..	..
22 Siddapur tank	5,564	..	5,564	..	..	..	..	..
23 Nagavaram anicut and supply channel	3,278	1,017	4,295	..	..	1	1	..
24 Mopad reservoir system	18,908	5,170	24,078	..	..	129	129	..
25 Kanniyampalaiyam anicut	..	..	..	..	..	4,000	4,000	..
26 Tippayapalem project	3,683	..	3,683	..	..	..	..	..
27 Basavannah channel	..	..	..	..	..	100	100	..
28 Duvvaleru project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2 Unproductive works	8,95,383	51,426	9,46,809	81	4,554	42,085	46,720	61
Total, A. Irrigation Works ..	1,81,61,118	9,50,142	1,91,11,260	3,00,768	33,570	1,78,183	5,12,521	5,775
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.								
2 UNPRODUCTIVE WORKS.								
1 Vedaranniyam canal	..	..	..	740	..	12	752	..
2 Buckingham canal	..	..	..	1,03,034	38	4,255	1,07,327	33
Total, B. Navigation, etc. Works—2. Unproductive Works	..	..	..	1,03,774	38	4,267	1,08,079	33
Total, B. Navigation, etc., Works ..	..	..	..	1,03,774	38	4,267	1,08,079	33
Total, Construction of Irrigation, etc., Works..	1,81,61,118	9,50,142	1,91,11,260	4,04,542	33,608	1,82,450	6,20,600	5,808

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 Presidency for the year ending 1939-40—*cont.*

Works or systems.	Revenue (actual receipts)—*cont.* Gross revenue less refunds.	Deduct share of old irrigation revenue.	Total revenue due to improvements.	Working expenses—Revenue management. Establishment. Direction.	Execution.	Civil officers.	Total revenue management.
	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	RS.	RS.	RS.			RS.	RS.
A. IRRIGATION WORKS—*cont.*							
1. PRODUCTIVE WORKS—*cont.*							
1 Cauvery delta system	41,11,708	29,26,531	11,85,177	..	..	2,05,045	2,05,045
2 Srivalkuntam anicut system	1,68,886	79,000	89,886	..	..	4,159	4,159
3 Godavari delta system	46,89,050	1,24,000	45,65,050	..	..	2,15,378	2,15,378
4 Mehamattur anicut system	22,885	4,000	18,885	..	..	909	909
5 Thadapalli channel system	1,30,366	76,000	54,366	..	..	2,651	2,651
6 Kalingarayan channel system	1,19,745	85,000	34,745	..	..	1,659	1,659
7 Vriddhachalam anicut system	29,811	8,500	21,311	..	..	1,046	1,046
8 Chembrambakkam tank system	37,290	16,000	21,290	..	..	1,060	1,060
9 Marudur anicut system	1,78,139	1,15,000	63,139	..	..	3,105	3,105
10 Pennar river canals system	8,23,151	2,56,000	5,67,151	..	..	27,095	27,095
11 Arkenkota channel system	34,311	19,000	15,311	..	..	750	750
12 Tirukkoyilur anicut system	1,11,215	60,000	51,215	..	..	2,533	2,533
13 Shatiatope anicut system	1,57,951	20,000	1,37,951	..	..	6,873	6,873
14 Cheyyar anicut system	70,436	39,000	31,436	..	..	1,438	1,438
15 Cumbum tank system	37,709	30,000	4,709	..	..	235	235
16 Poiney anicut system	90,316	38,000	52,316	..	..	2,600	2,600
17 Periyar system	8,55,906	2,04,000	6,51,906	..	..	28,426	28,426
18 Kistna delta system	39,35,243	71,000	38,64,243	..	..	1,80,647	1,80,647
19 Nandiyar channel system	29,714	17,000	12,714	..	..	611	611
20 Chicacole minor rivers system	1,33,903	95,000	38,903	..	..	1,931	1,931
21 Lower Coleroon anicut system	4,69,806	1,55,000	3,14,806	..	..	15,522	15,522
22 Kistna East Bank canal extension scheme ..	5,22,730	20,300	5,02,430	..	..	21,485	21,485
23 Toludur reservoir system	1,08,547	10,590	97,957	..	..	4,879	4,879
24 Polavaram island project	91,446	..	91,446	..	..	4,559	4,559
25 Cauvery-Mettur project	13,30,384	99,971	12,30,413	..	..	60,818	60,818
26 Kattalai scheme	3,36,890	2,54,000	82,890	..	..	3,942	3,942
Total, A. Irrigation Works—1. Productive works	1,86,24,538	48,22,892	1,38,01,646	..	..	7,99,356	7,99,356
2. UNPRODUCTIVE WORKS—*cont.*							
1 Kurnool-Cuddapah canal	3,34,450	35,872	2,98,578	..	..	14,531	14,531
2 Barur tank	23,849	4,500	19,349	..	..	881	881
3 Vallur anicut	5,069	5,000	69	..	..	—3	—3
4 Madras Water-supply and Irrigation system ..	42,351	11,000	31,351	..	..	94	94
5 Pelandurai anicut system..	49,408	3,000	46,408	..	..	2,291	2,291
6 Palar anicut system	2,78,373	1,25,000	1,53,373	..	..	7,526	7,526
7 Muniyeru anicut system	42,756	2,500	40,256	..	..	1,966	1,966
8 Dondapad tank	1,811	..	1,811	..	..	91	91

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 Presidency for the year ending 1939-40—*cont.*

Works or systems.	Revenue (actual receipts)—*cont.*			Working expenses—Revenue management.			
				Establishment.			Total revenue management.
	Gross revenue less refunds.	Deduct share of old irrigation revenue.	Total revenue due to improvements.	Direction.	Execution.	Civil officer.	
	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	RS.	RS.	RS.			RS.	RS.
A. IRRIGATION WORKS—*cont.*							
2. UNPRODUCTIVE WORKS—*cont.*							
9 Yerur tank	— 464	425	— 889	..	..	— 44	— 44
10 Sagileru system	21,478	17,800	3,678	..	..	181	181
11 Atmakur tank	2,066	..	2,066	..	..	100	100
12 Jangamaheswarapuram tank	1,242	500	742	..	..	37	37
13 Anamasamudram-Beraperu tank	3,685	3,600	85	..	..	4	4
14 Hajipuram tank	3,397	..	3,397	..	..	169	169
15 Ponnalur tank	5,181	..	5,181	..	..	259	259
16 Markapur tank	8,857	2,130	6,727	..	..	335	335
17 Nagavalli river system	1,18,298	37,400	80,898	..	..	3,218	3,218
18 Venkatapuram tank	1,705	164	1,541	..	..	77	77
19 Bhavanasi tank	5,158	..	5,158	..	..	256	256
20 Yellanur tank	2,948	..	2,948	..	..	123	123
21 Panjapatti reservoir project	..	..	..	..	..	..	..
22 Siddapur tank	5,564	..	5,564	..	..	278	278
23 Nagavaram anicut and supply channel ..	4,296	2,256	2,040	..	..	58	58
24 Mopad reservoir system	24,207	433	23,774	..	..	957	957
25 Kanniyampalayam anicut	4,000	..	4,000	..	..	..	..
26 Tippayapalem project	3,683	..	3,683	..	..	184	184
27 Basavanna channel	100	..	100	..	..	..	..
28 Duvvaleru project	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works	9,93,468	2,51,580	7,41,888	..	..	33,569	33,569
Total A. Irrigation Works ..	1,96,18,006	50,74,472	1,45,43,534	..	..	8,32,925	8,32,925
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*							
2. UNPRODUCTIVE WORKS—*cont.*							
1 Vedaranniyam canal	752	..	752	..	..	..	..
2 Buckingham canal	1,07,294	..	1,07,294	..	..	..	..
Total, B. Navigation, etc., Works—2. Unproductive Works	1,08,046	..	1,08,046	..	..	..	..
Total, B. Navigation, etc. Works ..	1,08,046	..	1,08,046	..	..	..	..
Total, Construction of Irrigation, etc., Works ..	1,97,26,052	50,74,472	1,46,51,580	..	..	8,32,925	8,32,925

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 Presidency for the year ending 1939-40—*cont.*

Works or systems.	Working expenses.							
	Maintenance and repairs.							
	Establishment.							
	Direction.	Execution.	Total.	Extensions and improvements.	Maintenance and repairs.	Tools and plant.	*Deduct* recoveries on revenue account.	Total cost of maintenance.
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	RS.	RS.	RS.	RS.	RS.	RS.		RS.
A. IRRIGATION WORKS—*cont.*								
1. PRODUCTIVE WORKS—*cont.*								
1 Cauvery delta system	63,464	2,53,854	3,17,318	57,974	5,86,617	1,144	..	9,63,053
2 Srivaikuntam anicut system	3,566	14,263	17,829	804	37,533	— 68	..	56,098
3 Godavari delta system	69,300	2,77,199	3,46,499	77,177	5,93,450	7,303	..	10,24,429
4 Mehamattur anicut system	1,058	4,234	5,292	2,923	9,303	23	..	17,541
5 Thadapalli channel system	741	2,965	3,706	676	8,424	— 12	..	12,794
6 Kalingarayan channel system	807	3,229	4,036	2,006	8,713	— 15	..	14,740
7 Vriddhachalam anicut system	1,406	5,624	7,030	1,880	13,811	29	..	22,750
8 Chembrambakkam tank system	238	952	1,190	..	7,171	— 13	..	8,348
9 Marudur anicut system	1,266	5,064	6,330	719	13,959	— 26	..	20,982
10 Pennar river canals system	7,224	28,897	36,121	5,995	91,054	69	..	1,33,239
11 Arkenkota channel system	340	1,361	1,701	..	4,389	— 6	..	6,084
12 Tirukkoyilur anicut system	3,371	13,481	16,852	3,501	36,006	74	..	56,433
13 Shatiatope anicut system	3,193	12,773	15,966	1,007	30,773	59	..	47,805
14 Cheyyar anicut system	2,463	9,854	12,317	2,969	32,827	— 49	..	48,064
15 Cumbum tank system	342	1,369	1,711	1,263	1,277	— 1	..	4,250
16 Poiney anicut system	1,187	4,748	5,935	66	15,998	— 22	..	21,977
17 Periyar system	10,606	42,426	53,032	4,374	98,581	— 183	..	1,55,804
18 Kistna delta system	58,520	2,34,080	2,92,600	31,520	5,10,967	1,002	..	8,36,089
19 Nandiyar channel system	320	1,280	1,600	..	3,087	..	..	4,687
20 Chicacole minor rivers system	4,012	16,046	20,058	1,182	46,208	516	..	67,964
21 Lower Coleroon anicut system	10,612	42,446	53,058	13,143	1,00,186	212	..	1,66,599
22 Kistna East Bank Canal extension scheme ..	4,610	18,442	23,052	1,845	47,795	91	..	72,783
23 Toludur reservoir system	2,836	11,341	14,177	3,999	28,004	60	..	46,240
24 Polavaram island project	3,724	14,895	18,619	1,866	41,954	477	..	62,916
25 Cauvery-Mettur project	19,128	76,511	95,639	16,619	2,10,680	290	..	3,23,228
26 Kattalai scheme	7,196	28,784	35,980	3,987	77,997	15	..	1,17,979
Total, A. Irrigation Works—1. Productive works	2,81,530	11,26,118	14,07,648	2,37,495	26,56,764	10,969	..	43,12,876
2. UNPRODUCTIVE WORKS—*cont.*								
1 Kurnool-Cuddapah canal	11,042	44,167	55,209	1,870	70,534	— 25	..	1,27,588
2 Barur tank	415	1,658	2,073	13	5,196	— 7	..	7,275
3 Vallur anicut	121	485	606	13	3,537	— 6	..	4,150
4 Madras Water-supply and Irrigation system ..	431	1,723	2,154	4,636	10,022	— 25	..	16,787
5 Pelandurai anicut system	1,462	5,849	7,311	815	14,378	28	..	22,532
6 Palar anicut system	4,087	16,350	20,437	3,123	60,400	— 95	..	83,865
7 Muniyeru anicut system	673	2,691	3,364	..	6,299	12	..	9,675

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 Presidency for the year ending 1939–40—*cont.*

Works or systems.	Working expenses. Maintenance and repairs. Establishment. Direction.	Execution.	Total.	Extensions and improvements.	Maintenance and repairs.	Tools and plant.	*Deduct* recoveries on revenue account.	Total cost of maintenance.
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
A. IRRIGATION WORKS—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.		RS.
2. UNPRODUCTIVE WORKS—*cont.*								
8 Dondapad tank	17	68	85	..	108	..	..	193
9 Yerur tank	47	187	234	..	717	..	..	951
10 Sagileru system	257	1,028	1,285	95	1,979	..	..	3,359
11 Atmakur tank	20	80	100	— 1	95	..	..	194
12 Jangamaheswarapuram tank	23	91	114	89	201	1	..	405
13 Anamasamudram-Beraperu tank	41	165	206	..	599	1	..	806
14 Hajipuram tank	30	120	150	..	358	— 1	..	507
15 Ponnalur tank	62	247	309	..	792	..	..	1,101
16 Markapur tank	348	1,394	1,742	152	2,448	— 1	..	4,341
17 Nagavalli river system	1,931	7,722	9,653	1,906	17,325	209	..	29,093
18 Venkatapuram tank	51	205	256	..	390	..	..	646
19 Bhavanasi tank	107	430	537	5	1,341	3	..	1,886
20 Yellanur tank	140	562	702	..	985	— 1	..	1,686
21 Panjapatti reservoir project	..	..	..	..	..	..	..	..
22 Siddapur tank	84	334	418	..	568	..	..	986
23 Nagavaram anicut and supply channel	80	318	398	..	632	..	..	1,030
24 Mopad reservoir system	399	1,598	1,997	..	5,068	4	..	7,069
25 Kanniyampalayam anicut	107	427	534	..	1,596	— 2	..	2,128
26 Tippayapalem project	4	18	22	..	..	..	..	22
27 Basavanna channel	476	1,903	2,379	..	4,688	2	..	7,069
28 Duvvaleru project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works	22,455	89,820	1,12,275	12,716	2,10,256	97	..	3,35,344
Total, A. Irrigation Works	3,03,985	12,15,938	15,19,923	2,50,211	28,67,020	11,066	..	46,48,220
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
1 Vedaranniyam canal	683	2,733	3,416	..	8,773	16	..	12,205
2 Buckingham canal	5,946	23,785	29,731	3,641	1,86,231	— 256	..	2,19,347
Total, B. Navigation, etc., Works—2. Unproductive Works	6,629	26,518	33,147	3,641	1,95,004	— 240	..	2,31,552
Total, B. Navigation, etc., works	6,629	26,518	33,147	3,641	1,95,004	— 240	..	2,31,552
Total, Construction of Irrigation, etc., Works	3,10,614	12,42,456	15,53,070	2,53,852	30,62,024	10,826	..	48,79,772

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 Presidency for the year ending 1939–40—*cont.*

Works or systems.	Working expenses—*cont.* Indirect charges.	Grand total of working expenses.	*Deduct* old maintenance charges. Direct charges.	Indirect charges.	Total.	Total working expenses on improvements.	Net revenue. Total.	Due to improvements.
	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
A. IRRIGATION WORKS—*cont.*	RS.	RS	RS.	RS.	RS.	RS.	RS.	RS.
1. PRODUCTIVE WORKS—*cont.*								
1 Cauvery delta system	8,522	11,76,620	8,33,122	6,081	8,39,203	3,37,417	29,35,088	8,47,760
2 Srivaikuntam anicut system	520	60,777	7,922	55	7,977	52,800	1,08,109	37,086
3 Godavari delta system	7,031	12,46,838	..	..	..	12,46,838	34,42,212	33,18,212
4 Mchamattur anicut system	122	18,572	884	6	890	17,682	4,313	1,203
5 Thadapalli channel system	91	15,536	4,718	35	4,753	10,783	1,14,830	43,583
6 Kalingarayan channel system	107	16,506	5,276	40	5,316	11,190	1,03,239	23,555
7 Vriddhachalam anicut system	157	23,953	..	..	..	23,953	5,858	— 2,642
8 Chembrambakkam tank system	72	9,480	6,083	54	6,137	3,343	27,810	17,947
9 Marudur anicut system	147	24,234	6,698	47	6,745	17,489	1,53,905	45,650
10 Pennar river canals system	971	1,61,305	39,986	297	40,283	1,21,022	6,61,846	4,46,129
11 Arkenkota channel system	44	6,878	1,180	9	1,189	5,689	27,433	9,622
12 Tirukkoyllur anicut system	433	59,399	6,861	49	6,910	52,489	51,816	— 1,274
13 Shatiatope anicut system	318	54,996	2,286	17	2,303	52,693	1,02,955	85,258
14 Cheyyar anicut system	358	49,860	4,238	32	4,270	45,590	20,576	— 14,154
15 Cumbum tank system	25	4,510	1,328	8	1,336	3,174	30,199	1,535
16 Poiney anicut system	161	24,738	4,127	31	4,158	20,580	65,578	31,736
17 Periyar system	1,064	1,85,294	36,901	259	37,160	1,48,134	6,70,612	5,03,772
18 Kistna delta system	5,436	10,22,172	..	..	..	10,22,172	29,13,071	28,42,071
19 Nandiyar channel system	31	5,329	4,570	32	4,602	727	24,385	11,987
20 Chicacole minor rivers system	474	70,369	6,499	47	6,546	63,823	63,534	— 24,920
21 Lower Coleroon anicut system	1,202	1,83,323	10,128	73	10,201	1,73,122	2,86,483	1,41,684
22 Kistna East Bank Canal extension scheme	549	94,817	16,424	122	16,546	78,271	4,27,913	4,24,159
23 Toludur reservoir system	1,949	53,068	..	..	..	53,068	55,479	44,889
24 Polavaram island project	438	67,913	..	..	..	67,913	23,533	23,533
25 Cauvery-Mettur project	4,094	3,88,140	15,859	114	15,973	3,72,167	9,42,244	8,58,246
26 Kattalai scheme	823	1,22,744	69,111	485	69,596	53,148	2,14,146	29,742
Total, A. Irrigation Works—1. Productive Works	35,139	51,47,371	10,84,201	7,893	10,92,094	40,55,277	1,34,77,167	97,46,369
2. UNPRODUCTIVE WORKS—*cont.*								
1 Kurnool-Cuddapah canal	724	1,42,843	5,012	30	5,042	1,37,801	1,91,607	1,60,777
2 Barur tank	52	8,208	..	..	..	8,208	15,641	11,141
3 Vallur anicut system	35	4,182	1,473	13	1,486	2,696	887	— 2,627
4 Madras Water-supply and Irrigation system	147	17,023	4,297	38	4,335	12,693	25,323	18,658
5 Pelandurai anicut system	152	24,975	163	1	164	24,811	24,433	21,597

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 Presidency for the year ending 1939–40—*cont.*

Works or systems.	Working expenses—*cont.*						Net revenue.	
			Deduct old maintenance charges.					
	Indirect charges.	Grand total of working expenses.	Direct charges.	Indirect charges.	Total.	Total working expenses on improvements.	Total.	Due to improvements.
	(25) RS.	(26) RS.	(27) RS.	(28) RS.	(29) RS.	(30) RS.	(31) RS.	(32) RS.
A. IRRIGATION WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
6 Palar anicut system	635	92,026	4,076	31	4,107	87,919	1,86,347	65,454
7 Muniyeru anicut system	63	11,704	299	2	301	11,403	31,052	28,853
8 Dondapad tank	1	285	..	..	..	285	1,526	1,526
9 Yerur tank	7	914	..	..	..	914	— 1,378	— 1,803
10 Sagileru system	21	3,561	3,665	22	3,687	— 126	17,917	3,804
11 Atmakur tank	1	295	..	..	..	295	1,771	1,771
12 Jangamaheswarapuram tank	3	445	..	..	..	445	797	297
13 Anamasamudram-Beraperu tank	6	816	861	7	868	— 52	2,869	137
14 Hajipuram tank	4	680	..	..	..	680	2,717	2,717
15 Ponnalur tank	8	1,368	..	..	..	1,368	3,813	3,813
16 Markapur tank	26	4,702	406	2	408	4,294	4,155	2,433
17 Nagavalli river system	192	32,503	4,039	29	4,068	28,435	85,795	52,463
18 Venkatapuram tank	4	727	..	..	..	727	978	814
19 Bavanasi tank	13	2,155	..	..	..	2,155	3,003	3,003
20 Yellanur tank	10	1,819	..	..	..	1,819	1,129	1,129
21 Panjapatti reservoir project	..	..	..	..	..	..	..	..
22 Siddapur tank	6	1,270	..	..	..	1,270	4,294	4,294
23 Nagavaram anicut and supply channel	6	1,094	..	..	..	1,094	3,202	946
24 Mopad reservoir system	51	8,077	..	..	..	8,077	16,130	15,697
25 Kanniyampalayam anicut	16	2,144	..	..	..	2,144	1,856	1,856
26 Thippayapalem project	..	206	..	..	..	206	3,477	3,477
27 Basavannah channel	47	7,116	..	..	..	7,116	— 7,016	— 7,016
28 Duvvaleru project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works	2,230	3,71,143	24,291	175	24,466	3,46,677	6,22,325	3,95,211
Total, A. Irrigation Works	37,369	55,18,514	11,03,492	8,063	11,16,560	44,01,954	1,40,99,492	1,01,41,580
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
1 Vedaranniyam canal	99	12,304	..	..	..	12,304	— 11,552	— 11,552
2 Buckingham canal	1,899	2,21,246	..	..	..	2,21,246	— 1,13,952	— 1,13,952
Total, B. Navigation, etc., Works—2. Unproductive Works	1,998	2,33,550	..	..	..	2,33,550	— 1,25,504	— 1,25,504
Total, B. Navigation, etc., Works	1,998	2,33,550	..	..	..	2,33,550	— 1,25,504	— 1,25,504
Total, Construction of Irrigation, etc., Works	39,367	57,52,064	11,03,492	8,063	11,16,560	46,35,504	1,39,73,988	1,00,16,076

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939–40.

Number of works.	Name of works.	General financial results to end of 1939–40.								
		Mileage in operation.		Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when system first came into operation.	Total capital outlay (direct and indirect).	Accumulated arrears of interest.	Accumulated surplus revenues.	Total sum-a-charge [column (7) plus column (8)].
		Main canals and branches.	Dirtributaries.							
(1)	(2)	(3)	(4)	(5)	(6-*a*)	(6-*b*)	(7)	(8)	(9)	(10)
	A. IRRIGATION WORKS.	MILES.	MILES.	RS.			RS.	RS.	RS.	RS.
	1. PRODUCTIVE WORKS.									
1	Cauvery delta system	1,258¼	3,205	83,01,543	31-3-1889	..	82,85,041	..	4,91,28,906	82,85,041
2	Srivaikuntam anicut system	28	46	17,75,063	31-3-1889	..	17,75,063	..	1,13,002	17,75,063
3	Godavari delta system.	509-5/8	1,887	1,91,35,015	31-3-1890	1877-78	1,90,11,329	..	14,35,73,156	1,90,11,329
4	Mehamattur anicut system	15	9¼	87,184	March 1891	..	87,184	..	3,53,518	87,184
5	Thadapalli channel	85	..	1,77,446	1893	..	1,77,446	..	18,05,228	1,77,446
6	Kalingarayan channel	62½	..	1,80,486	1893	..	1,80,486	..	7,09,712	1,80,486
7	Vriddhachalam anicut system	33	16	1,08,204	31-3-1893	..	1,08,204	..	6,67,709	1,08,204
8	Chembarambakkam tank	10-7/8	1-5/8	7,64,143	31-3-1893	..	7,64,143	..	4,85,929	7,64,143
9	Marurdur anicut system.	29	7½	60,122	1893	..	60,122	..	40,45,495	60,122
10	Pennar river canals system	30¾	477	70,97,958	31-3-1894	1860-61	70,31,295	..	1,06,83,406	70,31,295
11	Arkenkota channel system.	24	..	1,44,445	31-3-1894	..	1,44,445	..	93,214	1,44,445
12	Tirukkoyilur anicut system	137	28¼	3,99,190	31-3-1895	..	3,99,190	..	8,48,544	3,99,190
13	Shatiatope anicut system	41	149	10,89,561	31-3-1895	..	10,89,561	..	46,92,437	10,89 561
14	Cheyyar anicut system.	61	120	5,39,999	31-3-1896	..	5,39,999	..	39,103	5,39,999
15	Cumbum tank	..	23¾	86,373	31-3-1896	..	86,373	..	32,329	86,373
16	Poiney anicut system	104	78	3,03,918	1897	..	3,03,918	..	13,75,812	3,03,918
17	Periyar system	152	118	1,08,35,654	31-3-1897	1896-97	1,08,35,654	..	34,57,151	1,08,35,654
18	Kistna delta system	407½	2,285	2,26,11,483	31-3-1898	..	2,18,82,726	..	11,15,53,929	2,18,82,726
19	Nandiyar channel system	31	..	65,715	1899	1895-96	65,715	..	4,198	65,715
20	Chicacole Minor river system	279-3/8	78-3/8	2,89,226	31-3-1900	..	2,89,226	..	7,71,984	2,89,226
21	Lower Coleroon anicut system	383	620¼	30,01,669	30-6-1903	..	30,01,669	..	1,38,96,919	30,01,669
22	Kistna East Bank canal extension scheme.	37	294	58,18,267	31-10-1913	1917-18	57,68,297	..	1,65,765	57,68,297
23	Toludur Reservoir system	31¾	40	26,22,780	31-10-1925	1924-25	26,22,780	14,70,044	..	40,92,824
24	Polavaram island project	..	44-5/8	16,96,575	28-2-1934	1929-30	16,96,575	90,520	..	17,87,095
25	Cauvery-Mettur project.	113-5/8	594¼	6,79,00,000	30-9-1934	1932-33	6,58,12,795	2,82,23,761	..	9,40,36,556
26	Kattalai scheme	74-3/8	44¼	45,13,712	..	1929-30	40,43,649	15,81,902	..	56,25,551
	Total, A. Irrigation Productive Works	3,938-5/8	10,566-7/8	15,96,05,761			15,60,62,885	3,13,66,227	34,84,97,446	18,74,29,112

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939–40—*cont.*

Number of works.	Name of works.	Financial results of the year 1939–40. Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage on capital outlay [column (7)].	Percentage on sum-at-charge [column (10)].	Interest.	Net profit.	Net loss.	Area irrigated.	Percentage of working expenses to receipts [column (12) to column (11)].
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	A. IRRIGATION WORKS —*cont.*	RS.	RS.	RS.	PER CENT.	PER CENT.	RS.	RS.	RS.	ACRES.	PER CENT.
	1. PRODUCTIVE WORKS—*cont.*										
1	Cauvery delta system..	11,85,177	3,37,417	8,47,760	10·23	10·23	3,59,692	4,88,068	..	232,157	28·47
2	Srivalkuntam anicut system	89,886	52,800	37,086	2·09	2·09	75,036	..	37,950	17,748	58·74
3	Godavari delta system.	45,65,050	12,46,838	33,18,212	17·45	17·45	7,61,178	25,57,034	..	915,468	27·31
4	Mehamattur anicut system	18,885	17,682	1,203	1·38	1·38	3,828	..	2,625	4,628	93·63
5	*Thadapalli channel* ..	54,366	10,783	43,583	24·56	24·56	7,487	36,096	..	8,633	19·83
6	Kalingarayan channel.	34,745	11,190	23,555	13·05	13·05	7,919	15,636	..	5,115	32·21
7	Vriddhachalam anicut system	21,311	23,953	— 2,642	— 2·44	— 2·44	4,686	..	7,328	7,534	112·40
8	Chembarambakkam tank	21,290	3,343	17,947	2·35	2·35	29,311	..	11,364	1,752	15·70
9	Marurdur anicut system.	63,139	17,489	45,650	75·93	75·93	2,642	43,008	..	14,502	27·70
10	Pennar river canals system	5,67,151	1,21,022	4,46,129	6·34	6·34	2,69,052	1,77,077	..	83,476	21·34
11	*Arkenkota channel system.*	15,311	5,689	9,622	6·66	6·66	6,335	3,287	..	2,518	37·16
12	Tirukkoyilur anicut system	51,215	52,489	— 1,274	— 0·32	— 0·32	17,514	..	18,788	17,377	102·49
13	Shatiatope anicut system	1,37 951	52,693	85,258	7·82	7·82	46,345	38,913	..	35,208	38·20
14	Cheyyar anicut system.	31,436	45,590	— 14,154	— 2·62	— 2·62	23,616	..	37,770	12,845	145·02
15	Gumbum tank	4,709	3,174	1,535	1·78	1·78	3,779	..	2,244	1,696	67·40
16	Poiney anicut system ..	52,316	20,580	31,736	10·44	10·44	13,280	18,456	..	9,352	39 34
17	Periyar system ..	6,51,906	1,48,134	5,03,772	4·65	4·65	4,70,908	32,864	..	96,057	22·72
18	Kistna delta system ..	38,64,243	10,22,172	28,42,071	12·99	12·99	9,19,203	19,22,868	..	794,150	26·45
19	Nandiyar channel system	12,714	727	11,987	18·24	18·24	2,845	9,142	..	3,447	5·72
20	Chicacole Minor river system	38,903	63,823	— 24,920	— 8·62	— 8·62	12,519	..	37,439	16,261	164·06
21	Lower Coleroon anicut system	3,14,806	1,73,122	1,41,684	4·72	4·72	1,31,104	10,580	..	77,281	54·99
22	Kistna East Bank canal extension scheme ..	5,02,430	78,271	4,24,159	7·35	7·35	2,52,569	1,71,590	..	67,863	15·58
23	Toludur Reservoir system	97,957	53,068	44,889	1·71	1·10	1,06,641	..	61,752	15,568	54·17
24	Polavaram island project	91,446	67,913	23,533	1·39	1·32	75,102	..	51,569	19,712	74·27
25	Cauvery-Mettur project.	12,30,413	3,72,167	8,58,246	1·30	0·93	29,17,315	..	20,59,069	100,145	30·25
26	Kattalai scheme ..	82,890	53,148	29,742	0·74	0·53	1,76,772	..	1,47,030	28,038	64·12
	Total, A. Irrigation, 1. Productive Works.	1,38,01,646	40,55,277	97,46,369	6·25	5·20	66,96,678	30,49,691	..	25,88,531	29·38

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939–40—*cont.*

Number of works.	Name of works.	General financial results to end of 1939–40. Mileage in operation. Main canals and branches.	Distributaries.	Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when 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 (8)].
(1)	(2)	(3)	(4)	(5)	(6-*a*)	(6-*b*)	(7)	(8)	(9)	(10)
	A. IRRIGATION WORKS —*cont.*	MILES.	MILES.	RS.	DATE.	DATE.	RS.	RS.	RS.	RS.
	2. UNPRODUCTIVE WORKS.									
1	Kurnool-Cuddapah canal.	417-5/8	294-7/8	2,33,87,114	Not known.	1882–83	2,33,87,114	4,27,74,141	..	*6,61,61,255*
2	Barur tank	11	26	4,52,037	31–3–1891	1887–88	4,52,037	4,46,938	..	8,98,975
3	Vallur anicut	5-5/8	8	76,282	31–3–1893	..	76,282	*44,583*	..	1,20,865
4	Madras Water-supply and Irrigation system.	11¼	..	18,68,918	1893	..	18,68,918	28,82,700	..	47,51,618
5	Pelandoral anicut ..	39	25	6,92,074	1893	..	6,92,074	4,55,357	..	11,47,431
6	Palar anicut system ..	156	139	24,91,967	31–3–1896	..	24,88,802	5,81,397	..	30,70,199
7	Muniyeru system ..	60¾	6½	6,09,601	1901–02	1898–99	6,09,601	2,76,757	..	*8,86,358*
8	Dondapad tank ..	..	6-7/8	1,40,004	31–3–1903	1898–99	1,40,004	1,91,851	..	3,31,855
9	Yerur tank	..	..	63,353	31–3–1907	1912–13	*63,353*	52,332	..	*1,15,685*
10	Sagileru system ..	12	Nil.	4,64,727	31–3–1907	1898–99	4,64,727	7,44,514	..	12,09,241
11	Atmakur tank	..	4½	1,25,403	31–8–1907	1912–13	1,25,403	1,05,249	..	2,30,652
12	Jangamaheswarapuram tank	..	5-1/8	71,664	31–3–1908	1912–13	71,664	66,931	..	1,38,595
13	Anamasamudram Beraperu tank	..	2-7/8	73,573	31–3–1910	1911–12	73,573	84,611	..	1,58,184
14	Hajipuram tank ..	..	4¼	3,11,883	31–3–1911	1910–11	3,11,883	*2,67,246*	..	*5,79 129*
15	Ponnalur tank	..	7	2,18,649	31–3–1911	1910–11	2,18,649	2,48,195	..	4,66,844
16	Markapur tank ..	7¼	..	1,29,340	31–3–1911	1909–10	1,29,340	1,06,702	..	2,36,042
17	Nagavalli river system.	64½	47½	17,67,863	31–12–1913	1909–10	17,66,173	4,46,892	..	22,13,065
18	Venkatapuram tank ..	3¼	..	3,84,921	31–3–1918	1921–22	3,84,921	3,66,245	..	7,51,166
19	Bhavanasi tank ..	6-3/8	..	2,65,491	31–3–1919	1921–22	2,65,491	2,30,296	..	4,95,787
20	Yellanur tank	..	3-7/8	2,69,707	31–3–1919	1920–21	2,69,707	1,97,103	..	4,66,810
21	Panjapatti Reservoir ..	..	1½	3,39,276	30–6–1919	1924–25	3,39,276	3,01,653	..	*6,40,929*
22	Siddapur tank	6-7/8	9	8,04,486	31–10–1919	1921–22	8,04,486	7,11,126	..	15,15,612
23	Nagavaram anicut and supply channel ..	2	..	1,09,890	31–12–1919	1920–21	1,09,890	73,540	..	1,83,430
24	Mopad Reservoir system	16-7/8	84	22,90,575	30–4–1921	1921–22	22,90,575	18,61,073	..	41,51,648
25	Kanniyampalayam anicut	10½	..	1,11,074	31–3–1922	1924–25	1,11,074	1,15,910	..	2,26,984
26	Tippayapalem project ..	..	..	5,94,900	In progress.	In progress.	5,82,041	1,44,976	..	7,27,017
27	Basavannah channel ..	..	..	5,92 100	Do.	Do.	5,89,780	*3,96,633*	..	*9,86,413*
28	Duvvaleru project ..	..	..	1,52,075	Do.	Do.	69,614	2,073	..	71,687
	Total, A. Irrigation—2. Unproductive Works ..	831-1/8	675-5/8	3,88,57,952			3,87,56,452	5,41,77,024	..	9,29,33,476
	Total, A. Irrigation Works	4,769¾	11,242½	19,84,63,713			19,48,19,337	*8,55,43,251*	*34,84,97,446*	*28,03,62,588*

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939-40—*cont.*

Number of works.	Name of Works.	Financial results of the year 1939-40. Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage on capital outlay [column (7)].	Percentage on sum-at-charge [column (10)].	Interest.	Net profit.	Net loss.	Area irrigated.	Percentage of working expenses to receipts [columns (12) to (11)].
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	A. IRRIGATION WORKS —*cont.*	RS.	RS.	RS.	PER CENT.	PER CENT.	RS.	RS.	RS.	ACS.	PER CENT.
	2. UNPRODUCTIVE WORKS —*cont.*										
1	Kurnool-Cuddapah canal	2,98,578	1,37,801	1,60,777	0·69	0·24	10,49,115	..	8,88,338	75,402	46·15
2	Barur tank	19,349	8,208	11,141	2·46	1·24	19,264	..	8,123	5,006	42·42
3	Vallur anicut	69	2,696	— 2,627	— 3·44	— 2·17	3,346	..	5,973	899	3,907·25
4	Madras Water-supply and Irrigation system.	31,351	12,693	18,658	1·00	0·39	73,299	..	54,641	698	40·49
5	Pelandorai anicut ..	46,408	24,811	21,597	3·12	1·88	28,949	..	7,352	11,397	53·46
6	Palar anicut system ..	1,53,373	87,919	65,454	2·63	2·13	1,06,490	..	41,036	35,432	57·32
7	Muniyeru system ..	40,256	11,403	28,853	4·73	3·26	26,064	2,789	..	8,774	28·33
8	Dondapad tank ..	1,811	285	1,526	1·09	0·46	5,615	..	4,0·9/	499	15·74
9	Yerur tank	— 889	914	— 1,803	— 2·85	— 1·56	2,778	..	4,581	707	— 102·81
10	Sagileru system ..	3,678	— 126	3 804	0·82	0·31	20,120	..	16,316	1,257	— 3 43
11	Atmakur tank	2,066	295	1,771	1·41	0·77	5,038	..	3,267	499	14·28
12	Jangamaheswarapuram tank	742	445	297	0·41	0·21	2,756	..	2,459	248	59·97
13	Anamasamudram Beraperu tank ..	85	— 52	137	0·19	0·09	3,226	.	3,089	102	— 61·18
14	Haripuram tank ..	3,397	680	2,717	0·87	0·47	12,545	..	9,828	898	20·02
15	Ponnalur tank ..	5,181	1,368	3,813	1·74	0·82	8,684	..	4,871	978	26·40
16	Markapur tank ..	6,727	4,294	2,433	1·88	1·03	5,602	..	3,169	2,206	63·83
17	Nagavalli river system.	80,898	28,435	52,463	2·97	2·37	77,419	..	24,956	12,834	35·15
18	Venkatapuram tank ..	1,541	727	814	0·21	0·11	16,751	..	15,937	408	47·18
19	Bhavanasi tank ..	5,158	2,155	3,003	1·13	0·61	11,448	..	8,445	556	41·78
20	Yellanur tank	2,948	1,819	1,129	0·42	0·24	10,764	..	9,635	582	61·70
21	Panjapatti Reservoir ..	..	..	..	..	..	14,750	..	14,.50	..	..
22	Sidapur tank ..	5,564	1,270	4,294	0·53	0·28	35,597	..	31,303	875	22·83
23	Nagavaram anicut and supply channel ..	2,040	1,094	946	0·86	0·52	4,828	..	3,882	170	53·63
24	Mopad Reservoir system	23,774	8,077	15,697	0·69	0·38	98,736	..	83,039	4,204	33·97
25	Kanniyampalayam anicut	4,000	2,144	1,856	1·67	0·82	4,825	..	2,969	377	53·60
26	Tippayapalem project.	3,683	206	3,477	0·60	0·43	25,332	..	21,855	723	5·59
27	Basavannah channel ..	100	7,116	— 7,016	— 1·19	— 0·71	26,230	..	33,246	..	7,116·00
28	Duvvaleru project ..	..	..	..	..	..	1,705	..	1,705	..	..
	Total, A. Irrigation—2. Unproductive Works..	7,41,888	3,46,677	3,95,211	1·02	0·43	17,01,276	..	13,06,065	165,731	46·73
	Total, A. Irrigation Works	1,45,43 534	44,01,954	1,01,41,580	5·21	3·62	83,97.954	17,43,626	..	2,754,262	30·27

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939-40—*cont.*

Number of works.	Name of works.	General financial results to end of 1939-40. Mileage in operation. Main canals and branches.	Distributaries.	Estimated cost of construction (direct and indirect).	Date of completion of work.	Date when 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 (8)].
(1)	(2)	(3)	(4)	(5)	(6-*a*)	(6-*b*)	(7)	(8)	(9)	(10)
	B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.	MILES.	MILES.	RS.			RS.	RS.	RS.	RS.
	2. UNPRODUCTIVE WORKS.									
1	Vedaranyam canal ..	31¾	..	1,36,432	31—3—1893	..	1,36,432	7,63,300	..	8,99,732
2	Buckingham canal ..	262	..	90,84,027	March 1897	..	90,84,027	2,33,44,858	..	3,24,28,885
	Total, 2. Unproductive Works	293¾	..	92,20,459			92,20,459	2,41,08,158	..	3,33,28,617
	Total, B. Navigation, etc., Works	293¾	..	92,20,459			92,20,459	2,41,08,158	..	3,33,28,617
	Total, Construction of Irrigation, etc., Works ..	5,063½	11,242½	20,76,84,172			20,40,39,796	10,96,51,409	34,84,97,446	31,36,91,205

C-II.—Statement showing the financial results of Irrigation, Navigation, Embankment and Drainage Works for, and up to, the end of 1939-40—*cont.*

Number of works.	Name of works.	Financial results of the year 1939-40. Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	*Percentage* on capital outlay [column (7)].	Percentage on sum-at-charge [column (10)].	Interest.	Net profit.	Net loss.	Area irrigated.	Percentage of working expenses to receipts [columns (12) to (11)].
		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
		RS.	RS.	RS.	PER CENT.	PER CENT.	RS.	RS.	RS.	ACS.	PER CENT.
	B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*										
	2. UNPRODUCTIVE WORKS—*cont.*										
1	Vedaranyam canal ..	752	12,304	— 11,552	— 8·47	— 1·28	5,971	..	17,523	..	1,636·17
2	Buckingham canal ..	1,07,294	2,21,246	— 1,13,952	— 1·25	— 0·35	3,36,750	..	5,00,702	..	206·21
	Total, 2. Unproductive Works	1,08,046	2,33,550	— 1,25,504	— 1·36	— 0·38	3,92,721	..	5,18,225	..	216·16
	Total, B. Navigation, etc., Works ..	1,08,046	2,33,550	— 1,25,504	— 1·36	— 0·38	3,92,721	..	5,18,225	..	216·16
	Total, Construction of Irrigation, etc., Works.	1,46,51,580	46,35,504	1,00,16,076	4·91	3·19	87,90,675	12,25,401	..	2,754,262	31·64

C-III.—Demands and Realizations during the year 1939-40 in the Madras Presidency.

Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept.

Works or systems.	Balance of demands unrealized at the commencement of the year.	Demand for the year.	Total.	Deduct remissions including cash refunds.	Net total.	Deduct amount unrealized at the close of the year.	Actual total receipts of the year.	Deduct share due to old irrigation.	Net amount due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		RS.	RS.	RS.	RS.		RS.	RS.	RS.
A. IRRIGATION WORKS.									
1. PRODUCTIVE WORKS.									
1 Cauvery delta system	..	52,75,114	52,75,114	11,63,406	41,11,708	..	41,11,708	29,26,531	11,85,177
2 Srivaikuntam anicut system	..	2,33,220	2,33,220	64,334	1,68,886	..	1,68,886	79,000	89,886
3 Godavari delta system ..	..	56,22,480	56,22,480	9,33,430	46,89,050	..	46,89,050	1,24,000	45,65,050
4 Mehamattur anicut system ..	..	28,430	28,430	5,545	22,885	..	22,885	4,000	18,885
5 Thadapalli channel system ..	..	1,47,613	1,47,613	17,247	1,30,366	..	1,30,366	76,000	54,366
6 Kalingarayan channel system.	..	1,34,438	1,34,438	14,693	1,19,745	..	1,19,745	85,000	34,745
7 Vriddhachalam anicut system.	..	44,638	44,638	14,827	29,811	..	29,811	8,500	21,311
8 Chembrambakkam tank system.	..	51,489	51,489	14,199	37,290	..	37,290	16,000	21,290
9 Marudur anicut system ..	..	2,09,316	2,09,316	31,177	1,78,139	..	1,78,139	1,15,000	63,139
10 Pennar river canals system ..	..	9,37,887	9,37,887	1,14,736	8,23,151	..	8,23,151	2,56,000	5,67,151
11 Arkenkota channel system ..	..	39,303	39,303	4,992	34,311	..	34,311	19,000	15,311
12 Tirukkoyilur anicut system ..	..	1,38,792	1,38,792	27,577	1,11,215	..	1,11,215	60,000	51,215
13 Shatlatope anicut system ..	..	1,91,059	1,91,059	33,108	1,57,951	..	1,57,951	20,000	1,37,951
14 Cheyyar anicut system ..	..	1,15,033	1,15,033	44,597	70,436	..	70,436	39,000	31,436
15 Cumbum tank system	..	39,208	39,208	4,499	34,709	..	34,709	30,000	4,709
16 Poiney anicut system	..	1,13,997	1,13,997	23,681	90,316	..	90,316	38,000	52,316
17 Periyar project system ..	..	10,65,337	10,65,337	2,09,431	8,55,906	..	8,55,906	2,04,000	6,51,906
18 Kistna delta system	..	51,33,548	51,33,548	11,98,305	39,35,243	..	39,35,243	71,000	38,64,243
19 Nandiyar channel system ..	..	35,131	35,131	5,417	29,714	..	29,714	17,000	12,714
20 Chicacole minor rivers system.	..	1,60,782	1,60,782	26,879	1,33,903	..	1,33,903	95,000	38,903
21 Lower Coleroon anicut system.	..	6,46,417	6,46,417	1,76,611	4,69,806	..	4,69,806	1,55,000	3,14,806
22 Kistna East Bank canal extension scheme	..	5,80,062	5,80,062	57,332	5,22,730	..	5,22,730	20,300	5,02,430
23 Toludur reservoir system ..	..	1,10,919	1,10,919	2,372	1,08,547	..	1,08,547	10,590	97,957
24 Polavaram island project ..	..	91,514	91,514	68	91,446	..	91,446	..	91,446
25 Cauvery-Mettur project ..	..	13,81,667	13,81,667	51,283	13,30,384	..	13,30,384	99,971	12,30,413
26 Kattalai scheme	..	3,94,933	3,94,933	58,043	3,36,890	..	3,36,890	2,54,000	82,890
Total, A. Irrigation Works—1. Productive Works ..	..	2,29,22,327	2,29,22,327	42,97,789	1,86,24,538	..	1,86,24,538	48,22,892	1,38,01,646

C-III.—Demands and Realizations during the year 1939–40 in the Madras Presidency—*cont.*

Irrigation, Navigation, Embankment and Drainage Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept—*cont.*

Works or systems.	Balance of demands unrealized at the commencement of the year.	Demand for the year.	Total.	Deduct remissions including cash refunds.	Net total.	Deduct amount unrealized at the close of the year.	Actual total receipts of the year.	Deduct share due to old irrigation.	Net amount due to improvements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. IRRIGATION WORKS—*cont.*									
2. UNPRODUCTIVE WORKS.									
		RS.	RS.	RS.	RS.		RS.	RS.	RS.
1 Kurnool-Cuddapah canal ..	..	3,55,163	3,55,163	20,713	3,34,450	..	3,34,450	35,872	2,98,578
2 Barur tank	..	27,583	27,583	3,734	23,849	..	23,849	4,500	19,349
3 Vallur anicut system ..	..	8,264	8,264	3,195	5,069	..	5,069	5,000	69
4 Madras Water-supply and Irrigation system	..	49,622	49,622	7,271	42,351	..	42,351	11,000	31,351
5 Pelandorai anicut system ..	..	61,421	61,421	12,013	49,408	..	49,408	3,000	46,408
6 Palar anicut system ..	..	3,59,243	3,59,243	80,870	2,78,373	..	2,78,373	1,25,000	1,53,373
7 Muniyeru anicut system ..	..	51,494	51,494	8,738	42,756	..	42,756	2,500	40,256
8 Dondapad tank	..	1,949	1,949	138	1,811	..	1,811	..	1,811
9 Yerur tank	..	3,559	3,559	4,023	— 464	..	— 464	425	— 889
10 Sagileru system	..	23,401	23,401	1,923	21,478	..	21,478	17,800	3,678
11 Atmakur tank	..	2,345	2,345	279	2,066	..	2,066	..	2,606
12 Jangamaheswarapuram tank	..	1,416	1,416	174	1,242	..	1,242	500	742
13 Anamasamudram-Beraperu tank	..	4,213	4,213	528	3,685	..	3,685	3,600	85
14 Hajipuram tank	..	3,745	3,745	348	3,397	..	3,397	..	3,397
15 Ponnalur tank	..	5,760	5,760	579	5,181	..	5,181	..	5,181
16 Markapur tank	..	9,344	9,344	487	8,857	..	8,857	2,130	6,727
17 Nagavalli river system ..	..	1,35,455	1,35,455	17,157	1,18,298	..	1,18,298	37,400	80,898
18 Venkatapuram tank ..	..	1,747	1,747	42	1,705	..	1,705	164	1,541
19 Bhavanasi tank	..	5,206	5,206	48	5,158	..	5,158	..	5,158
20 Yellanur tank	..	3,698	3,698	750	2,948	..	2,948	..	2,948
21 Panjapatti reservoir project.	..	..	..	..	..	..	..	..	..
22 Siddapur tank	..	5,564	5,564	..	5,564	..	5,564	..	5,564
23 Nagavaram anicut and supply channel	..	4,651	4,651	355	4,296	..	4,296	2,256	2,040
24 Mopad reservoir system ..	..	24,428	24,428	221	24,207	..	24,207	433	23,774
25 Kanniyampalaiyam anicut.	..	4,000	4,000	..	4,000	..	4,000	..	4,000
26 Tippayapalem project ..	..	3,683	3,683	..	3,683	..	3,683	..	3,683
27 Basavanna channel ..	..	100	100	..	100	..	100	..	100
28 Duvvaleru project ..	..	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works ..	..	11,57,054	11,57,054	1,63,586	9,93,468	..	9,93,468	2,51,580	7,41,888
Total, A. Irrigation Works ..	..	2,40,79,381	2,40,79,381	44,61,375	1,96,18,006	..	1,96,18,00	50,74,472	1,45,43,534
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.									
2. UNPRODUCTIVE WORKS.									
1 Vedaranniyam canal ..	..	752	752	..	752	..	752	..	752
2 Buckingham canal ..	..	1,07,327	1,07,327	33	1,07,294	..	1,07,294	..	1,07,294
Total, B. Navigation, etc., Works—2. Unproductive Works..	..	1,08,079	1,08,079	33	1,08,046	..	1,08,046	..	1,08,046
Total, B. Navigation, etc., Works	..	1,08,079	1,08,079	33	1,08,046	..	1,08,046	..	1,08,046
Total, Construction of Irrigation, etc., Works ..	..	2,41,87,460	2,41,87,460	44,61,408	1,97,26,052	..	1,97,26,052	50,74,472	1,46,51,580

C-IV.—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 Presidency for the year 1939–40 based on the assessment for the year.

Works or systems.	Capital outlay (direct and indirect) to end of the year.	Revenue assessed during the year.							
		Direct revenue.					Indirect revenue and land revenue due to operations of canal.	Less refunds of revenue.	Grand total.
		Owner's rate.	Plantations.	Navigation.	Miscellaneous.	Total.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. IRRIGATION WORKS.									
1. PRODUCTIVE WORKS.	RS.		RS.	RS.	RS.	RS.	RS.	RS.	RS.
1 Cauvery delta system	82,85,041	..	5,447	676	4,435	10,558	41,01,313	163	41,11,708
2 Srivaikuntam anicut system	17,75,063	..	409	..	7,096	7,505	1,62,181	800	1,68,886
3 Godavari delta system	1,90,11,329	..	5,337	1,76,161	39,301	2,20,799	44,69,760	1,509	46,89,050
4 Mehamattur anicut system	87,184	..	70	..	557	627	22,258	..	22,885
5 Thadapalli channel system	1,77,446	..	959	..	407	1,366	1,29,026	26	1,30,366
6 Kallingarayan channel system	1,80,486	..	1,483	..	85	1,568	1,18,177	..	1,19,745
7 Vriddhachalam anicut system	1,08,204	..	364	..	15	379	29,432	..	29,811
8 Chembrambakkam tank system	7,64,143	..	..	..	93	93	37,197	..	37,290
9 Marudur anicut system	60,122	..	36	..	1,008	1,044	1,77,095	..	1,78,139
10 Pennar river canals system	70,31,295	..	160	428	2,606	3,194	8,20,696	739	8,23,151
11 Arkenkota channel system	1,44,445	..	277	..	33	310	34,001	..	34,311
12 Tirukkoyilur anicut system	3,99,190	..	314	2	238	554	1,10,662	1	1,11,215
13 Shatiatope anicut system	10,89,561	..	223	..	276	499	1,57,452	..	1,57,951
14 Cheyyar anicut system	5,39,999	..	67	..	1,174	1,241	69,196	1	70,436
15 Cumbum tank system	86,373	..	..	..	..	..	34,709	..	34,709
16 Poiney anicut system	3,03,918	..	68	..	191	259	90,057	..	90,316
17 Periyar project system	1,08,35,654	..	2,011	515	6,387	8,913	8,47,049	56	8,55,906
18 Kistna delta system	2,18,82,726	..	4,187	1,22,317	53,695	1,80,199	37,57,191	2147	39,35,243
19 Nandiyar channel system	65,715	..	276	..	51	327	29,393	6	29,714
20 Chicacole minor rivers system	2,89,226	..	..	..	215	215	1,33,688	..	1,33,903
21 Lower Coleroon anicut system	30,01,669	..	1,901	4	2,464	4,369	4,65,440	3	4,69,806
22 Kistna East Bank canal extension scheme.	57,68,297	..	10	577	2,404	2,991	5,19,867	128	5,22,730
23 Toludur reservoir system	26,22,780	..	277	..	96	373	1,08,174	..	1,08,547
24 Polavaram island project	16,96,575	..	125	..	138	263	91,183	..	91,446
25 Cauvery-Mettur project	6,58,12,795	..	2,456	4	11,690	14,150	13,16,323	89	13,30,384
26 Kattalai scheme project	40,43,649	..	2,559	3	1,443	4,005	3,32,931	46	3,36,890
Total, A. Irrigation Works—1. Productive Works	15,60,62,885	..	29,016	3,00,687	1,36,098	4,65,801	1,81,64,451	5,714	1,86,24,538
2. UNPRODUCTIVE WORKS.									
1 Kurnool-Cuddapah canal	2,33,87,114	..	3,750	72	3,717	7,539	3,26,911	..	3,34,450
2 Barur tank	4,52,037	..	..	..	1,166	1,166	22,719	36	23,849
3 Vallur anicut system	76,282	..	..	..	125	125	4,945	1	5,069
4 Madras water-supply and irrigation system	18,68,918	..	..	..	29,473	29,473	12,878	..	42,351
5 Pelandorai anicut system	6,92,074	..	397	..	183	580	48,828	..	49,408
6 Palar anicut system	24,83,802	..	378	..	1,482	1,860	2,76,533	20	2,78,373
7 Muniyeru system	6,09,601	..	..	..	942	942	41,814	..	42,756
8 Dondapad tank	1,40,004	..	..	..	..	..	1,811	..	1,811
9 Yerur tank	63,353	..	..	..	..	..	— 464	..	— 464
10 Sagileru system	4,64,727	..	9	..	40	49	21,429	..	21,478
11 Atmakur tank	1,25,403	..	5	..	58	63	2,003	..	2,066
12 Jangamaheswarapuram tank	71,664	..	..	..	..	..	1,242	..	1,242
13 Anamasamudram-Beraperu tank	73,573	..	..	..	..	..	3,685	..	3,685
14 Hajipuram tank	3,11,883	..	..	..	..	..	3,397	..	3,397
15 Ponnalur do.	2,18,649	..	..	..	..	..	5,181	..	5,181
16 Markapur do.	1,29,340	..	15	..	5	20	8,837	..	8,857
17 Nagavalli river system	17,66,173	..	..	9	630	639	1,17,663	4	1,18,298
18 Venkatapuram tank	3,84,921	..	..	..	..	..	1,705	..	1,705
19 Bhavanasi tank	2,65,491	..	..	..	34	34	5,124	..	5,158
20 Yellanur tank	2,69,707	..	..	..	..	..	2,948	..	2,948
21 Fanjapatti reservoir project	3,39,276	..	..	..	..	..	..	..	..
22 Siddapur tank	8,04,486	..	..	..	..	..	5,564	..	5,564
23 Nagavaram anicut and supply channel ..	1,09,890	..	..	..	..	1	4,295	..	4,296
24 Mopad reservoir system	22,90,575	..	..	..	129	129	24,078	..	24,207
25 Kanniyampalaiyam anicut	1,11,074	..	..	..	4,000	4,000	..	..	4,000
26 Tippayapalem project	5,82,041	..	..	..	..	..	3,683	..	3,683
27 Basavannah channel	5,89,780	..	..	..	100	100	..	..	100
28 Duvvaleru project	69,614	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works	3,87,56,452	..	4,554	81	42,085	46,720	9,46,809	61	9,93,468
Total, A. Irrigation Works	19,48,19,337	..	33,570	3,00,768	1,78,183	5,12,521	1,91,11,260	5,775	1,96,18,006
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS.									
2. UNPRODUCTIVE WORKS.									
1 Vedaranniyam canal	1,36,432	..	..	740	12	752	..	..	752
2 Buckingham canal	90,84,027	..	38	1,03,034	4,255	1,07,327	..	33	1,07,294
Total, B. Navigation, etc., Works—2. Unproductive works	92,20,459	..	38	1,03,774	4,267	1,08,079	..	33	1,08,046
Total, B. Navigation, etc., Works	92,20,459	..	38	1,03,774	4,267	1,08,079	..	33	1,08,046
Total, Construction of Irrigation, etc., Works.	20,40,39,796	..	33,608	4,04,542	1,82,450	6,20,600	1,91,11,260	5,808	1,97,26,052

C-IV.—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 Presidency for the year 1939-40 based on the assessment for the year—*cont.*

Works or systems.	Revenue assessed during the year—*cont.*					Net revenue of the year.		Percentage on capital outlay to end o the year (improvements only).
	Deduct share due to old irrigation.	Total revenue due to improvements.	Working expenses. Total charges (direct and indirect).	Working expenses. Deduct old maintenance charges.	Working expenses. Total working expenses on improvements.	Total.	Due to improvements.	
	(11) RS.	(12) RS.	(13) RS.	(14) RS.	(15) RS.	(16) RS.	(17) RS.	(18) RS.
A. IRRIGATION WORKS—*cont.*								
1. PRODUCTIVE WORKS—*cont.*								
1 Cauvery delta system	29,26,531	11,85,177	11,76,620	8,39,203	3,37,417	29,35,088	8,47,760	10·23
2 Srivalkuntam anicut system	79,000	89,886	60,777	7,977	52,800	1,08,109	37,086	2·09
3 Godavari delta do.	1,24,000	45,65,050	12,46,838	..	12,46,838	34,42,212	33,18,212	17·45
4 Mehamattur anicut do.	4,000	18,885	18,572	890	17,682	4,313	1,203	1·38
5 Thadapalli channel do.	76,000	54,366	15,536	4,753	10,783	1,14,830	43,583	24·56
6 Kalingarayan channel do.	85,000	34,745	16,506	5,316	11,190	1,03,239	23,555	13·05
7 Vriddhachalam anicut do.	8,500	21,311	23,953	..	23,953	5,858	— 2,642	— 2·44
8 Chembrambakkam tank do.	16,000	21,290	9,480	6,137	3,343	27,810	17,947	2·35
9 Marudur anicut do.	1,15,000	63,139	24,234	6,745	17,489	1,53,905	45,650	75·93
10 Pennar river canals do.	2,56,000	5,67,151	1,61,305	40,283	1,21,022	6,61,846	4,46,129	6·34
11 Arkenkota channel do.	19,000	15,311	6,878	1,189	5,689	27,433	9,622	6·66
12 Tirukkoyilur anicut do.	60,000	51,215	59,399	6,910	52,489	51,816	— 1,274	— 2·32
13 Shatiatope do. do.	20,000	1,37,951	54,996	2,303	52,693	1,02,955	85,258	7·82
14 Cheyyar do. do.	39,000	31,436	49,860	4,270	45,590	20,576	— 14,154	— 2·62
15 Cumbum tank do.	30,000	4,709	4,510	1,336	3,174	30,199	1,535	1·78
16 Poiney anicut do.	38,000	52,316	24,738	4,158	20,580	65,578	— 31,736	10·44
17 Periyar project do.	2,04,000	6,51,906	1,85,294	37,160	1,48,134	6,70,612	5,03,772	4·65
18 Kistna delta do.	71,000	38,64,243	10,22,172	..	10,22,172	29,13,071	28,42,071	12·99
19 Nandiyar channel do.	17,000	12,714	5,329	4,602	727	24,385	11,987	18·24
20 Chicacole minor rivers do.	95,000	38,903	70,369	6,546	63,823	63,534	— 24,920	— 8·62
21 Lower Coleroon anicut do.	1,55,000	3,14,806	1,83,323	10,201	1,73,122	2,86,483	1,41,684	4·72
22 Kistna East Bank canal extension scheme.	20,300	5,02,430	94,817	16,546	78,271	4,27,913	4,24,159	7·35
23 Toludur reservoir system	10,590	97,957	53,068	..	53,068	55,479	44,889	1·71
24 Polavaram Island project	..	91,446	67,913	..	67,913	23,533	23,533	1·39
25 Cauvery-Mettur do.	99,971	12,30,413	3,88,140	15,973	3,72,167	9,42,244	8,58,246	1·30
26 Kattalai scheme	2,54,000	82,890	1,22,744	69,596	53,148	2,14,146	29,742	0·74
Total, A. Irrigation Works—1. Productive Works	48,22,892	1,38,01,646	51,47,371	10,92,094	40,55,277	1,34,77,167	97,46,369	6·25
2. UNPRODUCTIVE WORKS—*cont.*								
1 Kurnool-Cuddapah canal	35,872	2,98,578	1,42,843	5,042	1,37,801	1,91,607	1,60,777	0·69
2 Barur tank	4,500	19,349	8,208	..	8,208	15,641	11,141	2·46
3 Vallur anicut	5,000	69	4,182	1,486	2,696	887	— 2,627	— 3·44
4 Madras water-supply and irrigation system	11,000	31,351	17,028	4,335	12,693	25,323	18,658	1·00
5 Pelandorai anicut system	3,000	46,408	24,975	164	24,811	24,433	21,597	3·12
6 Palar anicut system	1,25,000	1,53,373	92,026	4,107	87,919	1,86,347	65,454	2·63
7 Muniyeru system	2,500	40,256	11,704	301	11,403	31,052	28,853	4·73
8 Dondapad tank	..	1,811	285	..	285	1,526	1,526	1·09
9 Yerur tank	425	— 889	914	..	914	— 1,378	— 1,803	— 2·85
10 Sagileru system	17,800	3,678	3,561	3,687	— 126	17,917	3,804	0·82
11 Atmakur tank	..	2,066	295	..	295	1,771	1,771	1·41
12 Jangamaheswarapuram tank	500	742	445	..	445	797	297	0·41
13 Anamasamudram-Beraperu tank	3,600	85	816	868	— 52	2,869	137	0·19
14 Hajipuram tank	..	3,397	680	..	680	2,717	2,717	0·87
15 Ponnalur do.	..	5,181	1,368	..	1,368	3,813	3,813	1·74
16 Markapur do.	2,130	6,727	4,702	408	4,294	4,155	2,433	1·88
17 Nagavalli river system	37,400	80,898	32,503	4,068	28,435	85,795	52,463	2·97
18 Venkatapuram tank	164	1,541	727	..	727	978	814	0·21
19 Bhavanasi tank	..	5,158	2,155	..	2,155	3,003	3,003	1·13
20 Yellanur tank	..	2,948	1,819	..	1,819	1,129	1,129	0·42
21 Panjapatti reservoir	..	..	..	..	..	..	..	..
22 Siddapur tank	..	5,564	1,270	..	1,270	4,294	4,294	0·53
23 Nagavaram anicut and supply channel ..	2,256	2,040	1,094	..	1,094	3,202	946	0·86
24 Mopad reservoir system	433	23,774	8,077	..	8,077	16,130	15,697	0·69
25 Kanniyampalaiyam anicut	.	4,000	2,144	..	2,144	1,856	1,856	1·67
26 Tippayapalem project	..	3,683	206	..	206	3,477	3,477	0·60
27 Basavannah channel	..	100	7,116	..	7,116	— 7,016	— 7,016	— 1·19
28 Duvvaleru project	..	..	..	..	..	..	..	..
Total, A. Irrigation Works—2. Unproductive Works	2,51,580	7,41,888	3,71,143	24,466	3,46,677	6,22,325	3,95,211	1·02
Total, A. Irrigation Works	50,74,472	1,45,43,534	55,18,514	11,16,560	44,01,954	1,40,99,492	1,01,41,580	5·21
B. NAVIGATION, EMBANKMENT AND DRAINAGE WORKS—*cont.*								
2. UNPRODUCTIVE WORKS—*cont.*								
1 Vedaranniyam canal	..	752	12,304	..	12,304	— 11,552	— 11,552	— 8·47
2 Buckingham canal	..	1,07,294	2,21,246	..	2,21,246	— 1,13,952	— 1,13,952	— 1·25
Total, B. Navigation, etc., Works—2. Unproductive Works	..	1,08,046	2,33,550	..	2,33,550	— 1,25,504	— 1,25,504	— 1·36
Total, B. Navigation, etc., Works	..	1,08,046	2,33,550	..	2,33,550	— 1,25,504	— 1,25,504	— 1·36
Total Construction of Irrigation, etc., Works.	50,74,472	1,46,51,580	57,52,064	11,16,560	46,35,504	1,39,73,988	1,00,16,076	4·91

D-I.—Statement of traffic on the principal navigable canals in the Madras Presidency during the year 1939-40.

—		Godavari canals.	Kistna canals.	Kistna east bank canal.	Kurnool-Cuddapah canal.	Buckingham canal.	West Coast canals.	Dummagudem canals.	Vedaranniyam canals.	Total.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Length of canals open for navigation ..	Miles	492¾	384½	35½	75	267¾	121	2	42-1/8	1,420
Receipts—										
Tolls	Rs.	..	..	..	..	..	16,501	..	..	..
Testing fees	,,	24	127	..	..	14	..	..	..	..
Annual licence fees	,,	56,308	49,233	74	..	66,894	9,170	495	698	..
Six-weeks' licence fees	,,	38,188	23,661	202	..	10,508	..	..	1	..
Registration fees	,,	..	..	..	..	..	..	..	..	..
Wharfage fees	,,	12,598	20,896	250	..	20,106	..	..	..	..
Demurrage fees	,,	212	311	1	..	283	..	..	..	..
Raft fees	,,	17,709	..	..	..	2	..	..	..	..
Numbering fees	,,	132	..	..	..	518	..	6,947	..	..
Fines	,,	15	..	..	..	..	..	..	40	..
Ground rents	,,	11,070	28,614	..	72	226	..	..	2	..
Miscellaneous	,,	104	740	49	..	7,970	648	..	..	..
Refunds	,,	— 871	— 1,646	..	..	— 33	..	..	..	..
Government boats and steamers ..	,,	60,044	..	..	..	..	..	..	..	..
Boat rent	,,	1,807	9,735	..	..	297	..	..	..	..
Total, Receipts ..	,,	1,97,340	1,31,671	576	72	1,06,785	26,319	7,442	741	4,70,946
Maintenance charges including special navigation establishment	,,	1,38,130	1,26,094	1,960	..	1,86,230	..	4,636	8,773	4,65,823
Net revenue ..	,,	59,210	5,577	— 1,384	72	— 79,445	26,319	2,806	— 8,032	5,123
Total number of boats plying, cargo ..		123,506	10,061	237	..	5,339	..	110	79	201,227
Total number of boats plying, passengers ..		52,281	2,025	19	..	7,568	..	2		
Total tonnage, cargo boats		791,884	564,076	35,285	..	179,888	..	..	11,548	1,587,958
Total tonnage, passenger boats				3,176	..		..	2,101		
Ton mileage, up		5,624,222	10,548,658	59,736	..	2,817,558	..	866	43,943	40,665,609
Ton mileage, down		9,129,935	11,393,183	927,922	..		..	27,968	91,618	
Total ..		14,754,157	21,941,841	987,658	..	2,817,558	..	28,834	135,561	40,665,609
Estimated value of cargoes up	Rs.	6,51,60,206	3,29,43,955	6,48,295	..	90,01,510	..	1,13,888	4,34,939	10,91,15,479
Estimated value of cargoes down								6,67,321	2,05,365	
Total ..	,,	6,51,60,206	3,29,43,955	6,48,295	..	90,01,510	..	7,21,209	6,40,304	10,91,15,479
Number of passengers		1,026,038	109,931	36,306	..	70,645	..	216	..	1,242,136
Rafts, tons, up		74,086	376	..	..	..	..	26,662	..	102,884
Rafts, tons, down			1,640	120	..	..	..			
Total ..		74,086	2,016	120	..	..	..	26,662	..	102,884
Estimated value of rafts	Rs.	77,31,426	2,43,309	19,680	..	..	..	43,20,685	..	1,23,15,100
		Rs. A. P.						Rs. A. P.		
Tollage on boats per ton, per mile		..	..	..	..	..	..	0 3 0	..	..
Tollage on rafts per 100 square feet—										
Timber		1 0 0	..	..	..	..	..	0 4 0	..	..
Bamboo		0 8 0	..	..	..	..	..	0 2 0	..	..

D-II.—Description and quantities of goods, etc., carried on the principal canals in the Madras Presidency during the year 1939-40.

Description.	Godavari canals.						Kistna canals.			
	Total, Government and private.				Private.		Total, Government and private.			
	Quantity.			Value.	Quantity.	Value.	Quantity.			Value.
	Up.	Down.	Total.				Up.	Down.	Total.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Boat traffic.	TONS.	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.
Cotton, raw and manufactured.	737	794	1,531	15,72,969	1,531	15,72,939	15	15	30	26,140
Woollen goods	10	15	25	27,450	25	27,450	9	45	54	59,292
Dyes and tans	1,172	1,300	2,472	37,39,376	2,472	37,39,376	13	34	47	53,374
Rice and paddy	103,703	48,589	153,292	1,40,83,936	153,292	1,40,83,936	70,988	25,332	96,320	81,43,550
Other food-grains	7,864	24,199	32,063	49,05,639	32,063	49,05,639	4,021	5,907	9,928	15,18,984
Hides and skins	4	..	4	2,216	4	2,216	2	..	2	2,178
Liquors	10	72	82	1,05,780	82	1,05,780	1,532	..	1,532	19,76,280
Metals	1,776	1,417	3,193	28,74,077	3,193	28,74,077	749	977	1,726	13,32,774
Oils	2,896	6,866	9,762	41,09,802	9,762	41,09,802	1,291	1,902	3,193	13,44,253
Oil-seeds	1,117	6,477	7,594	13,59,326	7,594	13,59,326	5,255	21,385	26,640	47,68,560
Provisions	32,591	37,791	70,382	1,56,24,804	70,382	1,56,24,804	15,319	9,465	24,784	55,02,048
Salt	7,201	3,884	11,085	6,87,270	11,085	6,87,270	3,028	1,039	4,067	2,52,154
Spices	407	452	859	14,99,814	859	14,99,814	121	13	134	2,33,964
Sugar and jaggery	2,896	5,719	8,615	15,03,598	8,615	15,03,598	1,141	713	1,854	3,01,149
Tobacco	1,388	7,218	8,606	57,54,176	8,606	57,54,176	2,611	540	3,151	21,15,291
Building materials	120,197	267,358	387,505	8,62,012	321,952	6,01,576	21,319	279,186	300,505	9,47,024
Miscellaneous goods	18,199	20,015	38,214	26,32,141	38,214	26,32,141	11,848	24,156	36,004	19,89,970
Timber	3,032	8,789	11,821	21,27,780	11,821	21,27,780	3,398	1,856	5,254	9,45,720
Firewood	4,344	11,903	16,247	2,11,211	16,247	2,11,211	16,965	9,257	26,222	3,40,886
Bamboos	110	27,687	27,797	14,45,444	27,797	14,45,444	7,847	4,736	12,583	6,54,316
Coal and coke	349	383	732	30,744	732	30,744	258	9,735	9,993	4,19,706
Jute	2	1	3	642	3	642	..	53	53	11,342
Treasure	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	313,005	478,879	791,884	6,51,60,207	725,331	6,48,99,771	167,730	396,346	564,076	3,29,43,955
Raft traffic.										
Timber in logs	..	33,468	33,468	54,88,752	33,468	54,88,752	266	669	935	1,53,340
Squared timber	..	73	73	14,673	73	14,673	..	209	209	42,009
Sleepers, broad gauge	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..
Firewood	32	15	47	611	47	611	..	..	..	..
Bamboos and reeds	..	40,498	40,498	22,27,390	40,498	22,27,390	110	762	872	47,960
Total, Raft traffic ..	32	74,054	74,086	77,31,426	74,086	77,31,426	376	1,640	2,016	2,43,309
Grand total ..	313,037	552,933	865,970	7,28,91,633	800,417	7,26,31,197	168,106	397,986	566,092	3,31,87,264

D-II.—Description and quantities of goo ls, etc., carried on the principal canals in the Mad ras Presidency during the year 1939–40—*cont.*

Description.	Kistna canals—*cont.* Private. Quantity.	Kistna canals—*cont.* Private. Value.	Kistna East Bank canal. Total, Government and private. Quantity. Up.	Kistna East Bank canal. Total, Government and private. Quantity. Down.	Kistna East Bank canal. Total, Government and private. Quantity. Total.	Kistna East Bank canal. Total, Government and private. Value.	Kistna East Bank canal. Private. Quantity.	Kistna East Bank canal. Private. Value.	Kurnool-Cuddapah canal. Total, Government and private. Quantity. Up.	Kurnool-Cuddapah canal. Total, Government and private. Quantity. Down.	Kurnool-Cuddapah canal. Total, Government and private. Quantity. Total.	Kurnool-Cuddapah canal. Total, Government and private. Value.	Kurnool-Cuddapah canal. Private. Quantity.	Kurnool-Cuddapah canal. Private. Value.
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
	TONS.	RS.	TONS.	TONS.	TONS.	RS.	TONS.	RS.						
Boat traffic.														
Cotton, raw and manufactured.	30	26,140	..	..	..	..	..	..	..	..	..	..	..	..
Woollen goods	54	59,292	..	..	..	..	..	..	..	..	..	..	..	..
Dyes and tans	47	54,374	..	..	..	..	..	..	..	..	..	..	..	..
Rice and paddy	96,320	81,43,050	3,702	154	3,856	3,15,117	3,856	3,15,117	..	..	..	..	..	..
Other food-grains	9,923	15,13,984	115	28	143	21,879	143	21,879	..	..	..	..	..	..
Hides and skins	2	2,178	..	..	..	..	..	..	..	..	..	..	..	..
Liquors	1,532	19,76,280	..	..	..	..	..	..	..	..	..	..	..	..
Metals	1,722	13,29,706	..	..	..	..	..	..	..	..	..	..	..	..
Oils	3,193	13,44,253	..	..	..	..	..	..	..	..	..	..	..	..
Oil-seeds	26,640	47,63,560	8	..	8	1,432	8	1,432	..	..	..	..	..	..
Provisions	24,784	55,02,048	598	30	628	1,39,416	628	1,39,416	..	..	..	..	..	..
Salt	4,067	2,52,154	2	..	2	124	2	124	..	..	..	..	..	..
Spices	134	2,33,964	..	..	..	..	..	..	..	..	..	..	..	..
Sugar and jaggery	1,854	3,01,149	..	..	..	..	..	..	..	..	..	..	..	..
Tobacco	3,151	21,15,291	194	..	194	1,28,336	194	1,28,336	..	..	..	..	..	..
Building materials	253,321	9,14,726	153	30,036	30,239	36,575	23,743	28,751	..	..	..	..	..	..
Miscellaneous goods	36,004	19,89,970	71	72	143	3,900	143	3,900	..	..	..	..	..	..
Timber	5,254	9,45,720	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	26,222	3,40,886	34	18	52	676	52	676	..	..	..	..	..	..
Bamboos	12,583	6,54,316	..	..	..	..	..	..	..	..	..	..	..	..
Coal and coke	9,993	4,19,706	20	..	20	840	20	840	..	..	..	..	..	..
Jute	53	11,342	..	..	..	..	..	..	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	521,888	3,29,08,589	4,897	30,388	35,285	6,48,295	28,789	6,40,471	..	..	..	..	..	..
Raft traffic.														
Timber in logs	935	1,53,340	..	120	120	19,680	120	19,680	..	..	..	..	..	..
Squared timber	209	42,009	..	..	..	..	..	..	..	..	..	..	..	..
Sleepers, broad gauge	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds	872	47,960	..	..	..	..	..	..	..	..	..	..	..	..
Total, Raft traffic ..	2,016	2,43,309	..	120	120	19,680	120	19,680	..	..	..	..	..	..
Grand total ..	523,904	3,31,51,898	4,897	30,508	35,405	6,67,975	28,909	6,60,151	..	..	..	..	..	..

D-II.—Description and quantities of goods, etc., carried on the principal canals in the Madras Presidency during the year 1939–40—*cont.*

Description.	Buckingham canal. Total, Government and private. Quantity. Up.	Buckingham canal. Total, Government and private. Quantity. Down.	Buckingham canal. Total, Government and private. Quantity. Total.	Buckingham canal. Total, Government and private. Value.	Buckingham canal. Private. Quantity.	Buckingham canal. Private. Value.	West Coast canals. Total, Government and private. Quantity. Up.	West Coast canals. Total, Government and private. Quantity. Down.	West Coast canals. Total, Government and private. Quantity. Total.	West Coast canals. Total, Government and private. Value.	West Coast canals. Private. Quantity.	West Coast canals. Private. Value.
	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
Boat traffic.	TONS.	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.	TONS.	RS.
Cotton, raw and manufactured	..	..	..	..	..	..	..	..	..	..	..	..
Woollen goods	..	..	..	..	..	..	..	..	..	..	..	..
Dyes and tans	32	10	42	79,044	42	79,044	..	..	..	..	..	..
Rice and paddy ..	11,564	3,643¾	15,207¾	19,15,089	15,207¾	19,15,089	8,579	19,101	27,680	33,87,856	27,680	33,87,856
Other food-grains ..	2,849	2,194	5,043	7,71,579	5,043	7,71,579	1,699	1,971	3,670	5,61,510	3,670	5,61,510
Hides and skins ..	3	..	3	1,662	3	1,662	..	..	..	..	..	..
Liquors	..	..	..	..	..	..	46	753	799	10,30,710	799	10,30,710
Metals	42	1,003	1,045	7,92,310	1,045	7,92,310	96	265	361	2,80,658	361	2,80,658
Oils	106	317	423	1,78,083	423	1,78,083	1,100	2,170	3,270	8,26,935	3,270	8,26,935
Oil-seeds	155	889	1,044	1,86,876	1,044	1,86,876	347	905	1,252	2,24,108	1,252	2,24,108
Provisions	2,278½	2,984	5,257½	11,67,165	5,257½	11,67,165	4,322	12,988	17,310	38,42,820	17,310	38,42,820
Salt	16,878	848	17,726	10,99,012	17,726	10,99,012	3,712	2,430	6,142	3,80,804	6,142	3,80,804
Spices	..	..	..	..	..	..	172	414	586	10,23,156	586	10,23,156
Sugar and jaggery ..	43	..	43	6,794	43	6,794	835	591	1,426	3,43,666	1,426	3,43,666
Tobacco	51	68	119	80,183	119	80,183	125	184	309	2,08,509	309	2,08,509
Building materials ..	42,275	2,512	44,787	7,44,119	44,787	7,44,119	2,173	1,309	3,482	66,026	3,482	66,026
Miscellaneous goods ..	5,570½	998	6,568½	3,56,058	6,568½	3,56,058	22,455	36,013	58,468	47,74,961	5,468	47,74,961
Timber	4	..	4	720	4	720	248	205	453	81,540	453	81,540
Firewood	99,174	560	99,734	3,02,022	99,734	13,02,022	635	886	1,521	19,773	1,521	19,773
Bamboos	..	24	24	1,248	24	1,248	266	212	478	24,880	478	24,880
Coal and coke	1,501	22	1,523	64,541	1,523	64,541	..	165	165	6,930	165	6,930
Jute	4	..	4	856	4	856	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	182,525	160,72¾	198,597¾	87,78,549	198,597¾	87,78,549	46,810	80,562	127,372	1,70,84,842	127,372	1,70,84,842
Raft traffic.												
Timber in logs	44	10	54	8,856	54	8,856	..	..	..	..	..	..
Squared timber ..	..	1,055½	1,055½	2,12,105	1,055½	2,12,105	..	..	..	..	..	..
Sleepers, broad gauge ..	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge ..	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds ..	..	..	..	..	..	..	..	..	..	..	..	..
Total, Raft traffic ..	44	1,065½	1,109½	2,20,961	1,109½	2,20,961	..	..	..	..	..	..
Grand total ..	182,569	17,138½	199,707½	89,99,510	199,707½	89,99,510	46,810	80,562	127,372	1,70,84,842	127,372	1,70,84,842

D-II.—Description and quantities of goods, etc., carried on the principal canals in the Madras Presidency during the year 1939–40—*cont.*

Description.	Dummagudem canal. Total, Government and private. Quantity. Up.	Down.	Total.	Value.	Private. Quantity.	Value.	Vedaranniyam canal. Total, Government and private. Quantity. Up.	Down.	Total.	Value.	Private. Quantity.	Value.
	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)
	TONS	TONS.	TONS.	RS.	TONS.	RS.	TONS.	TONS.	TONS.	RS.	TONS.	RS
Boat traffic.												
Cotton, raw and manufactured.	..	..	..	..	..	..	..	..	..	..	..	..
Woollen goods	..	..	..	..	..	..	..	..	..	..	..	..
Dyes and tans	..	38	38	42,940	38	42,940	..	..	..	..	..	..
Rice and paddy ..	107	10	117	14,446	117	14,446	24	169	193	14,634	193	14,634
Other food-grains ..	19	192½	211½	32,359½	211½	32,359½	162	..	162	24,786	162	24,786
Hides and skins ..	..	4½	4½	2,493	4½	2,493	..	..	..	..	..	..
Liquors	25½	..	25½	32,895	25½	32,895	..	..	..	..	..	..
Metals	3½	..	3½	2,684½	3½	2,684½	..	2	2	1,534	2	1,534
Oils	14	6	20	8,420	20	8,420	..	..	..	..	..	..
Oil-seeds	..	299½	299½	53,610½	299½	53,610½	88	21	109	19,511	109	19,511
Provisions	12½	20½	33	7,326	33	7,326	189	158	347	77,034	347	77,034
Salt	458	..	458	28,396	458	28,396	..	5	5	310	5	310
Spices	..	..	..	..	..	..	134	3	137	2,39,202	137	2,39,202
Sugar and jaggery ..	22	..	22	3,642	22	3,642	66	..	66	11,756	66	11,756
Tobacco	..	694	694	4,69,838	694	4,69,838	69	81	150	1,01,550	150	1,01,550
Building materials ..	12	..	12	468	12	468	270	225	495	4,319	495	4,319
Miscellaneous goods ..	156½	4½	161	21,476½	161	21,476½	1,033	1,539	2,572	43,624	2,572	43,624
Timber	..	..	..	..	..	..	7	35	42	7,560	42	7,560
Firewood	..	..	..	..	..	..	2,852	4,416	7,268	94,484	7,268	94,484
Bamboos	..	..	..	..	..	..	..	..	..	..	..	..
Coal and coke	..	..	..	..	..	..	..	..	..	..	..	..
Jute	..	1	1	214	1	214	..	..	..	..	..	..
Treasure	..	..	..	..	..	..	..	..	..	..	..	..
Kerosene oil	..	..	..	..	..	..	..	..	..	..	..	..
Cotton seeds	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Total, Boat traffic ..	830	1,270½	2,100½	7,21,209	2,100½	7,21,209	4,894	6,654	11,548	6,40,304	11,548	6,40,304
Raft traffic.												
Timber in logs	..	18,342	18,342	30,08,088	18,342	30,08,088	..	..	..	..	..	..
Squared timber	..	5,137	5,137	10,32,537	5,137	10,32,537	..	..	..	..	..	..
Sleepers, broad gauge ..	..	..	..	..	..	..	..	..	..	..	..	..
Do. metre gauge ..	..	..	..	..	..	..	..	..	..	..	..	..
Scantlings	..	..	..	..	..	..	..	..	..	..	..	..
Poles	..	1,909	1,909	2,09,990	1,909	2,09,990	..	..	..	..	..	..
Firewood	..	..	..	..	..	..	..	..	..	..	..	..
Bamboos and reeds ..	..	1,274	1,274	70,070	1,274	70,070	..	..	..	..	..	..
Total, Raft traffic ..	..	26,662	26,662	43,20,685	26,662	43,20,685	..	..	..	..	..	..
Grand total ..	830	27,932½	28,762½	50,41,894	28,762½	50,41,894	4,894	6,654	11,548	6,40,304	11,548	6,40,304

E-I.—Statement of areas irrigated under Irrigation Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency during the year 1939–40.

Name of canal.	Area charged as irrigated in acres. First crop. Flow.	Lift.	Second crop. Flow.	Lift.	Total.	Both seasons.	Percentage of double cropped area [columns (4) and (5)] on the first crop area [columns (2) and (3)].
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	
Productive.							
1 Cauvery delta system	867,361	23,539	114,136	4,687	1,009,723	16,319	13·33
2 Srivaikuntam anicut system	22,576	2,656	12,476	470	38,178	1,214	51·31
3 Godavari delta system	791,804	14,784	258,268	6,762	1,071,618	11,997	32·86
4 Mehamattur anicut system	4,852	58	697	11	5,618	86	14·42
5 Thadapalle channel	14,749	925	2,916	203	18,793	635	19·89
6 Kalingaroyan channel	10,127	2,502	7,386	1,750	21,765	5,527	72·34
7 Vriddhachalam anicut system	9,318	108	525	13	9,964	22	5·71
8 Chembarambakkam tank	12,144	686	1,146	306	14,282	736	11·32
9 Marudur anicut system	17,265	232	14,160	455	32,112	509	83·53
10 Pennar river canals system	161,314	3,568	18,327	397	183,606	1,157	11·36
11 Arkenkota channel	4,546	251	432	29	5,258	5	·61
12 Tirukkoyilur anicut system	25,583	1,941	5,710	253	33,487	648	21·66
13 Shatiatope anicut system	32,160	764	9,307	137	42,368	4,351	28·68
14 Cheyyar anicut system	21,233	377	7,646	179	29,435	187	36·21
15 Cumbum tank	5,400	89	3,724	3	9,216	510	67·89
16 Poiney anicut system	21,655	396	5,189	162	27,402	130	24·27
17 Periyar system	131,070	482	45,861	344	177,757	2,939	30·88
18 Kistna delta system	848,460	9,083	7,035	282	864,860	13,657	·85
19 Nandiyar channel system	6,547	623	2,072	455	9,697	808	35·24
20 Chicacole minor river system	62,445	1,973	1,829	1,274	67,521	133	4·82
21 Lower Coleroon anicut system	108,139	2,511	11,084	477	122,211	1,185	10·45
22 Kistna East Bank Canal extension scheme ..	75,136	2,311	289	27	77,763	662	·41
23 Toludur reservoir project	15,892	217	2,304	5	18,418	1,072	14·33
24 Polavaram Island project	13,088	64	6,556	4	19,712	9	49·88
25 Cauvery-Mettur project	151,596	570	18,285	681	171,132	100	12·46
26 Kattalai scheme	47,107	1,629	14,697	715	64,148	4,533	31·62
Unproductive.							
1 Kurnool-Cuddapah canal	72,332	660	10,359	156	83,507	4,503	15·24
2 Barur tank	4,483	35	2,236	12	6,766	567	49·76
3 Vallur anicut system	3,916	988	3	32	4,939	35	·71
4 Madras water-supply and irrigation system ..	6,642	428	29	9	7,108	147	·54
5 Pelandural anicut system	12,180	417	951	69	13,617	85	8·10
6 Palar anicut system	73,469	3,346	27,616	961	105,392	839	37·20
7 Muniyeru anicut system	9,323	47	2	2	9,374	..	·04
8 Dondapad tank	361	..	138	..	499	..	38·23
9 Yerur tank	763	26	..	..	789	..	..

E-I.—Statement of areas irrigated under Irrigation Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency during the year 1939-40—*cont.*

Name of canal.	Area charged as irrigated in acres. First crop. Flow.	First crop. Lift.	Second crop. Flow.	Second crop. Lift.	Total.	Both seasons.	Percentage of double cropped area [columns (4) and (5)] on the first crop area [columns (2) and (3)].
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	
Unproductive—cont.							
10 Sagileru system	4,032	90	1,132	600	5,857	111	41·99
11 Atmakur tank	493	2	4	..	499	..	·81
12 Jangamaheswarapuram tank	320	..	85	..	405	..	26·56
13 Anamasamudram-Beraperu tank	999	9	74	..	1,082	..	7·35
14 Hajipuram tank	726	..	172	..	898	..	23·69
15 Ponnalur tank	870	1	107	..	978	20	12·28
16 *Markapur tank*	1,590	8	1,108	..	2,706	..	69·34
17 Nagavalli river system	27,585	243	783	23	28,634	44	2·90
18 Venkatapuram tank	280	..	182	..	462	..	65·00
19 Bhavanasi tank	556	..	..	..	556	160	..
20 Yellanur tank	582	..	..	..	582	2	..
21 Panjapatti reservoir	..	..	..	..	..	..	..
22 Siddapur tank	875	..	..	..	875	..	..
23 Nagavaram anicut and supply channel	615	7	232	3	857	57	37·78
24 Mopad reservoir	3,967	2	233	2	4,204	106	5·92
25 Kanniyampalayam anicut	376	..	1	..	377	..	·27
26 Tippayyapalem project	717	4	2	..	723	..	·28
27 Basavannah channel	..	..	..	..	..	..	..
28 Duvvaleru project	..	..	..	..	..	..	..

	First crop.	Second crop.
Godavari delta	28th May to 30th November	1st December to 22nd April.
Kistna delta and Kistna East Bank canal systems.	11th June to 31st December	1st January to 31st March.
Pennar river canals	1st July to 31st December	Do.
Kurnool-Cuddapah canal	1st June to 0th November	1st December to 31st March.
Cauvery delta	1st June to 31st October	1st November to end of February.
Srivaikuntam anicut	Do.	1st November to 31st March.
Periyar system	1st October to 15th March	1st June to 30th September.

The above information regarding the periods is only roughly approximate for there is not any well marked division between the first and second crops which in many places actually overlap some of the so-called crop being planted while some of the so-called first crop is still on the ground and taking water.

In the case of the Godavari and Kistna deltas the period of irrigation of first crop has been taken to be 187 days and 204 days, respectively, though it varies in each delta as shown below during the year :—

Godavari delta, Eastern section	18th June to 30th November.
Do. Central section	Do.
Do. Western section	Do.
Kistna delta, Eastern section	15th June to 20th November.
Do. Western section	25th June to 20th December.

Area entered in column (7) both seasons are for lands bearing such crops as betel, sugarcane which require irrigation for the greater part of the year. This is included in the areas of first and second crop.

E-II.—Statement showing the incidence of working expenses and assessed water revenue on Irrigation Works classed as Productive and Unproductive for which Capital and Revenue Accounts are kept in the Madras Presidency during 1939-40.

Name of canal.	Average discharge of the year at canal head in cubic feet per second.	Water assessed, 1939-40. Total, direct.	Indirect.	Total of direct and indirect.	Gross and assessed revenue from all sources.	Working expenses, direct and indirect.	Area charged as irrigated during the year 1939-40 first and second crops.	Working expenses. Per cent on gross revenue.	Per acre irrigated.	Total water-rate direct and indirect. Per acre irrigated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		RS.	RS.	RS.	RS.	RS.	ACS.			
Productive.										
1 Cauvery delta system	..	39,77,270	1,24,043	41,01,313	41,11,703	11,76,620	1,009,723	28·62	1·17	4·06
2 Srivaikuntam anicut system	..	1,60,691	1,490	1,62,181	1,68,883	60,777	38,178	35·99	1·59	4·25
3 Godavari delta system	8,277	42,39,251	2,30,509	44,69,760	46,89,050	12,46,838	1,071,618	26·59	1·16	4·17
4 Mehamattur anicut system	..	22,062	196	22,258	22,885	18,572	5,618	81·15	3·31	3·96
5 Thadapalle channel	339	1,26,097	2,929	1,29,026	1,30,366	15,536	18,793	11·92	·83	6·87
6 Kalingaroyan channel	563	1,17,694	483	1,18,177	1,19,745	16,506	21,765	13·78	·76	5·43
7 Vriddhachalam anicut system	..	29,093	339	29,432	29,811	23,953	9,964	80·35	2·40	2·95
8 Chembarambakkam tank	..	36,240	957	37,197	37,290	9,480	14,282	25·42	·66	2·60
9 Marudur anicut system	..	1,76,816	279	1,77,095	1,78,139	24,234	32,112	13·60	·75	5·51
10 Pennar river canals system	..	7,48,021	72,675	8,20,696	8,23,151	1,61,305	183,605	19·60	·88	4·47
11 Arkenkota channel	153	33,573	428	34,001	34,311	6,878	5,258	20 05	1·31	6·47
12 Tirukkoyilur anicut system	..	1,07,293	3,369	1,10,662	1,11,215	59,399	33,487	53·41	1·77	3·30
13 Shatiatope anicut system	..	1,40,421	17,031	1,57,452	1,57,951	54,993	42,368	34·82	1·30	3·72
14 Cheyyar anicut system	..	64,461	4,735	69,196	70,436	49,860	29,435	70·79	1·69	2·35
15 Cumbum tank	..	34,248	461	34,709	34,709	4,510	9,216	12·99	·49	3·77
16 Poiney anicut system	..	84,569	5,488	90,057	90,316	24,738	27,402	27·39	·90	3·29
17 Periyar system	..	7,52,186	94,863	8,47,049	8,55,906	1,85,204	177,757	21·65	1·04	4·77
18 Kistna delta system	5,544	35,66,163	1,91,028	37,57,191	39,35,243	10,22,172	864,860	25·97	1·18	4·34
19 Nandiyar channel system	..	29,143	250	29,393	29,714	5,329	9,697	17·93	·55	3·03
20 Chicacole minor river system	..	1,25,814	7,874	1,33,688	1,33,903	70,369	67,521	52.55	1·04	1·98
21 Lower Coleroon anicut system	..	4,13,925	51,515	4,65,440	4,69,806	1,83,323	122,211	39·02	1·50	3·81
22 Kistna East Bank Canal extension scheme	..	4,32,662	87,205	5,19,867	5,22,730	94,817	77,763	18·14	1·22	6·68
23 Toludur (Willingdon) reservoir	..	1,07,726	448	1,08,174	1,08,517	53,038	18,418	48·89	2·88	5·87
24 Polavaram Island project	..	91,183	..	91,183	91,446	67,913	19,712	74·27	3·45	4·63
25 Cauvery-Mettur Project	..	13,16,323	..	13,16,323	13,30,384	3,88,140	171,132	29·18	2·27	7·69
26 Kattalai scheme	..	3,32,810	121	3,32,931	3,36,890	1,22,744	64,148	36·43	1·91	5·19
Unproductive.										
1 Kurnool-Cuddapah canal and Chepad	..	3,23,892	3,019	3,26,911	3,34,450	1,42,843	83,507	42·71	1·71	3·91
2 Barur tank	..	21,937	782	22,719	23,849	8,208	6,766	34·42	1·21	3·36
3 Vallur anicut system	..	3,871	1,074	4,945	5,069	4,182	3,939	82·50	1·06	1·26

E-II.—Statement showing the incidence of working expenses and assessed water revenue on Irrigation Works (classed as "Productive" and "Unproductive") for which Capital and Revenue Accounts are kept in the Madras Presidency during 1939–40—*cont.*

Name of canal.	Average discharge of the year at canal head in cubic feet per second.	Water assessed, 1939–40.			Gross and assessed revenue from all sources.	Working expenses, direct and indirect.	Area charged as irrigated during the year 1939–40 first and second crops.	Working expenses.		Total water-rate, direct and indirect.
		Total, direct.	Indirect.	Total of direct and indirect.				Per cent on gross revenue.	Per acre irrigated.	Per acre irrigated.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Unproductive—cont.		RS.	RS.	RS.	RS.	RS.	ACS.			
4 Madras water-supply and irrigation system	..	12,416	462	12,878	42,351	17,023	7,108	42·57	2·40	1·81
5 Pelandorai anicut system	..	48,742	86	48,828	49,408	24,975	13,617	50·55	1·83	3·59
6 Palar anicut system	..	2,59,681	16,852	2,76,533	2,78,373	92,026	1,05,392	33 06	·87	2·62
7 Muniyeru anicut system ..	..	41,752	62	41,814	42,756	11,704	9,374	27·37	1·25	4·46
8 Dondapad tank	..	1,801	10	1,811	1,811	285	499	15·74	·57	3·63
9 Yerur tank	..	— 550	86	— 464	— 464	914	789	..	1·16	..
10 Sagileru system	..	21,403	26	21,429	21,478	3,561	5,857	16·58	·61	3·66
11 Atmakur tank	..	2,003	..	2,003	2,066	295	499	14·28	·59	4·01
12 Jangamaheswarapuram tank ..	..	1,242	..	1,242	1,242	445	405	35·83	1·10	3·07
13 Anamasamudram-Beraperu tank	..	3,684	1	3,685	3,685	816	1,082	22·14	·75	3·41
14 Hajipuram tank	..	3,327	70	3,397	3,397	680	898	20·02	·76	3·78
15 Ponnalur tank	..	5,181	..	5,181	5,181	1,368	978	26·40	1·40	5·30
16 Markapur tank	..	8,836	1	8,837	8,857	4,702	2,706	53·09	1·74	3 27
17 Nagavalli river system	282	96,097	21,566	1,17,663	1,18,298	32,503	28,634	27·48	1·14	4·11
18 Venkatapuram tank	..	1,667	38	1,705	1,705	727	462	42·64	1·57	3·69
19 Bhavanasi tank	..	5,124	..	5,124	5,158	2,155	556	41·78	3·88	9·22
20 Yellanur tank	..	1,844	1,104	2,948	2,948	1,819	582	61·70	3·13	5·07
21 Panjapatti reservoir	..	..	..	..	..	..	..	..	..	..
22 Siddapur tank	..	5,564	..	5,564	5,564	1,270	875	22·83	1·45	6·36
23 Nagavaram anicut and supply channel	..	3,278	1,017	4,295	4,296	1,094	857	25·47	1·28	5·01
24 Mopad reservoir	..	18,908	5,170	24,078	24,207	8,077	4,204	33·37	1·92	5·73
25 Kaniyampalayam anicut ..	..	..	..	..	4,000	2,144	377	53·60	5·69	..
26 Tippayapalem project	..	3,683	..	3,683	3,683	206	723	5·59	·28	5·09
27 Basavannah channel	..	..	..	..	100	7,116	..	7,116	..	..
28 Duvvaleru project	..	..	..	..	..	..	..	..	..	..

E-III.—Statement showing the area actually irrigated by flow and lift under Productive and Unproductive Works and the value of crops raised thereon for fasli 1349 (1939–40).

E-III.—Statement showing the area actually irrigated by flow and lift raised thereon for under Productive and Unproductive Works and the value of crops fasli 1349 (1939–40).

Districts.	Names of systems.	Area actually irrigated. First crop. Flow.	First crop. Lift.	Second crop. Flow.	Second crop. Lift.	Total.	Both seasons.	Value of crops. Paddy. Area irrigated.	Paddy. Estimated value.	Ragi. Area irrigated.	Ragi. Estimated value.	Other crops. Area irrigated.	Other crops. Estimated value.	Total. Area irrigated.	Total. Estimated value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	1. *Productive works.*	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
Vizagapatam ..	Chicacole minor rivers system.	61,148	1,973	1,688	1,274	66,083	133	61,521	28,81,718	3,570	81,617	992	6,650	66,083	29,69,985
East Godavari ..	Polavaram island system.	12,875	64	6,556	4	19,499	9	19,327	11,57,464	..	..	172	3,425	19,499	11,60,889
West Godavari ..	Godavari delta system ..	357,801	6,090	101,480	1,511	466,882	6,374	435,901	2,45,60,932	148	4,685	30,236	22,73,766	466,285	2,68,39,383
Kistna	Godavari delta system ..	407,955	8,694	154,144	5,251	576,044	5,623	525,537	2,75,20,845	572	19,817	47,722	5,62,710	573,831	2,81,03,372
	Godavari delta system ..	735	..	183	..	918	..	918	36,297	..	..	..	..	918	36,297
	Total ..	766,491	14,784	255,807	6,762	1,043,844	11,997	962,356	5,21,18,074	720	34,502	77,958	28,36,476	1,041,034	5,49,79,052
West Godavari ..	Kistna delta system ..	38,288	136	117	38	38,579	3	38,171	25,47,574	..	..	408	1,883	38,579	25,49,457
Kistna	Kistna delta system ..	440,089	3,930	2,511	34	446,564	7,893	439,866	2,12,88,365	463	6,253	6,213	4,47,569	446,542	2,17,42,187
Guntur	Kistna delta system ..	354,922	5,017	4,306	210	364,455	5,761	358,193	1,98,95,604	38	1,961	6,156	6,02,854	364,387	2,05,00,419
	Total ..	833,299	9,083	6,934	282	849,598	13,657	836,230	4,37,31,543	501	8,214	12,777	10,52,306	849,508	4,47,92,063
Kistna	Divi *cum* Kistna East Bank canal.	70,589	2,311	289	27	73,216	662	72,260	35,17,650	7	184	949	52,430	73,216	35,70,264
Nellore	Pennar river canals system.	154,841	3,568	18,002	397	176,808	1,157	164,799	97,32,154	3,462	1,34,335	8,502	53,705	176,763	99,20,194
Coimbatore ..	Arakkankottai channel ..	4,399	251	432	29	5,111	5	5,042	3,50,252	6	321	63	7,000	5,111	3,57,573
	Tadepalli channel ..	14,677	925	2,916	203	18,721	635	17,899	12,37,258	42	2,835	1,280	1,39,355	18,721	13,79,448
	Kalingarayan channel ..	10,015	2,502	7,386	1,750	21,653	5,527	14,183	9,61,379	1,095	75,854	6,375	3,06,077	21,653	13,43,310
Chingleput ..	Chembrambakkam tank ..	11,440	686	1,141	306	13,573	736	10,484	5,01,801	869	31,021	1,685	1,79,632	13,038	7,12,454
North Arcot ..	Poiney anicut system ..	18,568	380	4,862	162	23,972	125	17,386	9,43,655	2,996	1,32,312	3,544	35,525	23,926	11,11,492
Chittoor	Poiney anicut system ..	1,390	16	327	..	1,733	5	1,316	87,409	214	14,473	203	495	1,733	1,02,377
	Total ..	19,958	396	5,189	162	25,705	130	18,702	10,31,064	3,210	1,46,785	3,747	36,020	25,659	12,13,869
North Arcot ..	Cheyyar anicut system ..	18,786	377	7,432	179	26,774	187	22,795	11,12,637	1,714	70,163	2,226	12,355	26,735	11,95,155
Chingleput ..	Cheyyar anicut system ..	414	..	38	..	452	..	419	20,109	19	874	14	62	452	21,045
	Total ..	19,200	377	7,470	179	27,226	187	23,214	11,32,746	1,733	71,037	2,240	12,417	27,187	12,16,200
South Arcot ..	Tirukkoyilur anicut system.	24,209	1,941	5,704	253	32,107	648	26,458	13,45,532	3,420	1,32,519	2,217	74,558	32,095	15,52,609
	Shatiatope anicut system.	29,845	764	9,307	137	40,053	4,351	37,037	15,43,995	1,056	36,677	1,951	19,286	40,044	15,99,958
	Mehamattur anicut system.	4,773	58	697	11	5,539	86	5,019	2,47,105	142	5,141	378	9,674	5,539	2,61,920
	Vriddhachalam anicut system.	8,190	108	525	13	8,836	22	7,356	2,69,899	246	7,069	1,197	5,685	8,799	2,82,653
	Willingdon reservoir ..	15,730	217	2,304	5	18,256	1,072	15,044	8,95,291	262	13,525	2,950	56,614	18,256	9,65,430
	Lower Coleroon anicut system.	83,406	1,770	8,617	280	94,073	973	90,435	52,65,886	470	10,564	3,168	25,517	94,073	53,01,967
Tanjore	Lower Coleroon anicut system.	22,240	741	2,467	197	25,645	212	24,696	14,35,685	159	8,445	790	58,981	25,645	15,03,111
	Total ..	105,646	2,511	11,084	477	119,718	1,185	115,131	67,01,571	629	19,009	3,958	84,498	119,718	68,05,078
Tanjore	Cauvery delta system ..	789,967	21,372	91,155	3,432	905,926	13,605	869,056	4,45,84,892	5,292	1,80,933	30,882	36,44,672	905,230	4,84,10,497
Trichinopoly ..	Cauvery delta system ..	43,639	2,167	21,935	1,255	68,996	2,714	64,849	42,82,552	345	17,456	3,797	3,09,355	68,991	46,09,363
	Total ..	833,606	23,539	113,090	4,687	974,922	16,319	933,905	4,88,67,444	5,637	1,98,389	34,679	39,54,027	974,221	5,30,19,860
Tanjore	Cauvery-Mettur Project ..	148,408	570	16,138	681	165,797	100	158,986	63,88,473	1,087	36,447	5,121	2,10,510	165,194	66,35,430
Trichinopoly ..	Nandiyar channel system.	6,279	623	2,072	455	9,429	808	7,539	4,24,811	160	6,971	1,729	66,719	9,428	4,98,501
	Kattalai scheme	46,022	1,629	14,645	715	63,011	4,583	55,918	32,98,185	178	8,358	6,733	4,78,768	62,829	37,85,311
Madura	Periyar system	127,625	482	45,739	344	174,190	2,989	164,351	1,29,18,534	4,831	1,79,730	5,008	9,06,901	174,190	1,40,05,165
Ramnad	Periyar system	1,004	..	125	..	1,129	..	945	78,155	184	6,487	..	..	1,129	84,642
	Total ..	128,629	482	45,864	344	175,319	2,989	165,296	1,29,96,689	5,015	1,86,217	5,008	9,06,901	175,319	1,40,89,807
Tinnevelly	Srivaikuntam anicut system.	20,968	2,656	12,476	470	36,570	1,214	30,120	13,72,617	317	21,260	3,305	1,48,690	33,742	15,42,567
	Marudur anicut system ..	16,834	232	14,160	455	31,681	509	29,820	17,04,159	334	12,336	1,432	1,67,238	31,586	18,83,733
Kurnool	Cumbum tank	4,919	89	3,724	3	8,735	510	5,992	3,58,736	1,701	81,396	1,042	4,876	8,735	4,45,008
	Total of Productive Works.	3,372,990	72,339	565,600	20,081	4,031,010	69,131	3,799,138	20,47,67,610	35,399	13,42,019	188,440	1,08,73,537	4,022,977	21,69,83,166

E-III.—Statement showing the area actually irrigated by flow and lift raised thereon for under Productive and Unproductive Works and the value of crops fasli 1349 (1939-40)—*cont.*

Districts.	Names of systems.	Area actually irrigated. First crop. Flow.	First crop. Lift.	Second crop. Flow.	Second crop. Lift.	Total.	Both seasons.	Value of crops. Paddy. Area irrigated.	Paddy. Estimated value.	Ragi. Area irrigated.	Ragi. Estimated value.	Other crops. Area irrigated.	Other crops. Estimated value.	Total. Area irrigated.	Total. Estimated value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	2. *Unproductive works.*	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	ACS.	RS.	ACS.	RS.	ACS.	RS.
Vizagapatam	Nagavalli river system	26,502	243	781	23	27,549	44	26,751	12,04,321	88	2,627	708	27,676	27,547	12,34,624
Kistna	Muniyeru anicut system	8,819	47	2	2	8,870	..	8,814	5,23,470	1	41	55	1,723	8,870	5,25,234
Guntur	Jangamaheswarapuram tank.	246	..	85	..	331	..	248	13,837	..	..	83	363	331	14,200
	Atmakur tank	320	2	4	..	326	..	310	11,189	..	..	16	61	326	11,250
	Dondapad tank	324	..	138	..	462	..	453	31,422	9	645	..	..	462	32,067
	Bhavanasi tank	554	..	..	..	554	..	551	29,436	3	186	..	..	554	29,622
Nellore	Mopad reservoir	3,866	2	232	2	4,102	160	924	41,484	2,972	1,92,883	188	3,300	4,084	2,37,667
	Hajeepuram tank	492	..	172	..	664	106	550	35,632	40	2,046	74	750	664	38,428
	Ponnalur tank	765	1	107	..	873	..	626	19,202	97	2,858	150	1,689	873	23,749
	Anamasamudram-Beraperu tank.	952	9	74	..	1,035	20	930	35,236	15	468	90	45	1,035	35,749
	Yerur tank	655	26	..	..	681	..	607	7,264	5	155	..	..	612	7,419
Cuddapah	Sagileru system	3,922	93	1,132	600	5,747	..	4,343	2,83,505	697	37,861	707	8,542	5,747	3,29,908
	Chepad channel	9,847	14	899	..	10,760	111	8,462	5,00,348	869	43,735	1,429	17,905	10,760	5,61,988
	Nagavaram anicut and supply channel.	600	7	222	3	842	162	592	33,894	52	3,033	198	400	842	37,327
Kurnool	Markapur tank	1,554	8	1,108	..	2,670	57	2,369	1,33,293	273	13,160	28	283	2,670	1,46,736
	Siddapur tank	875	..	..	..	875	..	868	49,337	..	..	12	195	875	49,532
	Venkatapuram tank	269	..	182	..	451	..	446	12,141	..	..	5	100	451	12,241
	Thippayapalem project	717	4	2	..	723	..	10	436	659	31,190	54	414	723	32,040
Cuddapah	Kurnool-Cuddapah canal	31,687	68	5,144	21	36,920	1,039	20,392	13,14,544	74	3,646	16,454	3,39,237	36,920	16,57,427
	Do.	30,064	578	4,315	135	35,092	3,302	20,336	11,69,343	4,323	2,08,978	10,433	2,77,154	35,092	16,55,475
	Total	61,751	646	9,459	156	72,012	4,341	40,728	24,83,887	4,397	2,12,624	26,887	6,16,391	72,012	33,12,902
Anantapur	Yellanur tank	512	..	..	..	512	2	456	33,912	52	2,444	4	68	512	36,424
Salem	Barur tank	4,260	35	2,236	12	6,543	567	4,398	2,58,017	621	24,645	1,518	6,666	6,537	2,99,328
Coimbatore	Kanniyampalayam anicut.	376	..	1	..	377	..	228	12,673	..	..	149	1,656	377	14,329
Chingleput	Madras water-supply irrigation system.	5,983	428	29	9	6,449	147	5,918	2,52,976	236	6,297	295	15,168	6,449	2,74,441
	Vallur anicut system	3,396	988	36	32	4,452	35	4,154	1,77,922	88	2,484	210	7,600	4,452	1,88,006
North Arcot	Palar anicut system	49,495	1,976	18,667	458	70,596	790	61,483	30,49,940	4,952	1,93,447	3,627	45,732	70,062	32,89,119
Chingleput	Do.	19,093	1,370	8,835	503	29,801	49	26,600	11,74,150	2,618	66,051	332	597	29,550	12,40,798
	Total	68,588	3,346	27,502	961	100,397	839	88,083	42,24,090	7,570	2,59,498	3,959	46,329	99,612	45,29,917
South Arcot	Pelandoral anicut system	11,674	417	951	69	13,111	85	11,159	4,75,915	345	9,455	1,605	17,136	13,109	5,02,506
	Total of Unproductive works.	217,319	6,316	45,364	1,869	271,368	6,676	212,973	1,08,84,839	19,089	8,58,335	38,424	7,74,460	270,486	1,35,17,634
	Grand total of Productive and Unproductive works.	3,590,809	78,655	610,964	21,950	4,302,378	75,807	4,012,111	21,56,52,449	54,488	22,00,354	226,864	1,16,47,997	4,293,463	22,95,00,800

NOTE.—(1) The area under "both seasons" is included under first and second crops.
(2) The areas in columns (2) to (6) include extent under "withered crops" but exclude "waste charged."
(3) The area of "withered crops" is (8,645 + 270) = 8,915 acres.

E-IV.—Comparative statement of irrigation and rainfall in the Madras Presidency for the revenue year ending 30th June 1940.

Civil districts.	Of the civil 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)	Area at present estimated as annually irrigable by the works specified in column (5).	Area irrigated in acres. Revenue year ending 30th June 1939. Kharif I crop.	Rabi II crop.	Total.	Revenue year ending 30th June 1940. Kharif I crop.	Rabi II crop.	Total.	Rainfall. 1938-39.	1939-40.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	ACS.	ACS.	ACS.		ACS.	ACS.							INCHES.	INCHES.
Vizagapatam ..	5,169,262	2,763,736	2,107,931	1 Chicacole minor river system ..	70,000	66,800	61,007	3,913	64,920	63,121	2,962	66,083		
				2 Nagavalli river system	31,200	27,500	26,240	822	27,062	26,745	804	27,549		
				3 Minor works	115,756	115,756	113,227	20,868	134,095	100,845	13,219	114,064		
				Total ..	216,956	210,056	200,474	25,603	226,077	190,711	16,985	207,696	48·27	35·58
East Godavari ..	3,980,698	1,993,239	1,354,799	1 Godavari delta system	396,253	377,000	366,610	139,318	505,928	363,891	102,991	466,882		
				2 Polavaram island system	18,648	17,500	13,040	4,726	17,766	12,939	6,560	19,499		
				3 Minor works	94,862	94,862	86,144	5,804	91,948	81,201	7,231	88,432		
				Total ..	509,763	489,362	465,794	149,848	615,642	458,031	116,782	574,813	51·34	55·1
West Godavari ..	1,581,869	1,292,535	975,806	1 Godavari delta system	565,000	414,500	419,406	173,381	592,787	416,649	159,395	576,044		
				2 Kistna delta system	..	..	38,118	75	38,193	38,424	155	38,579		
				3 Minor works	43,129	43,129	41,629	1,680	43,309	31,509	1,333	32,842		
				Total ..	608,129	457,629	499,153	175,136	674,289	486,582	160,883	647,465	47·06	51·39
Kistna	2,222,217	1,666,288	1,230,649	1 Kistna delta system	543,000	445,300	435,547	1,567	437,114	444,019	2,545	446,564		
				2 Godavari delta system	..	..	558	37	595	735	183	918		
				3 Divi system	80,000	42,000	61,028	691	61,719	72,900	316	73,216		
				4 Muniyeru anicut system	13,024	10,000	8,717	375	9,092	8,866	4	8,870		
				5 Minor works	20,903	20,903	13,234	763	13,997	17,316	196	17,512		
				Total ..	656,927	518,203	519,084	3,433	522,517	543,836	3,244	547,080	48·73	45·42
Guntur	3,683,824	2,710,850	2,414,310	1 Kistna delta system	357,000	330,000	349,350	1,430	350,780	359,939	4,516	364,455		
				2 Bhavanasi tank	2,448	841	547	5	552	554	..	554		
				3 Dondapad tank	2,880	250	294	99	393	324	138	462		
				4 Atmakur tank	1,160	460	416	..	416	322	4	326		
				5 Jangamaheswarapuram tank ..	960	290	244	6	250	246	85	331		
				6 Minor works	26,534	26,534	22,873	759	23,632	23,238	2,355	25,593		
				Total ..	390,982	358,375	373,724	2,299	376,023	384,623	7,098	391,721	33·95	44·1
Kurnool	4,860,658	2,890,032	2,143,986	1 Kurnool-Cuddapah canal	319,869	103,743	31,017	6,306	37,323	31,754	5,166	36,920		
				2 Venkatapuram tank	1,700	340	243	122	365	269	182	451		
				3 Oumbum tank	6,000	5,950	5,468	4,622	10,090	5,008	3,727	8,735		
				4 Markapur tank	1,701	1,583	1,591	297	1,888	1,562	1,108	2,670		
				5 Siddapur tank	4,250	3,730	778	232	1,005	875	..	875		
				6 Thippayapalem project	New	project.	479	..	479	721	2	723		
				7 Minor works	47,146	47,146	45,556	4,995	50,551	43,293	7,068	50,361		
				Total ..	380,666	162,522	85,127	16,574	101,701	83,482	17,253	100,735	28·85	25·33
Bellary	3,643,891	3,069,264	2,584,224	Minor works	55,406	55,406	46,390	7,651	54,041	47,644	7,273	54,917	26·24	22·88
Anantapur ..	4,307,053	3,554,878	2,050,936	1 Yellanur tank	1,641	925	530	13	543	512	..	512		
				2 Minor works	153,233	153,233	149,153	68,356	217,509	124,324	36,776	161,100		
				Total ..	154,874	154,158	149,683	68,369	218,052	124,836	36,776	161,612	29·39	20·9
Cuddapah ..	3,790,752	2,144,837	1,156,451	1 Kurnool-Cuddapah canal including Chepad channel.	37,700	19,676	38,876	5,035	43,911	40,504	5,348	45,852		
				2 Sagileru system	26,576	4,500	3,891	1,003	4,894	4,015	1,732	5,747		
				3 Nagavaram anicut and supply channel.	894	894	521	80	601	607	235	842		
				4 Minor works	102,629	102,629	95,836	19,471	115,307	98,148	22,481	120,629		
				Total ..	167,799	127,699	139,124	25,589	164,713	143,274	29,796	173,070	26·87	26·48
..	5,087,200	3,018,094	1,489,402	1 Pennar river canal system	190,000	162,500	158,596	1,693	160,289	158,409	18,399	176,808		
				2 Mopad reservoir	13,890	12,500	5,023	198	5,221	3,868	234	4,102		
				3 Ponnalur tank	1,973	1,000	707	..	707	766	107	873		
				4 Anamasamudram Biraperu tank ..	1,000	1,000	732	1	733	961	74	1,035		
				5 Yerur tank	3,176	1,470	..	..	..	681	..	681		
				6 Hajipuram tank	2,900	700	710	53	763	492	172	664		
				7 Minor works	136,956	136,956	117,464	2,235	119,699	129,588	10,217	139,805		
				Total ..	349,895	316,126	283,282	4,180	287,462	294,765	29,203	323,968	26·56	44·36

E-IV.—Comparative statement of irrigation and rainfall in the Madras Presidency for the revenue year ending 30th June 1940—*cont.*

Civil districts.	Of the civil districts.			Works supplying irrigation.	Cultivable area commanded by the irrigation works in column (5).	Area at present estimated as annually irrigable by the works specified in column (5).	Area irrigated in acres.						Rainfall.	
							Revenue year ending 30th June 1939.			Revenue year ending 30th June 1940.				
	Total area, in acres.	Cultivable area in acres.	Cultivated area in acres.	Number and name.			Kharif I crop.	Rabi II crop.	Total.	Kharif I crop.	Rabi II crop.	Total.	1938-39.	1939-40.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	ACS.	ACS.	ACS.		ACS.								INCHES.	INCHES.
Chingleput ..	1,965,897	1,122,703	910,933	1 Palar anicut system	24,102	24,102	20,179	2,015	22,194	20,463	9,338	29,801		
				2 Chembarambakkam tank	24,478	18,000	12,623	4,794	17,417	12,126	1,447	13,573		
				3 Valiur anicut system	6,794	5,216	4,412	23	4,435	4,384	68	4,452		
				4 Cheyyar anicut system	540	494	400	41	441	414	38	452		
				5 Madras water-supply and Irrigation system.	10,165	9,852	6,299	423	6,722	6,411	38	6,449		
				6 Minor works	358,578	358,578	320,211	40,105	360,316	318,869	59,234	378,103		
				Total ..	424,657	416,242	364,124	47,401	411,525	362,667	70,163	432,830	30·42	38·71
South Arcot ..	2,693,024	1,900,570	1,553,753	1 Lower Coleroon anicut system ..	86,000	84,244	84,836	9,732	94,568	85,176	8,897	94,073		
				2 Shatiatope anicut system	43,965	32,000	31,712	9,459	41,171	30,609	9,444	40,053		
				3 Vriddhachalam anicut system ..	16,859	8,829	8,503	431	8,934	8,298	538	8,836		
				4 Mehmattur anicut system	10,651	5,000	4,689	321	5,010	4,831	708	5,539		
				5 Tirukkoyilur anicut system	45,977	28,000	25,640	3,359	28,999	26,150	5,957	32,107		
				6 Pelandurai anicut system	16,677	12,837	11,658	749	12,407	12,091	1,020	13,111		
				7 Willingdon reservoir	28,800	25,000	16,584	972	17,556	15,947	2,309	18,256		
				8 Minor works	300,198	300,198	245,289	53,340	298,629	268,562	89,152	357,714		
				Total ..	548,627	496,108	428,911	78,363	507,274	451,664	118,025	569,689	32·81	5·54
North Arcot ..	2,982,383	1,702,422	1,418,493	1 Palar anicut system	80,930	54,566	50,499	20,930	71,429	51,471	19,125	70,596		
				2 Cheyyar anicut system	28,921	22,193	19,261	6,794	26,055	19,163	7,611	26,774		
				3 Poiney anicut system	28,824	22,462	17,537	3,393	20,930	18,948	5,024	23,972		
				4 Minor works	231,647	231,647	198,129	59,553	257,682	205,251	78,454	283,705		
				Total ..	365,322	330,868	285,426	90,670	376,096	294,833	110,214	405,047	31·52	37·08
Chittoor	3,778,865	1,809,804	892,812	1 Poiney anicut system	..	..	1,239	182	1,421	1,406	327	1,733		
				2 Minor works	113,903	113,903	88,499	27,317	115,816	98,766	37,775	136,541		
				Total ..	113,903	113,903	89,738	27,499	117,237	100,172	38,102	138,274	27·80	39·06
Salem	4,517,107	2,719,067	2,001,112	1 Barur tank	6,887	3,750	4,191	944	5,135	4,295	2,248	6,543		
				2 Minor works	105,998	105,998	91,933	34,651	126,584	99,493	44,631	144,124		
				Total ..	112,885	109,748	96,124	35,595	131,719	103,788	46,879	150,667	30·18	41·45
Coimbatore ..	4,551,876	2,757,274	2,269,108	1 Tadepalle channel	16,000	15,400	15,505	2,058	17,563	15,602	3,119	18,721		
				2 Arakkankottai channel	6,000	4,845	4,802	538	5,340	4,650	461	5,111		
				3 Kalingarayan channel	15,000	12,239	12,424	10,400	22,824	12,517	9,136	21,653		
				4 Kaniyampalayam anicut	1,600	213	..	..	..	376	1	377		
				5 Minor works	69,310	69,310	62,611	19,301	81,912	68,251	23,436	91,687		
				Total ..	107,710	102,007	95,342	32,297	127,639	101,396	36,153	137,549	21·44	30·9
Trichinopoly ..	2,825,575	2,214,718	1,523,428	1 Cauvery delta system	44,667	44,008	46,071	24,483	70,554	45,806	23,190	68,996		
				2 Nandiyar channel system	9,480	7,084	7,072	2,696	9,768	6,902	2,527	9,429		
				3 Kattalai system	40,000	36,623	47,913	12,856	60,769	47,651	15,360	63,011		
				4 Minor works	120,308	120,308	104,915	48,587	153,502	116,549	59,189	1,75,738		
				Total ..	214,455	208,023	205,971	88,622	294,593	216,908	100,266	317,174	30·61	47·61
Tanjore ..	2,397,286	1,737,357	1,514,247	1 Cauvery delta system	864,367	856,918	812,531	93,996	906,527	811,339	94,587	905,926		
				2 Lower Coleroon anicut system ..	31,233	23,685	23,242	3,334	26,576	22,981	2,664	25,645		
				3 Cauvery-Mettur Project	528,487	177,000	140,925	18,593	159,518	148,978	16,819	165,797		
				4 Minor works	65,961	65,961	34,149	1,649	35,798	35,296	6,900	42,196		
				Total ..	1,490,048	1,123,564	1,010,847	117,572	1,128,419	1,018,594	120,970	1,139,564	34·38	55·72
Madura ..	3,061,286	2,224,154	1,426,339	1 Periyar system	131,046	143,000	128,729	46,493	175,222	128,107	46,083	174,190		
				2 Minor works	..	131,046	104,883	24,774	129,657	116,349	30,734	147,083		
				Total ..	131,046	274,046	233,612	71,267	304,879	244,456	76,817	321,273	24·52	33·86
Ramnad ..	3,140,268	2,195,854	1,251,248	1 Periyar system	..	..	46	..	46	1,004	125	1,129		
				2 Minor works	38,362	38,362	21,176	2,754	23,930	27,342	4,448	31,790		
				Total ..	38,362	38,362	21,222	2,754	23,976	28,346	4,573	32,919	27·24	31·92
Tinnevelly ..	2,775,192	2,091,765	1,380,390	1 Srivaikuntam anicut system ..	33,500	25,685	24,129	15,062	39,191	23,625	12,946	36,570		
				2 Manidur anicut system	17,920	17,920	17,028	12,647	29,675	17,066	14,615	31,681		
				3 Minor works	187,167	187,167	161,961	87,479	249,440	163,817	84,286	248,103		
				Total ..	238,587	230,772	203,118	115,188	318,306	204,507	111,847	316,354	23·48	20·02
				Total of productive and unproductive works.	4,758,167	3,774,147	3,631,008	653,818	4,284,826	3,669,464	632,914	4,302,378		
				Total of minor works ..	2,519,032	2,519,032	2,165,262	532,092	2,697,354	2,215,651	626,388	2,842,039		
Grand total ..	73,016,183	47,579,441	33,600,357		7,277,199	6,293,179	5,796,270	1,185,910	6,982,180	5,885,115	1,259,302	7,144,417	32·46	37·61

F-I.—Statement showing the water-rates per acre which were in force under certain Productive and Unproductive Works in the Madras Presidency during the year ending 30th June 1940.

Description of crop.	Godavari and Kistna anicuts.	Muniyeru project.	Periyar system.*	Bhavanasi and Siddhapur	Venkatapuram tank.	Mopad.	Willingdon reservoir.	Kanniyampalayam anicut. †	Panjapatti reservoir.‡	Siddapur tank.	Other systems (in tracts where the differential water-rate system does not prevail.) §
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.	
1 Single wet crop	6 4 0	6 4 0	5 0 0	9 6 0	4 3 0	7 13 0	6 4 0	..	6 4 0	6 0 0	..
2 Second wet crop	3 2 0	3 2 0	3 0 0	4 11 0	2 1 0	3 15 0	3 2 0	..	3 2 0	3 0 0	..
3 Second wet crop (if compounded for two crops for a term of not less than five years).	10 3 0	..	..	..	..	..	..	..	..	..	..
4 Second dry crop on irrigated land except where the landholder has compounded under clause 3.	3 2 0	3 2 0	..	..	..	..	..	..	..	..	..
5 For sugarcane, betel and other garden produce remaining on the ground for the time of two crops.	9 6 0	9 6 0	8 0 0	14 1 0	6 4 0	11 12 0	9 6 0	..	..	..	..
6 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 0	..	..	..	..	..	..	..	..	9 0 0	..
7 For a dry crop, whether first or second, grown on land for which irrigation has never been supplied or having been once supplied has been since discontinued.	3 2 0	..	..	4 11 0	2 1 0	3 15 0	..	..	..	..	..
8 For a third irrigated crop (wet)	2 8 0	3 2 0	2 0 0	..	..	..	..	..	..	..	..
9 Do. (dry)	1 4 0	3 2 0	1 0 0	..	..	..	..	..	..	..	..
10 Dry crop systematically irrigated	6 4 0	4 11 0	..	..	..	..	..	..	..	..	..
11 Second wet crop in the case of zamindari and inam lands.	6 4 0	3 2 0	..	..	..	..	..	..	..	..	..
12 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 0	..	..	..	..	..	..	..	..	..	..
13 For sugarcane, betel and other garden produce in zamindari and inam lands remaining on the ground for the time of two crops.	12 8 0	9 6 0	..	..	..	..	..	..	..	..	..
14 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 0	..	..	..	..	..	..	..	..	..	..
15 For a first dry crop systematically irrigated	..	5 0 0	..	..	..	..	..	..	..	..	..
16 For a second dry crop systematically irrigated	..	3 0 0	..	..	..	..	..	..	..	..	..
17 For a first or second dry crop occasionally irrigated	..	2 8 0	..	..	..	..	..	..	..	..	..
18 Special crops like onions, sweet potatoes, chillies, tobacco (the same as for a dry crop systematically irrigated).	..	5 0 0	..	..	..	..	..	..	..	..	..
19 Mango topes, coconut topes and other tope plantations—											
(a) If they take water for term of two wet crops	..	8 0 0	..	..	..	..	..	..	..	..	..
(b) In other cases	..	5 0 0	..	..	..	..	..	..	..	..	..

NOTE.—When the water used for irrigation cannot be obtained without raising it by baling or by some mechanical contrivance, a deduction of one-fourth of the water-rate will be made.

* Double the rates are levied when Periyar water is supplied to Government and minor inam dry lands in the Cumbum Valley, Periyakulam taluk to which extension of irrigation has been sanctioned.

† No charge for water for twenty years under G.O. No. 128 I., dated 17th March 1916.

‡ 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 First crop.	Charge for Second crop.	Total charge.
		RS.	RS. A. P.	RS. A. P.
1 Wet	Wet	4	2 0 0	6 0 0
2 Do.	Dry, systematically irrigated ..	4	1 8 0	5 8 0
3 Do.	Do. occasionally irrigated ..	4	1 0 0	5 0 0
4 Dry, systematically irrigated ..	Wet	3	2 8 0	5 8 0
5 Do. ..	Dry, systematically irrigated ..	3	2 0 0	5 0 0
6 Do. ..	Do. occasionally irrigated ..	3	1 8 0	4 8 0
7 Dry, occasionally irrigated ..	Wet	2	3 0 0	5 0 0
8 Do. ..	Dry, systematically irrigated ..	2	2 8 0	4 8 0
9 Do. ..	Do. occasionally irrigated ..	2	2 0 0	4 0 0

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

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APPENDIX II.

I.—Statement showing the financial results of irrigation under Productive and Unproductive systems for fasli 1349 (1939–40).

Systems.	Area charged as irrigated and area irrigated free of charge.						Direct receipts.		
	First crop.			Second crop.					
	Old irrigation.	New irrigation.	Total.	Old irrigation.	New irrigation.	Total.	Total land and irrigation revenue.	Share due to irrigation.	Deduct remissions and deductions.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.
(i) *Productive Works.*									
1 Cauvery delta system	743,647	147,253	890 900	33,919	84,904	118,823	66,65,137	51,40,513	11,63,243
2 Srivaikuntam anicut system	14,580	10,652	25,232	5,850	7,096	12,946	2,66,222	2,24,225	63,534
3 Godavari delta system	156,150	650,438	806,588	..	265,030	265,030	65,47,845	51,71,172	9,31,921
4 Mehamathur anicut system	990	3,920	4,910	..	708	708	37,949	27,607	5,545
5 Tadepalle channel	9,990	5,684	15,674	170	2,949	3,119	1,65,271	1,43,318	17,221
6 Kalingarayan channel	8,300	4,329	12,629	8,350	786	9,136	1,49,955	1,32,387	14,693
7 Vriddhachalam anicut system	2,430	6,996	9,426	..	538	538	62,970	93,920	14,827
8 Chembrambakkam tank	11,370	1,460	12,830	1,160	292	1,452	72,917	50,439	14,199
9 Marudur anicut system	17,020	477	17,497	590	14,025	14,615	2,41,260	2,07,993	31,177
10 Pennar river canals system	99,080	65,802	164,882	1,050	17,674	18,724	10,15,466	8,62,018	1,13,997
11 Arakkankottai channel	2,730	2,067	4,797	10	451	461	44,949	38,565	4,992
12 Tirukkoyilur anicut system	16,080	11,444	27,524	30	5,933	5,963	1,81,116	1,34,869	27,576
13 Shatiyatope anicut system	7,160	25,764	32,924	..	9,444	9,444	2,30,104	1,73,529	33,108
14 Cheyyar anicut system	14,960	6,650	21,610	1,630	6,195	7,825	1,54,732	1,09,057	44,596
15 Cumbum tank	4,850	639	5,489	2,670	1,057	3,727	43,652	38,747	4,499
16 Poiney anicut system	15,550	6,501	22,051	2,500	2,851	5,351	1,43,439	1,08,250	23,681
17 Periyar system	65,600	65,952	131,552	16,100	30,105	46,205	10,64,818	9,61,561	2,09,375
18 Kistna delta system	70,710	786,833	857,543	..	7,317	7,317	58,27,648	47,62,321	11,96,158
19 Nandiyar channel system	4,680	2,490	7,170	1,570	957	2,527	45,231	34,554	5,411
20 Chicacole minor rivers system	51,260	13,158	64,418	..	3,103	3,103	2,27,475	1,52,693	26,879
21 Lower Coleroon anicut system	44,760	65,890	110,650	170	11,391	11,561	8,63,987	5,90,533	1,76,608
22 Divi *cum* Kistna East Bank canal	9,900	67,547	77,447	..	316	316	4,89,877	4,89,866	57,204
23 Willingdon reservoir	2,590	13,519	16,109	260	2,049	2,309	1,12,909	1,10,098	2,372
24 Polavaram Island system	..	13,152	13,152	..	6,560	6,560	91,251	91,251	68
25 Cauvery-Mettur Project	69,257	82,909	152,166	1,730	17,236	18,966	14,10,747	13,67,517	51,194
26 Kattalai scheme	27,860	20,876	48,736	8,250	7,162	15,412	4,70,633	3,90,807	57,997
Total ..	1,471,504	2,082,402	3,553,906	86,009	506,129	592,138	2,66,27,560	2,15,57,810	42,92,075
(ii) *Unproductive Works.*									
1 Kurnool-Cuddapah canal	6,643	56,445	63,088	..	9,616	9,616	3,21,761	2,94,159	18,458
1 Chepad channel	1,406	8,498	9,904	56	843	899	53,465	50,446	2,255
2 Barur tank	1,330	3,188	4,518	430	1,818	2,248	30,872	25,635	3,698
3 Vallur anicut system	4,030	874	4,904	10	25	35	11,081	7,065	3,194
4 Madras water-supply and irrigation system	5,630	1,440	7,070	780	— 742	38	28,040	19,687	7,271
5 Pelandorai anicut system	2,120	10,477	12,597	100	920	1,020	81,593	60,755	12,013
6 Palar anicut system	53,890	22,925	76,815	16,070	12,507	28,577	4,49,816	3,40,531	80,850
7 Muniyeru anicut system	600	8,770	9,370	..	4	4	62,800	50,490	8,738
8 Dondapad tank	..	361	361	.	138	138	2,161	1,939	138
9 Yerur tank	80	709	789	2	— 2	..	4,637	3,473	4,023
10 Sagileru system	3,900	225	4,125	700	1,032	1,732	25,719	23,326	1,923
11 Atmakur tank	..	495	495	..	4	4	2,731	2,282	279
12 Jangamaheswarapuram tank	150	170	320	7	78	85	1,904	1,416	174
13 Anamasamudram-Biraperu tank	900	108	1,008	80	— 6	74	4,721	4,212	528
14 Hajipuram tank	..	726	726	..	172	172	4,261	3,675	348
15 Ponnalur tank	..	871	871	..	107	107	7,011	5,760	579
16 Markapur tank	450	1,148	1,598	50	1,058	1,108	9,985	9,323	487
17 Nagavalli river system	10,600	17,228	27,828	5,200	— 4,394	806	1,41,176	1,13,250	17,153
1 Venkatapuram tank	53	227	280	1	181	182	1,756	1,709	42
19 Bhavanasi tank	..	556	556	..	..	..	5,172	5,172	48
20 Yellanur tank	..	582	582	..	..	..	3,041	2,594	750
21 Panjapatti reservoir	..	..	..	..	..	..	..	..	..
22 Siddhapur tank	..	875	875	..	..	..	5,564	5,564	..
23 Nagavaram anicut and supply channel	452	170	622	235	..	235	4,347	3,633	355
24 Mopad reservoir	..	3,969	3,969	..	235	235	19,302	19,129	221
25 Kanniyampalaiyam anicut	..	376	376	..	1	1	..	..	..
26 Thippayapalem Project	..	721	721	..	2	2	3,683	3,683	..
Total ..	92,234	142,134	234,368	23,721	23,597	47,318	12,86,599	10,58,908	1,63,525
Grand total of Productive and Unproductive Works ..	1,563,738	2,224,536	3,788,274	109,730	529,726	639,456	2,79,14,159	2,26,16,718	44,55,600

I.—Statement showing the financial results of irrigation under Productive and Unproductive systems for fasli 1349 (1939–40)—*cont.*

Systems.	Direct receipts—*cont.*			Indirect receipts.				
	Net revenue due to irrigation.	Deduct portion due to old irrigation.	Increase of revenue due to the outlay incurred.	Land assessment of waste lands brought under irrigation.	Land revenue of miscellaneous items.	Interest on sale-proceeds of tank-beds and other waste lands.	Total.	Total of columns 13) and (17).
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
(i) *Productive Works*—cont.								
1 Cauvery delta system	39,77,270	33,90,209	5,87,061	1,13,060	10,571	412	1,24,043	7,11,104
2 Srivaikuntam anicut system	1,60,691	79,000	81,691	1,423	67	..	1,490	83,181
3 Godavari delta system	42,39,251	1,24,000	41,15,251	1,84,148	8,161	38,200	2,30,509	43,45,760
4 Meharlathur anicut system	22,062	4,000	18,062	94	23	79	196	18,258
5 Tadepalle channel	1,26,097	76,000	50,097	2,890	39	..	2,929	53,026
6 Kalingarayan channel	1,17,694	85,000	32,694	419	64	..	483	33,177
7 Vriddhachalam anicut system	29,093	8,500	20,593	302	17	20	339	20,932
8 Chembrambakkam tank	36,240	16,000	20,240	898	59	..	957	21,197
9 Marudur anicut system	1,76,816	1,15,000	61,816	237	42	..	279	62,095
10 Pennar river canals system	7,48,021	2,56,000	4,92,021	46,178	3,711	22,786	72,675	5,64,696
11 Arakkankottai channel	33,573	19,000	14,573	372	56	..	428	15,001
12 Tirukkoyilur anicut system	1,07,293	60,000	47,293	3,293	76	..	3,369	50,662
13 Shatiyatope anicut system	1,40,421	20,000	1,20,421	16,713	318	..	17,031	1,37,452
14 Cheyyar anicut system	64,461	39,000	25,461	3,196	104	1,435	4,735	30,196
15 Cumbum tank	34,248	30,000	4,248	443	18	..	461	4,709
16 Poiney anicut system	84,569	38,000	46,569	5,299	131	58	5,488	52,057
17 Periyar system	7,52,186	2,04,000	5,48,186	15,400	4,940	74,523	94,863	6,43,049
18 Kistna delta system	35,66,163	71,000	34,95,163	1,01,071	16,703	73,254	1,91,028	36,86,191
19 Nandiyar channel system	29,143	17,000	12,143	60	18	172	250	12,393
20 Chicacole minor rivers system	1,25,814	95,000	30,814	7,065	738	71	7,874	38,688
21 Lower Coleroon anicut system	4,13,925	1,55,000	2,58,925	51,197	318	..	51,515	3,10,440
22 Divi *cum* Kistna East Bank canal	4,32,662	20,300	4,12,362	13,253	4,086	69,866	87,205	4,99,567
23 Willingdon reservoir	1,07,726	10,590	97,136	448	..	..	448	97,584
24 Polavaram Island system	91,183	..	91,183	..	..	..	..	91,183
25 Cauvery-Mettur Project	13,16,323	99,971	12,16,352	..	..	..	..	12,16,352
26 Kattalai scheme	3,32,810	2,54,000	78,810	21	..	100	121	78,931
Total ..	1,72,65,735	52,86,570	1,19,79,165	5,67,480	50,260	2,80,976	8,98,716	1,28,77,881

NOTE.—The revenue due to old irrigation and new irrigation under the Cauvery Delta System fixed by the Accountant-General with reference to G.O. No. 763 I., dated 25th March 1936, is shown below:—

	Direct receipts.	Indirect receipts.	Total revenue.
	RS.	RS.	RS.
Old irrigation ..	28,38,019	88,512	29,26,531
New irrigation ..	11,39,251	35,531	11,74,782

(ii) *Unproductive Works*—cont.								
1 Kurnool-Cuddapah canal	2,75,701	28,285	2,47,416	1,137	926	402	2,465	2,49,881
Chepad channel	48,191	7,587	40,604	505	26	23	554	41,158
2 Barur tank	21,937	4,500	17,437	181	..	601	782	18,219
3 Vallur anicut system	3,871	5,000	— 1,129	1,067	7	..	1,074	— 55
4 Madras water-supply and irrigation system ..	12,416	11,000	1,416	441	21	..	462	1,878
5 Pelandoral anicut system	48,742	3,000	45,742	57	21	8	86	45,828
6 Palar anicut system	2,59,681	1,25,000	1,34,681	15,520	320	1,012	16,852	1,51,533
7 Muniyeru anicut system	41,752	2,500	39,252	4	58	..	62	39,314
8 Dondapad tank	1,801	..	1,801	8	2	..	10	1,811
9 Yerur tank	— 550	425	— 975	22	64	..	86	— 889
10 Sagileru system	21,403	17,800	3,603	22	4	..	26	3,629
11 Atmakur tank	2,003	..	2,003	..	..	..	..	2,003
12 Jangamaheswarapuram tank	1,242	500	742	..	..	..	..	742
13 Anamasamudram-Biraperu tank	3,684	3,600	84	..	1	..	1	85
14 Hajipuram tank	3,327	..	3,327	38	15	17	70	3,397
15 Ponnalur tank	5,181	..	5,181	..	..	..	..	5,181
16 Markapur tank	8,836	2,130	6,706	..	1	..	1	6,707
17 Nagavalli river system	96,097	37,400	58,697	4,575	1,092	15,899	21,566	80,263
18 Venkatapuram tank	1,667	164	1,503	33	..	5	38	1,541
19 Bhavanasi tank	5,124	..	5,124	..	..	..	..	5,124
20 Yellanur tank	1,844	..	1,844	613	..	491	1,104	2,948
21 Panjapatti reservoir	..	..	..	..	..	..	..	..
22 Siddhapur tank	5,564	..	5,564	..	..	..	..	5,564
23 Nagavaram anicut and supply channel	3,278	2,256	1,022	146	..	871	1,017	2,039
24 Mopad reservoir	18,908	433	18,475	659	..	4,511	5,170	23,645
25 Kanniyampalalyam anicut	..	..	..	..	..	..	..	..
26 Thippayapalem Project	3,683	..	3,683	..	..	..	..	3,683
Total ..	8,95,383	2,51,580	6,43,803	25,028	2,558	23,840	51,426	6,95,229
Grand total of Productive and Unproductive Works.	1,81,61,118	55,38,150	1,26,22,968	5,92,508	52,818	3,04,816	9,50,142	1,35,73,110

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STATEMENT II.

Systems.	Net receipts, direct and indirect.				Gross indirect receipts.		
	Average for five years ending 1937-38.	Actuals, 1938-39.	1939-40. Revised estimates.	1939-40. Actuals.	Actuals 1938-39.	1939-40. Revised estimates.	1939-40. Actuals.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
(i) *Productive Works.*							
1 Cauvery delta system	15,47,931	7,18,885	9,95,195	6,75,569	1,24,043	1,24,043	1,24,043
2 Srivaikuntam anicut system	1,32,551	1,14,520	1,20,348	79,022	1,490	1,490	1,490
3 Godavari delta system	46,61,418	42,18,029	45,37,507	41,30,382	2,30,403	2,30,509	2,30,509
4 Mehamathur anicut system	21,249	9,840	13,860	17,349	196	196	196
5 Tadepalle channel	61,637	40,188	63,968	50,375	2,929	2,929	2,929
6 Kalingarayan channel	44,474	25,327	32,759	31,521	483	483	483
7 Vriddhachalam anicut system	31,120	16,522	21,451	19,887	339	339	339
8 Chembrambakkam tank	39,735	21,549	20,988	20,137	957	957	957
9 Marudur anicut system	82,313	59,781	69,070	58,990	279	279	279
10 Pennar river canals system	5,81,142	4,84,804	5,72,563	5,37,600	72,508	72,675	72,675
11 Arakkankottai channel	18,395	15,089	18,648	14,251	428	428	428
12 Tirukkoyilur anicut system	72,801	9,729	76,161	48,129	3,369	3,369	3,369
13 Shatiyatope anicut system	1,45,999	1,28,224	1,83,874	68,726	17,031	17,031	17,031
14 Cheyyar anicut system	63,245	22,129	37,520	28,758	4,735	4,735	4,735
15 Cumbum tank	7,668	6,064	9,938	4,474	461	461	461
16 Poiney anicut system	55,100	24,622	44,289	49,459	5,488	5,488	5,488
17 Periyar system	7,83,863	6,25,868	7,03,472	6,14,623	94,841	94,863	94,863
18 Kistna delta system	42,00,525	31,01,194	37,28,778	35,05,544	1,89,665	1,91,028	1,91,028
19 Nandiyar channel system	12,998	10,479	11,639	11,782	243	250	250
20 Chicacole minor rivers system	55,703	33,846	69,234	36,757	7,874	7,874	7,874
21 Lower Coleroon anicut system	4,17,820	3,00,087	3,29,533	2,94,918	51,515	51,515	51,515
22 Divi *cum* Kistna East Bank Canal	2,94,949	3,41,975	2,89,475	4,78,082	87,205	87,205	87,205
23 Willingdon reservoir	99,360	85,739	84,510	92,705	448	448	448
24 Polavaram Island system	1,00,989	83,414	87,064	86,624	..	..	..
25 Cauvery-Mettur Project	8,44,882	11,43,931	11,24,027	11,06,352	..	..	..
26 Kattalai scheme	72,976	71,476	81,820	74,990	121	121	121
(ii) *Unproductive Works.*							
1 Kurnool-Cuddapah canal	2,58,232	2,36,869	2,49,076	2,37,407	2,450	2,465	2,465
1 Chepad channel	36,696	37,139	35,138	39,101	554	554	554
2 Barur tank	17,263	16,773	19,873	17,338	782	782	782
3 Vallur anicut system	2,784	— 7,085	2,219	— 52	1,074	1,074	1,074
4 Madras water-supply and irrigation system	13,050	— 12,219	10,474	1,784	462	462	462
5 Pelandoral anicut system	50,968	14,580	42,613	43,537	86	86	86
6 Palar anicut system	1,67,005	1,30,533	1,31,703	1,44,007	16,852	16,852	16,852
7 Muniyeru anicut system	43,655	39,162	41,185	37,348	62	62	62
8 Dondapad tank	962	1,736	1,292	1,720	10	10	10
9 Yerur tank	1,751	— 1,340	1,768	— 845	86	86	86
10 Sagileru system	3,589	1,456	1,690	3,448	26	26	26
11 Atmakur tank	1,747	1,528	1,662	1,903	..	..	..
12 Jangamaheswarapuram tank	380	342	380	705	..	..	..
13 Anamasamudram-Biraperu tank	100	— 3,540	— 446	81	1	1	1
14 Hajipuram tank	2,588	3,226	2,917	3,228	70	70	70
15 Ponnalur tank	4,491	3,537	2,622	4,922	..	..	..
16 Markapur tank	4,947	5,229	5,672	6,372	1	1	1
17 Nagavalli river system	86,583	76,308	87,210	77,045	21,566	21,566	21,566
18 Venkatapuram tank	1,165	1,247	926	1,464	38	38	38
19 Bhavanashi tank	4,367	4,894	4,512	4,868	..	..	..
20 Yellanur tank	2,995	2,919	3,060	2,825	1,104	1,104	1,104
21 Panjapatti reservoir	..	..	..	..	..	..	..
22 Siddhapur tank	4,449	4,968	4,750	5,286	..	..	..
23 Nagavaram anicut and supply channel	1,755	1,250	2,097	1,981	1,017	1,017	1,017
24 Mopad reservoir	29,126	41,035	23,726	22,688	5,170	5,170	5,170
25 Kanniyampalaiyam anicut	..	..	190	..	..	..	..
26 Thippayapalem Project	..	5,446	5,415	3,499	..	..	..

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APPENDIX III.

Statement showing the extent irrigated and the revenue derived under "Minor works" for fasli 1349 (1939-40).

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)	(7)
	ACS.	ACS.	RS.	RS.	RS.	RS.
WORKS IN CHARGE OF THE REVENUE DEPARTMENT.						
Vizagapatam	62,267	5,966	2,17,401	1,48,495	59,009	89,486
East Godavari	63,909	4,973	2,52,563	1,92,034	52,428	1,39,606
West Godavari	19,644	742	67,955	56,338	28,755	27,583
Kistna	12,670	131	72,653	62,511	18,044	44,467
Guntur	21,506	1,953	1,25,542	95,202	22,248	72,954
Nellore	66,228	5,847	3,32,026	2,76,192	47,756	2,28,436
Cuddapah	67,764	14,817	3,00,384	2,53,910	55,338	1,98,572
Anantapur	96,709	24,789	4,37,486	3,79,936	1,33,830	2,46,106
Bellary	20,804	3,172	92,956	82,482	17,474	65,008
Kurnool	28,531	3,867	1,14,846	97,429	24,970	72,459
Chittoor	97,945	33,951	5,21,315	4,21,907	1,08,864	3,13,043
Chingleput	164,859	24,961	6,08,742	4,27,831	1,46,614	2,81,217
North Arcot	162,943	55,748	9,98,667	7,17,586	1,71,597	5,45,989
South Arcot	166,936	54,081	9,95,540	7,22,905	1,76,510	5,46,395
Tanjore	31,952	4,818	96,117	73,235	26,175	47,060
Trichinopoly	76,305	31,473	4,34,101	3,37,700	51,630	2,86,070
Madura	78,604	14,815	3,78,497	3,06,581	84,856	2,21,725
Ramnad	15,600	2,827	98,507	81,053	50,287	30,766
Tinnevelly	83,160	32,609	4,72,487	3,99,544	1,80,709	2,18,835
Coimbatore	22,426	7,576	1,35,985	1,15,308	13,409	1,01,899
Salem	78,173	29,454	4,69,962	3,23,319	66,399	2,56,920
Total of Minor works—Revenue Department ..	1,438,935	358,570	72,23,732	55,71,498	15,36,902	40,34,596

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