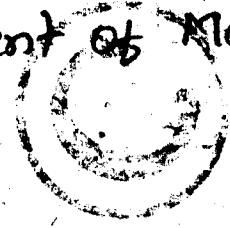


Sixty-Third

Annual Report of the
Sanitary Engineer to
Government of Madras.



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**SIXTY-THIRD
ANNUAL REPORT OF
THE SANITARY ENGINEER
TO GOVERNMENT
OF MADRAS**

**FOR THE PERIOD FROM 1ST APRIL 1952
TO 31ST MARCH 1953**

**PRINTED BY THE SUPERINTENDENT
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PUBLIC WORKS DEPARTMENT

From

SRI N. PADMANABHA AYYAR, B.A., B.E., M.I.E. (IND.), I.S.E.,
Chief Engineer, P.W.D. (General and Buildings),
Chennai, Madras.

To

THE SECRETARY TO GOVERNMENT,
Health, Education and Local Administration Department,
Fort St. George, Madras.

Dated 18th December 1953, No. 3945-P.H./53-7.

[Administration Report—Sanitary Engineering Branch—Annual Report
for the year 1952-53.]

In continuation of this office letter No. 3945-P.H./53-5, dated 27th October 1953, I forward herewith a copy of Sanitary Engineer's letter No. 17638-G/53-2, dated 31st October 1953, together with the Administration Report for the year 1952-53 with Appendices 'A' and 'B'.

2. The Sanitary Engineer's proposals for the formation of a Public Health subdivision for dealing with rural water-supply schemes in the Coimbatore and Nilgiris districts have already been recommended to Government. But Government have since raised certain points and they have been referred to the Sanitary Engineer for remarks.

3. Forty-five copies of the printed Administration Report may kindly be arranged to be supplied for use in this office and the Sanitary Engineering Branch.

ENCLOSURE.

Letter from Sri S. RAJAGOPALAN, Sanitary Engineer, to the Chief Engineer (General and Buildings), Madras, dated 31st October 1953, No. 17638 G/53-2.

[Administration Report—Sanitary Engineering Branch—Annual Report
for the financial year 1952-53.]

I forward herewith my Administration Report for the year 1952-53 with enclosures.

The report deals with the activities of the Branch in regard to the investigation, design, execution and maintenance of schemes and other matters relating to the Branch.

**SIXTY-THIRD ANNUAL REPORT OF THE SANITARY
ENGINEER, GOVERNMENT OF MADRAS, FOR THE
PERIOD FROM 1ST APRIL 1952 TO 31ST MARCH
1953.**

CHAPTER I.—THE YEAR IN RETROSPECT.

The period under review marks the third year of the effective working of the reorganized Sanitary Engineering Branch. The expenditure on the execution of schemes during the year was Rs. 81.47 lakhs as against Rs. 82.91 lakhs in 1951-52 and Rs. 66.00 lakhs in 1950-51. A large volume of work was also turned out in the design of schemes.

2. The number of schemes of water-supply under execution during the year was 50 and the number of drainage schemes 12. The preparation of plans and estimates was in progress for 39 water-supply and drainage schemes (municipal and panchayat). Investigation was in progress for 22 schemes (municipal and panchayat). The total value of cast iron pipes bought for the reserve stock during the year was Rs. 13.9 lakhs.

3. The following schemes got special attention during the year:—

(i) The Salem (Mettur) water-supply scheme costing nearly Rs. 40 lakhs was completed and brought into commission during the year. The scheme had been held up in its progress due to the war. The Chief Minister, Government of Madras, opened the scheme on 20th April 1952. In addition, proposals for laying a 16 inches main (to link up the supply to the old distribution system) were also got sanctioned and the work executed as an urgent measure by importing the pipes.

(ii) The acute water scarcity in Chittoor was relieved to a considerable extent by the department bringing a pilot supply from the existing infiltration well in the Ponnai river bed. About 15,000 feet of 12 inches diameter cast iron pumping main was laid from the source, temporary pump-sets were installed and a supply was brought close to the town.

(iii) Likewise, an advance stage of the Confluence Source Scheme for Tirupathi Municipality was taken up for execution and completed during the year and a much needed additional supply was given to the town when the old source gave a poor yield.

(iv) A scheme of water-supply from the Papavinasam source was completed for this pilgrim centre in record time, to relieve the water scarcity in the Hills. The scheme was opened by the Chief Minister, Government of Madras, on 20th October 1952.

4. During the year under report, the following changes in the administrative set-up of this Branch were effected:—

(i) As a measure of administrative convenience and economy, the North Madras and South Madras (Public Health) Divisions were amalgamated into a single division called the Central (Public Health) Division and a post of an Executive Engineer (Public Health), Designs, attached to the Sanitary Engineer's Office was created. The changes were given effect to as from 1st April 1952.

(ii) A post of a Special Supervisor was sanctioned and attached to the Vijayavada (Public Health) Division to assist in dealing with references on rural water-supply schemes received in the division. The formation of a

special subdivision for this purpose in the Coimbatore (Public Health) Division suggested by the Sanitary Engineer is engaging the attention of the Board of Revenue.

(iii) A special subdivision was created at Coimbatore in May 1952 at the cost of the Coimbatore Municipal Council to deal expeditiously with the preparation of plans and estimates for a scheme of comprehensive improvements to the water-supply to the town.

(iv) The Madurai (Public Health) Special Division which was sanctioned at the cost of the Madurai Municipality for the purpose of investigation and design of improvements to the water-supply and drainage schemes of the municipality concluded its labours and the division was wound up on 31st July 1953. One of its subdivisions, however, was retained as a regular (Public Health) subdivision and attached to the Tiruchirappalli (Public Health) Division, suitably re-allocating the work between the subdivision.

CHAPTER II.—STATISTICAL PARTICULARS.

The following statistical particulars would convey an idea of the situation in regard to municipal and urban panchayat water-supply and drainage schemes. As the 1951 census figures are not yet made available, the earlier figures only are given here:—

(i) *Population*.—The official figures of the 1951 census are not yet available. The population figures as furnished in the last year's annual report would undergo large variations when the 1951 census figures are available. The percentage of population as between the rural, urban and municipal areas would perhaps show a general movement from the rural to the urban areas during the last decade. To that extent, the provision of water-supply and drainage amenities to the urban areas would assume somewhat greater importance and urgency in the coming years.

(ii) *Number of district municipalities*.—The number of district municipalities continued to be 98 as in the last year as no more panchayats were constituted into municipalities during the year.

(iii) *Water-supply schemes*.—(a) *Municipal*.—Out of the 98 municipal towns, 45 towns are yet to be provided with protected water-supply.

Out of 53 towns where water-supply schemes are in operation, improvements and expansions to the schemes are necessary in most cases to make them serve the present requirements of the municipal towns concerned.

Out of 53 water-supply schemes in operation, nine are gravitational, 39 involve pumping while the remaining five are combined schemes, gravitational and pumping.

Again 30 of the 53 schemes depend on ground water sources, 9 on upland impounded water, and 14 on surface waters of rivers and canals.

(b) *Panchayats*.—The following twelve panchayats have protected water-supply schemes in operation. Most of them are only partial schemes and are in need of expansion and improvements:—

Batlagundu.	Tiruttani.
Dharmavaram.	Yemmiganur.
Manapparai.	Arantangi.
Ramachandrapuram.	Chodavaram.
Rameswaram.	Arkonam.
Kosgi.	Tirumalai (Tirupati)

The scheme for Tirumalai (Tirupati) was completed during the year.

(iv) *Drainage Schemes*.—(a) *Municipal*.—Thirteen municipal towns continue to have drainage schemes of a sort most of them being of the open drains type and serving part of the towns only.

(b) *Panchayat*.—There is no panchayat having a drainage scheme in operation.

CHAPTER III.—PROGRESS IN THE YEAR ON EXECUTION OF SCHEMES.

1. As many as 39 municipal water-supply schemes (including improvements to existing schemes) and eleven panchayat water-supply schemes (including one composite rural water-supply scheme), were under execution during the year. The estimated cost of all the works was Rs. 426.99 lakhs, and the outlay of expenditure during the year was about Rs. 77.98 lakhs.

2. As for drainage, twelve municipal and panchayat drainage schemes were under execution during the year. Their total estimated cost was Rs. 51.19 lakhs; and the expenditure during the year was Rs. 3.49 lakhs.

3. Only seven of these schemes (water-supply and drainage) were under execution by the local bodies concerned under the supervision of the Public Health Engineering Department, the expenditure on such schemes during the year being Rs. 0.52 lakh. The remaining were being executed by the Department itself.

4. The total expenditure on schemes (including improvement schemes) during the year under report was Rs. 81.47 lakhs as against Rs. 82.91 lakhs in the previous year and Rs. 64.44 lakhs during the year 1950-51.

NOTES ON SCHEMES UNDER EXECUTION DURING THE YEAR 1952-53.

The following notes will indicate the progress made on the execution of the different schemes during the year as well as their stages at the end of the year:—

WATER-SUPPLY SCHEMES.

1. *Arantangi Water-supply Scheme*.—*Estimate, Rs. 2,46,000.*—Entire work has been completed.

2. *Bellary Water-supply Scheme*.—*Rs. 1,03,000.*—The works relating to the Booster Pumping Station and the masonry sump are nearing completion; but, the pumping plants and necessary pipe connections are to be erected shortly.

3. *Chodavaram Water-supply Scheme*.—*Rs. 1,97,700.*—The original scheme as sanctioned has been completed and brought into operation. Subsequently, works relating to further extensions to the distribution system at a cost of Rs. 30,000 were also sanctioned and the work is in progress.

4. *Chittoor Water-supply Scheme*.—*Rs. 14.25 lakhs.*—The entire work on the 12 inches pumping main for a length of 25,600 feet up to the site of the Service Reservoir was completed except for small gaps in the river crossing.

5. *Cochin Water-supply Scheme*—Rs. 3,71,700.—The work was completed and handed over to the municipality.

6. *Coimbatore Water-supply Scheme—Partial duplication of gravitation main*—Rs. 42.69 lakhs.—Duplication of about 15½ miles of the gravitation main was completed. Construction of low level reservoir was completed. Work relating to the feeder mains from Service Reservoir to the existing distribution system is in progress.

7. *Coimbatore Water-supply Scheme—Full duplication of gravitation main*—Rs. 13.42 lakhs.—Plans and estimates were technically sanctioned. Most of the pipes required for the work have already been received; and the actual laying and jointing of the pipes is to be taken up shortly for execution.

8. *Erode Water-supply Improvements*—Rs. 1,60,000.—The work was completed and handed over to the municipality.

9. *Guntakal Water-supply Scheme—I Stage*.—All the works relating to the first stage in the provision of the storage tank and other allied works were completed.

10. *Guntur Water-supply Scheme*—Rs. 77.67 lakhs.—The work relating to the summer storage tank, laying of 27 inches pumping main from the headworks to Guntur town and the three service reservoirs in the high level area have been completed. The work on the low level reservoirs is nearing completion. Erection of booster pumps and providing distribution system in the high level area have also been completed. Works relating to pipe connections for public fountains are in progress. Tenders for the supply of raw water pumpsets for pumping water from the canal to summer storage tank have also been accepted. Further works relating to the filtration plants, clear water reservoir and high and low lift pump house are to be taken up shortly for execution.

11. *Hindupur Water-supply Scheme—I Stage*—Rs. 24,000.—The construction of the two infiltration wells comprising the first stage was completed.

12. *Kakinada Water-supply Scheme—Part I*—Rs. 21,95,000.—The cast iron pipes and specials required for the gravitation main are being received. Land required for the summer storage tank for Kakinada-cum-Peddapuram tank has been acquired. The S.S. tank work will be taken up shortly for execution.

13. *Kakinada Water-supply Scheme—Part II*—Rs. 2,89,000.—The work has been completed and handed over to the municipality. Minor items of work only remain to be done.

14. *Kakinada Water-supply Scheme—Part III*—Rs. 14.04 lakhs.—The work on the distribution system has been taken up and is in progress.

15. *Karaiikudi Water-supply Scheme—Estimate*, Rs. 58,850.—Work completed. A revised estimate for the work is awaited.

16. *Karamadai Water-supply Scheme*—Rs. 50,000.—All the works were nearly completed except the provision of electrical connections to the pump house and re-erection of the existing pump-set.

17. *Composite Water-supply Scheme for Kayalpatnam, etc., villages, Tiruvelveli district—Estimate*, Rs. 37.5 lakhs—*I Stage Head Works*.—The work on the summer storage tank is in good progress and about 75 per cent of the work is completed. Work on the filter beds and the clear water reservoir is also in progress. The work on the off-take arrangements has been completed.

II Stage Pumping Main.—Work on this item is completed except for a few test gages and laying of 12 inches main for a short length.

18. *Kodaikanal Water-supply Scheme (extension to Observatory area)—Revised Estimate*—Rs. 45,780.—All works completed except for minor works relating to the fixing of compound gages to the suction side of the pump-set at the head works.

19. *Kozhikode Water-supply Scheme*—Rs. 17,50,300.—The main scheme was completed, but it could not be put into beneficial use immediately, in view of the need for pre-treatment for removing the excessive iron contents in the water from the infiltration wells.

20. *Kozhikode Water-supply Scheme—Treatment Works—I Stage*.—Plans and estimates for the work were sanctioned for Rs. 4.59 lakhs, and the work is in good progress.

21. *Kumbakonam Water-supply Scheme—II Stage—II Revised Estimate*—Rs. 16,81,000.—The construction of two R.C.C. reservoirs and laying of C.I. pipes in the distribution system were completed. All works, except (1) the removal of 6,000 feet of old pipes and relaying them, (2) supply and fixing of one 18 inches S.V. in suction well, (3) provision of a chlorination plant and (4) construction of Water Works Superintendent's quarters have been completed. The completed works have also been handed over to the municipality.

22. *Kurnool Water-supply Scheme Improvements*—Rs. 1,04,000.—All the works relating to the additional filter beds were completed and also handed over to the municipality.

23. *Manapparai Water-supply Scheme—Estimate*, Rs. 31,000.—Investigation for a fresh water source has not been a success. The question relating to the improvements to the quality of water from the existing source by suitable treatment is placed before Water and Sewage Purification Committee for consideration and informal discussion.

24. *Mangalore Water-supply Scheme (Netravathi source)*.—Administrative approval to the scheme estimate is awaited.

25. *Mettupalayam Water-supply Scheme*—Rs. 43,460.—The work was completed except fixing of scour valves, for which C.I. specials are awaited.

26. *Nandyal Water-supply Scheme*—Rs. 3,96,000.—C.I. pipes and specials for the pumping main as also sluice and air valves were being received. Necessary action for the acquisition of land for the headworks site was also taken.

27. *Palayamkottai Water-supply Scheme—Estimate*, Rs. 28,18,000—*Head works*.—The gallery, syphon pipe, suction well, M.H. well, etc., have all been completed. The R.C.C. service reservoir excepting pipe connections has also been constructed. The work on the laying of C.I. pipes and specials for the 16 inches pumping main, 9 inches feeder main and distribution systems is in good progress. The work on the pumping station including the supply and erection of pumping plants remains to be taken up.

28. *Peddapuram Water-supply Scheme*—Rs. 16.80 lakhs.—The land required for the provision of the summer storage tank scheme has been acquired along with the Kakinada Part I Scheme but the scheme has not yet been sanctioned by Government.

29. *Pollachi Water-supply Scheme*—Rs. 6,41,000.—All works completed and handed over to the municipality.

30. *Rajahmundry Water-supply Improvements*—Rs. 1,60,000.—The work has been completed except for certain works regarding the provision of a R.C.C. trough enclosing the new filter units.

31. *Salem Water-supply Scheme—Estimate, Rs. 4.0 lakhs.*—Linking up the Salem (Mettur) Water-supply Scheme, with the existing Panamarathupatti distribution system by a 16 inches C.I. main is completed.

32. *Salem (Mettur) Water-supply Scheme—Rs. 36.67 lakhs.*—Most of the works are completed. Erection of auxiliary pump-set, approach road to booster station, and Watchman's quarters at Annampet, remain to be executed. The scheme was also opened by the Chief Minister on 20th April 1952.

33. *Salur Water-supply Scheme, Part I—Rs. 14,900.*—The scheme is being revised with reference to supplemental field investigations conducted before the actual execution of the work; and the work will be taken up shortly for execution.

34. *Sivaganga Water-supply Scheme—Estimate, Rs. 1,38,370.*—Improvements to the Chettiurani completed except for providing rivetment to the inner slope of the bund. Alternative proposals in regard to the infiltration gallery reservoirs and other appurtenant works are under consideration.

35. *Srivilliputhur Water-supply Scheme—Estimate, Rs. 15,70,000.*—The provision of the infiltration gallery and the manhole well at the headworks has been completed. The work on the laying of the 16 inches gravity main and the distribution system is in good progress. The masonry S.R. is nearing completion.

36. *Tiruchirappalli Water-supply—I instalment of I Year Programme—Revised Estimate, Rs. 21,376.*—All works completed excepting cover slab for well No. 6.

37. *Tiruchirappalli Water-supply—II instalment of I Year Programme—Revised Estimate, Rs. 2,61,448.*—Laying and jointing of the 24 inches C.I. pumping main for a short length of 100 feet and that of 18 inches C.I. main for 468 feet, and the scouring arrangement at the point of bifurcation, remain to be done. Other works have been completed.

38. *Tiruchirappalli Water-supply Scheme Improvements—IV instalment of I Year Programme—Revised estimate, Rs. 97,107.*—All works completed except the removal of old pipes for a length of about 2,000 feet.

39. *I instalment of II Year Programme—Estimate, Rs. 1,98,200.*—Work is completed in all respects.

40. *Tiruchirappalli Water-supply Improvements—II instalment of II Year Programme—Estimate, Rs. 11,34,500.*—The C.I. pipes and specials valves, etc., required for the work have mostly been received. The works relating to the laying and jointing of C.I. pipes and specials in the distribution system in zones I to IV of the Rock Fort area will be taken up for execution shortly.

41. *Rectification of defects—Estimate, Rs. 1,90,600.*—The work has been completed in all respects.

42. *Tirumalai Water-supply Scheme—Rs. 7,10,000.*—The scheme has been brought into operation and it was also opened by the Chief Minister on 20th October 1952.

43. *Tiruppur Water-supply Scheme—Rs. 49,000.*—Work was completed and handed over to the municipality.

44. *Tirupati Water-supply Improvements—Rs. 19,000 (Emergency Scheme).*—All the items relating to the emergency works were completed and handed over to the Municipality.

45. *Tuticorin Water-supply Scheme (improvements to source)—Estimate Rs. 9,000.*—The yield tests on the infiltration well at Valanad have been conducted and the results are found to be satisfactory. The design work relating to the improvements scheme will be taken up after the new subdivision sanctioned by Government for the investigation works relating to improvements to Tuticorin Water-supply Scheme is formed at Tuticorin.

46. *Valparai Water-supply Scheme—Rs. 62,000.*—Work completed and handed over to the Panchayat for maintenance.

47. *Vijayavada Water-supply Improvements (1951)—Rs. 99,500.*—All works except providing a submersible pumpset and laying and jointing 9" main from Tube Well No. 1 to the 16" main have been completed.

48. *Vijayavada Water-supply Improvements (1952)—Rs. 89,750.*—The 6" deep well pumpset received from R.P.S. surplus stores was erected and the 16" main to pump-house was also laid. Construction of a pump-house chamber is nearing completion. Orders for the supply and erection of a turbine pumpset over circular well No. 2 have been accepted; and the work will be completed shortly.

49. *Visakhapatnam Water-supply Improvements—Rs. 3,38,000.*—Electrification of Gosthani Headworks pumping station is in progress. The pumpsets and other accessories have been delivered at site; and the erection of the pumping machinery is to be put on hand shortly.

50. *Vayalpad Water-supply Scheme—Rs. 1,67,500.*—All works relating to the pumping main were completed. Cast iron pipes and specials are being received for the distribution system.

Drainage Schemes.

1. *Ambur Drainage Scheme—Rs. 14,240.*—Six hundred and sixty-five feet of 9" open masonry drain was completed and 18" drain for a length of 150 feet was also partially completed.

2. *Coimbatore Drainage Scheme—Rs. 25.00 lakhs.*—Most of the works relating to laying of sewers, sewage farm and pretreatment works, were completed. The pumpsets for digested sludge and supernatant liquor have to be erected after they are received. The electrification of the works is to be taken up shortly for execution.

3. *Madurai Drainage Scheme—Estimate Rs. 42,000—Extension of storm-water drain.*—The work is nearing completion. The overflow main from the sewage pumping station No. 3 is yet to be connected on to the storm-water drain.

4. *Nagapattinam Drainage Scheme—Revised Estimate, Rs. 7,04,100.*—Work completed except for laying of the 14" cast iron pumping main across river Kaduvayar.

5. *Paramakudi Drainage Scheme—Revised Estimate, Rs. 29,200.*—Main work completed. Regarding the existing drains in the new streets 1, 3, 4 and construction of leaching cess pools at the end of the drains in the new streets 6 and 7 remain to be done.

6. *Srirangam Drainage Scheme—I Stage—Estimate, Rs. 4,11,300.*—Work was completed.

7. *Srirangam Drainage—II Stage—Revised Estimate, Rs. 4,77,000.*—The work on the construction of open drains and laying of 7" C.I. pumping main has been completed. Laying of intercepting sewer is in good progress. The pump well and the suction well as also the work on the sewage farm remain to be completed.

8. *Tiruchirappalli Partial Drainage Scheme—Estimate, Rs. 2,94,000.*—The laying of 18" and 12" intercepting sewers is completed except for the last reach near the pump-house. The 18" open drain in Madurai road has also been completed. The work on the (1) construction of storm water separators and drain junctions and (2) construction of the pumping station and installation of pumping plant remains to be taken up.

9. *Tirupati Drainage Scheme—VI instalment Rs. 1,35,000.*—The work was completed in all respects and handed over to the Municipality in March 1953.

10. *Tiruppattur Drainage Scheme Improvements—Rs. 72,000.*—Tenders for the supply of S.W. pipes and specials for the intercepting sewer have already been decided; but the execution of the work is held up temporarily due to faction among the members of the Municipal Council.

11. *Virudunagar (Restricted) Drainage Scheme—Revised Estimate, Rs. 75,000.*—The work is almost completed except for regarding the 24" open drain and the installation of the pumping plants.

12. *Visakhapatnam Partial Drainage Scheme—Rs. 3,66,500.*—Laying and jointing of main sewers along the Raja Ram Mohan Roy Road as well as other works are in progress.

CHAPTER IV.—PROGRESS IN THE YEAR ON THE DESIGN OF SCHEMES.

(i) Detailed plans and estimates for the following schemes were prepared and submitted to the higher authorities during the year under review (1952-53):—

(1) Coimbatore Water-supply Scheme (Improvements)—Second stage—Duplication of gravitation main (full) from settling tank end to L.S. 29,404'.

(2) Composite Water-supply Scheme for Kayalpatnam and ten other villages in Tirunelveli district.—

(a) Third stage—Reservoirs (excluding Tiruchendur) (Revised in the light of Chief Engineer's remarks).

(b) Fourth stage—Distribution system and service reservoir for Tiruchendur.

(3) Cuddalore Water-supply Improvement Scheme—First stage.

(4) Chittoor Water-supply Scheme—Third stage.

(5) Guntakkal Water-supply Scheme—Second stage (Part A).

(6) Hindupur Water-supply Scheme—Second stage (revised in the light of Chief Engineer's remarks).

(7) Kozhikode Water-supply Improvements—Treatment works—First stage.

(8) Mangalore Water-supply Scheme (Netravathi source)—First stage (pumping main).

(9) Mayuram Water-supply—First stage (experimental well).

(10) Narasaraopet Water-supply (Emergency) Scheme (outline proposals)

(11) Peddapuram Water-supply Scheme.

(12) Salem (Mettur) Water-supply Scheme—Water-supply to enroute villages (preliminary estimates only).

(13) Srikakulam Water-supply Scheme—First stage.

(14) Tiruchirappalli Water-supply Improvements Second instalment of second year programme—Revised proposals—(a) Pumping station, (b) Layout plan for two electrician quarters.

(15) Tirunelveli Water-supply Scheme—First stage—Infiltration works.

(16) Tiruvettipuram Water-supply Scheme.

(17) Chittoor Drainage Scheme.

(18) Madurai Drainage Scheme (electrification of main pumping station).

(19) Madanapalle drainage scheme (outline proposals).

(20) Tiruchirappalli Drainage Scheme (partial) revised layout for pump-house.

(21) Eluru Drainage Scheme (details for southern area and outlines for northern area).

The total cost of the Schemes referred to above based on the estimates submitted for approval amounted to Rs. 241 lakhs nearly.

(ii) Detailed plans and estimates for the following schemes were under preparation during the year:—

(1) Mannargudi Water-supply (Pilot) Scheme.

(2) Nandyal Water-supply Scheme—Second stage.

(3) Combined Water-supply Scheme for Tenkasi and other villages.

(4) Madurai Water-supply Improvement—Augmenting the source of supply (Finalization).

(5) Pattukkottai Water-supply Scheme.

(6) Pattikonda Water-supply Scheme.

(7) Melapalayam Water-supply Scheme (service reservoir and distribution system).

(8) Guntakkal Water-supply Scheme—Second stage (Part A) (Finalisation).

(9) Dindigul Water-supply Scheme.

(10) (a) Madurai drainage scheme—Block No. 8.

(b) Do. do. No. 1-A.

(c) Do. do. No. 7—Revised design for

pump-house.

(11) Tuticorin Drainage Scheme (outline proposals).

(12) Rajahmundry Drainage Scheme (outline proposals).

(13) Tenali Drainage Scheme.

(14) Narasaraopet Water-supply (emergency scheme).

(15) Kozhikode Water-supply Scheme—Extension to distribution system.

(16) Manapparai Drainage Scheme (outline proposals).

(17) Vizianagaram Water-supply Improvements—Replacement of pumping main.

(18) Tindivanam Water-supply Scheme—First stage.

CHAPTER V.—SCHEMES UNDER INVESTIGATION DURING THE YEAR.

I. The field work relating to the following investigations were completed during the year :—

- (1) Palghat Water-supply Scheme (Malabar district).
- (2) Satyamangalam Water-supply Scheme.
- (3) Manachanallur Water-supply Scheme (Rural Water-supply).
- (4) Mayuram Water-supply Scheme.
- (5) Penukonda Water-supply Scheme (Rural Water-supply).
- (6) Sreesailam Water-supply Scheme (Rural Water-supply).
- (7) Madurai Water-supply Improvements Scheme.
- (8) Madurai Drainage Improvements Scheme.
- (9) Narasaraopet Water-supply (Emergency) Scheme.
- (10) Eluru Drainage Scheme (Supplemental).
- (11) Tirumangalam Panchayat Drainage Scheme.
- (12) Jagayyapet Water-supply Scheme.
- (13) Tenali Drainage Scheme.
- (14) Kavali Water-supply Scheme.
- (15) Palar River investigation for augmenting Madras City Water-supply.
- (16) Pithapuram Water-supply Scheme.
- (17) Manapparai Water-supply Improvements.

II. The following investigations were in progress during the year :—

- (1) Ye and Water supply Scheme.
- (2) Velur and Vengarai Water-supply Scheme (Rural Water-supply).
- (3) Tiruppur Comprehensive Water-supply Scheme.
- (4) Kozhikode Drainage Scheme (Supplemental).
- (5) Gobichettipalayam Water-supply Scheme.
- (6) Komarapalayam and Bhavani Water-supply Scheme.
- (7) Kaveripatnam Water-supply Scheme.
- (8) Siruguppa Water-supply Scheme (Rural Water-supply).
- (9) Kancheepuram Water-supply (Improvements) Scheme.
- (10) Gudur Water-supply (Improvements) Scheme.
- (11) Arcot Water-supply Scheme (Supplemental).
- (12) Rajampet Water-supply Scheme.
- (13) Mangalore Water-supply Schemes (Netravathi source) Head Works and Distribution System.
- (14) Tiruchirappalli Water-supply Improvements Scheme (Improvements to source).
- (15) Masulipatnam Drainage Scheme.
- (16) Vijayavada Water-supply Improvements Scheme.
- (17) Vijayavada Drainage Improvements Scheme.
- (18) Mangalore Drainage Scheme (Supplemental).
- (19) Cuddapah Water-supply Investigation.
- (20) Coimbatore Water-supply Improvements—Re-designing of the distribution system.

CHAPTER VI.

I. Technical sanction accorded for miscellaneous works.—During this year, a number of estimates for investigation in progress were technically sanctioned. In addition, a number of municipal improvement works,

for which plans and estimates were received from the local bodies concerned were also sanctioned for execution. The total value of the estimates so far sanctioned was nearly Rs. 9.7 lakhs.

The following is the list of the estimates dealt with :—

List of estimates for which technical sanction was accorded by the Sanitary Engineer during the year 1952-53.

Serial number and name of work.	Amount of estimate sanctioned. RS.
1 Kodaikanal Municipality—Water-supply improvement—First stage ..	16,000
2 Kozhikode Municipality—Drainage scheme—Supplemental investigation.	2,250
3 Water-supply to New Arts College, Rajahmundry, and residential quarters in the area.	12,970
4 Water-supply—Salem Municipality—Overhauling of filter beds Nos. I and III.	10,900
5 Coimbatore water-supply—Siruvani Headworks—Installation of a chloronome plant at Adivaram settling tanks.	10,200
6 Installation of a Micromes Filter unit—For Madras Corporation Water-supply, Madras.	14,550
7 Mangalore Water-supply Scheme—Investigation—Estimate	3,000
8 Coimbatore Municipality—Water-supply—Redesigning of the distribution system and laying additional mains in the unserved areas—Investigation regarding.	2,200
9 Water-supply—Kurnool Municipal Council—Erection of a new pumping set.	8,300
10 Tirupattur drainage—Improvements to Vellaivaikal Drainage Scheme ..	72,000
11 Drainage scheme—Tirumangalam Panchayat, Madurai district—Investigation of.	2,600
12 Kancheepuram Municipality—Water-supply improvements—Pilot scheme with Palar as the source—Investigation of.	4,700
13 Drainage—Construction of a covered storm water drain with sullage section from culvert in Pillaivari street to drain junction—Rajahmundry Municipality.	10,750
14 Drainage scheme—Chittoor Municipality—Remaining portion of the first instalment revised estimate.	99,500
15 Virudhunagar restricted drainage scheme	5,000
16 Gobichettipalayam Municipality Water-supply Scheme—Supplemental investigation.	2,700
17 Water-supply—Tiruvallur Municipality—Provision of additional single taps and double taps.	17,700
18 Gudivada Municipality—Investigation and preparation of plans and estimates for a restricted drainage scheme.	3,000
19 Drainage—Virudhunagar Municipality—Extension of the 10 inches pumping main laid under the restricted drainage scheme up to the sewage farm.	95,000
20 Water-supply—Vijayavada Municipality—Laying of 4 inches pipe line and fixing eight public fountains on Ellore road.	13,400
21 Water-supply—Gudur Municipality—Electrification of water works ..	25,000
22 Masulipatnam Drainage Scheme—Investigation	5,400
23 Water-supply—Gudur Water-supply Scheme—Comprehensive Improvements.	3,300
24 Water-supply—Uravakonda Water-supply improvements—Excess over estimates—Regularization of.	5,490
25 Water-supply—Guntur Pilot Scheme—Construction of Katcha slow sand filters.	35,060
26 Water-supply—Rural water-supply—Kaveripatnam Panchayat Board—Salem district—Investigation.	1,830
27 Water-supply—Bellary Municipality—Replacing the existing steel pumping main over Hagari bridge—Revised estimates.	51,000

Serial number and name of work.	Amount of estimate sanctioned.
	Rs.
28 Water-supply—Vizianagaram Municipality—Electrification of headworks—Nollimarla.	92,000
29 Water-supply—Chittoor district—Vayalpad Panchayat Board—Water-supply scheme—Second revised estimate.	1,67,500
30 Rural water-supply—Comprehensive scheme—North Arcot district—Polur taluk—Chetpet village—Water-supply scheme—Reservoir and taps.	41,000
31 Dharapuram Water-supply Scheme—Investigation	2,000
32 Water-supply and drainage—Rajampet Panchayat—Investigation of water-supply scheme.	3,000
33 Water-supply—Nellore Water-supply Scheme—Distribution mains—Extension of supply to eastern areas.	60,000
Total ..	9,69,300

II. Preparation of type-designs, etc.—The following designs were prepared during the year under review :—

(1) San. No. 49/1952—Plan of type-design for sunk well of diameter less than 6" (details as per a 4' 0" diameter well).

(2) San. No. 11/1953—Type-design for infiltration works on tank beds (to be adopted in places where the sub-soil water is likely to be saline).

(3) San. No. 15/1953—Improvements to the septic tank latrine in Kalamman Koil street, Virudhunagar.

(4) San. No. 17/1953—Kodaikanal Boat Club—Lavatory and disposal arrangements.

III. Technical sanction for improvement works accorded by the Executive Engineers in the four Public Health divisions—

Serial number and name of (Public Health) division.	Number of estimates.	Total amount of estimates.
		Rs.
1 Central Division	8	47,225
2 Vijayavada Division	8	76,320
3 Tiruchirappalli Division	7	20,820
4 Coimbatore Division	8	42,825
Total ..		1,87,190

CHAPTER VII.—CORPORATION OF MADRAS—GRANT-IN-AID WORKS—WATER-SUPPLY AND DRAINAGE.

During the year under review, the Sanitary Engineer continued to be the Inspecting Officer for water-supply and drainage grant-in-aid works of the Corporation in accordance with the terms in G.O. No. 2164, P.H., dated 23rd May 1941, and revised in G.O. No. 3386, P.H., dated 5th December 1944. In addition to the inspection and check measurement of the Corporation grant-in-aid works, the functions of the Sanitary Engineer included also examination of (a) schemes sent for Government sanction, (b) annual budget provisions in regard to grants and loans, (c) administration report, (d) tenders for grant-in-aid works estimated to cost Rs. 25,000 and above, (e) references on audit, account matters, schedule of rates indents,

for pipes, etc., and (f) scrutiny of grant statements for water-supply and drainage grant-in-aid works.

2. Plans and estimates for the following schemes were dealt with during the year under review :—

(i) Revised estimate for Rs. 8.133 lakhs for laying the 48 inches duplicate pumping main from K.P. Station to shaft ;

(ii) Revised estimate for Rs. 6.30 lakhs for emergency water-supply measures—Scheme I originally sanctioned for Rs. 4.5 lakhs ;

(iii) Comprehensive proposals for water-supply for the Gandhinagar layout with an independent source at Urur ;

(iv) Revised estimate for Rs. 54.46 lakhs for the construction of the second masonry conduit from Red Hills to Kilpauk ;

(v) Proposals for the improvement of slums in the Madras City—First stage, third batch (Rs. 6.03 lakhs) and the second stage (Rs. 9.35 lakhs) ;

(vi) Completion report for the Thyagarayanagar Drainage Scheme and

(vii) Investigation of new sources for augmenting the City water-supply from Palar river in the reach Villagam village about $4\frac{1}{4}$ miles below the railway bridge and $9\frac{1}{2}$ miles below the Palar causeway in the Great Southern Trunk Road.

3. Tenders received for the following works were scrutinized by the Sanitary Engineer during the year :—

(i) Supply and delivery of 4 inches and 6 inches C.I. pipes required for the various City distribution schemes.

(ii) Supply and delivery of C.I. specials and sluice valves required for the various City distribution schemes.

(iii) Supply, delivery and erection of the sewage pumping machinery for the Vyasarpadi Pumping Station.

(iv) Construction of wells along the conduit, supply and delivery of oil engine driven and electrical centrifugal pump sets in connexion with the emergency water-supply schemes for Madras City.

4. The following works in progress during the year were inspected by the Inspecting Officer and passed for grant :—

(i) Laying 48 inches duplicate pumping main from Kilpauk Pumping Station to shaft—Estimate Rs. 8.133 lakhs.

(ii) Laying separate trunk main No. 8 for South Madras—Stages I and II—Estimate Rs. 35.46 lakhs.

(iii) City water-supply distribution improvements—Estimate Rs. 15.29 lakhs.

(iv) Further improvements to the City Distribution System—Estimate Rs. 4.76 lakhs.

(v) Extension of water-supply to Aminjikarai and Alagappanagar area—Rs. 2.77 lakhs.

(vi) Water-supply to Gandhinagar area—Distribution system, independent source at Urur, 8 inches C.I. pumping main and construction of R.C. overhead tank at Gandhinagar of 60,000 gallons capacity.

(vii) Water-supply emergency measures comprising estimates for Rs. 4.5, Rs. 1.11, Rs. 3.00 and Rs. 4.00 lakhs schemes.

(viii) Vyasarpady sewerage scheme.

(ix) Extension of sewers along Chamier's road from junction of Mount Road and Venkatnarayana Road.

5. *Grants.*—The expenditure incurred during the year under water-supply and drainage grant-in-aid works, capital in nature, was about Rs. 14.29 lakhs, as against the expenditure of Rs. 15.42 lakhs of the previous year. The grants sanctioned during the year for capital works was Rs. 7.20 lakhs.

As regards the water-supply emergency measures the expenditure incurred is about Rs. 14.20 lakhs and the total grants sanctioned during the year amounted to Rs. 2.07 lakhs.

Thus the total value of works carried out during the year was Rs. 28.49 lakhs the total grant sanctioned therefor being Rs. 9.27 lakhs.

6. The Sanitary Engineer was assisted by an Assistant Engineer (Public Health) in discharging his duties as an Inspecting Officer of the Corporation grant-in-aid works, as sanctioned in G.O. No. 1536, dated 29th April 1951. The Kilpauk Experimental Filter Station continued to be under the control of the Sanitary Engineer, the Assistant Engineer (Corporation Works) being in charge of the same, and being assisted by a Technical Assistant.

CHAPTER VIII.—RESERVE STOCK OF C.I. PIPES AND SPECIALS.

During the year under report, C.I. pipes and specials to the value of Rs. 13.9 lakhs were purchased against the previous indents but no fresh orders were placed. From the reserve stocks materials to the value of Rs. 6.4 lakhs were issued to schemes under execution in the several divisions.

The cumulative stock balance on hand had risen to nearly Rs. 20 lakhs. Government were addressed for enhancing the reserve stock limit to Rs. 20 lakhs temporarily for the current year, against the original limit of Rs. 10 lakhs sanctioned in G.O. Ms. No. 2476, P.H., dated 12th July 1949. This was approved in G.O. Ms. No. 828, Health, dated 10th March 1953.

CHAPTER IX.—RURAL WATER-SUPPLY SCHEMES.

1. The activities of this department on rural water-supply schemes continued to be on the increase during the year, as reflected by the number of estimates received by the Sanitary Engineer and the Executive Engineers (Public Health) from the Revenue Board and the District Collectors respectively for technical scrutiny. The Coimbatore (Public Health) Division had to deal with a large number of estimates for rural water-supply works in the Nilgiris district.

2. In order to speed up the investigation and execution of rural water-supply schemes in the Nilgiris district which are beyond the competence of the minor irrigation staff, a suggestion was made to the Revenue Board for the formation of a special Public Health Subdivision in the Coimbatore Public Health Division to deal with the detailed investigation, design and execution of all the rural water-supply works. The proposal was under the consideration of the Revenue Board.

3. It was generally noticed that even in the cases where estimates, framed by the Minor Irrigation staff are based on approved type designs the main features in the type-designs relating to the sanitary aspects of the design are more often ignored, and necessitated further correspondence and delays before the schemes could be approved.

CHAPTER X.—MAINTENANCE OF SCHEMES.

1. The year 1952-53 proved to be as severe as the previous years in regard to drought conditions affecting the yield from many of the water-supply schemes in operation, involving the tapping of sub-surface flows. The summer months of the year under review were particularly very hot and the department was called upon to tender advice quite frequently and to suggest emergency measures to tide over the critical situation.

2. In the Conjeevaram Municipal Water-supply Source, the water-supply position created anxiety even after the works relating to the lowering of the gallery were completed during the year. The abnormally low water table in the Vegavathi river-bed was a severe handicap against tapping the required supply from this source.

3. The water-supply position in the head water-works of Dindigul gave more anxiety during this year than in the previous years, on account of the total failure of the seasonal rains. The municipality had to pursue emergency measures by providing deep bore wells in the town to supplement the reduced yield from the head works. The department had also to investigate alternative sources in the lower reaches of the Kodavanar river in order to find a temporary solution to the problem of water scarcity. As a result the municipality has since been able to tap additional supplies from wells sunk in the river-bed and convey the supply to the town in water lorries. The question of laying a temporary pumping main for the purpose was also under consideration.

4. The Guntur Water-supply Scheme from the Yengalapalem source is another instance where even the limited scheme already functioning almost failed to give any supply during this year. The municipality and the Government were greatly exercised over the threat of water famine to the town and as an emergency measure the department initiated a pilot scheme of water-supply with a daily supply of 5 lakhs of gallons, making use of the completed portions of the comprehensive scheme under execution, viz., storage tank, pumping main, high level service reservoirs and the distribution system for the high level zones.

5. Similarly in the case of Kozhikode where the scheme already completed could not be put into beneficial use (due to the need for providing further treatment works for iron removal), an emergency arrangement was made temporarily for giving a limited supply through public taps, after necessary full scale treatment at the Service Reservoir itself.

6. The water-supply position in the head water-works of Tiruppur, Virudhunagar, Ootacamund and even Coimbatore (during the summer months) gave considerable anxiety during this year.

7. Consequent on the bringing into force of the amended Panchayats Act, this department had to deal with a number of estimates for panchayat water-supply works submitted for the administrative sanction of Government, and the number of such estimates was as many as 210.

CHAPTER XI.—MUNICIPAL ENGINEERING SERVICE.

During the year the creation of a post of Municipal Engineer in the III Grade was sanctioned in the following fifteen municipalities:—

- | | |
|------------------|--------------------|
| 1 Bodinayakanur. | 9 Srikakulam. |
| 2 Chingleput. | 10 Srirangam. |
| 3 Gudiyattam. | 11 Srivilliputhur. |
| 4 Guntakkal. | 12 Tirupati. |
| 5 Hindupur. | 13 Tiruvallur. |
| 6 Periyakulam. | 14 Hospet. |
| 7 Proddatur. | 15 Tiruvannamalai. |
| 8 Rajapalayam. | |

Municipal Engineers have been posted to a few of the above stations. Municipal Engineers for the remaining stations will be posted after recruitment to the service to fill the existing vacancies is made.

Members of the old Municipal Engineering Service (a non-Government service) have been absorbed in the new provincialized services in the appropriate grades and pay with effect from 1st January 1952.

In the past Municipal Engineers of a particular grade were being posted to a municipality of a higher or lower grade according to the exigencies of service. It has since been decided that as far as possible, Municipal Engineers of one grade should be posted to municipalities of the same grade so as to be in keeping with the procedure adopted in the case of members of other services.

CHAPTER XII.—GENERAL.

The Sanitary Engineer continued to be a member of the Board of Public Health as well as of the Water and Sewage Purification Committee. He was also a member of the Technological Diploma Examination Board constituted by the State Government.

He continued to function as the Inspecting Officer for the grant-in-aid works (other than road and electrical) of the Corporation of Madras.

He also served as a member of the Hotel Sanitation Committee constituted in G.O. Ms. No. 3476, Health, dated 5th October 1950.

The Sanitary Engineer continued to exercise control over the maintenance of the Experimental Filter Station at Kilpauk assisted by the Assistant Engineer (Public Health) posted for this purpose.

The post of Instructor in Elementary Sanitary Engineering at Madras Medical College, continued to be under the control of the Sanitary Engineer.

DIRECTION PERSONNEL.

Sri S. Rajagopalan, B.E., M.I.E., held the post of Sanitary Engineer during the year.

Sri A. Venkataramanan, B.A., B.E., M.I.E. (Ind.), held the post of Executive Engineer, Public Health (Designs). He was solely attending to the design work and technical references coming up to the Sanitary Engineer.

Sri S. T. L. K. V. N. S. Ramanujachari, B.Sc. (Engg.), A.M.I.E. (Ind.), held the post of Mechanical Expert to the Sanitary Engineer.

Sri M. V. Subramanyam, B.A., B.E., held the post of Additional Mechanical Expert.

Sri M. G. Parthasarathy, B.E., held the post of Personal Assistant to the Sanitary Engineer, during 1st April to 16th June 1952 and 16th July 1952 to 31st March 1953.

Sri T. Durairaj, B.E., M.E. (Public Health), A.M.I.E. (Ind.), Assistant Engineer (Technical-1), held additional charge of the Personal Assistant's post from 16th June 1952, *a.n.* to 16th July 1952, *a.n.*, during the absence of Sri M. G. Parthasarathy on leave.

Sri S. R. Srinivasan, B.E., M.E. (Public Health), held the post of Assistant Engineer (Public Health), Corporation Works and Experimental Filter Station, Kilpauk.

Sri T. Durairaj, B.E., M.E. (Public Health), A.M.I.E. (Ind.), held the post of Assistant Engineer, No. 1 Technical Section.

Sri V. A. Ananda Doss, B.E., M.E. (Public Health), held the post of Second Assistant Engineer (Public Health) (Technical) from 1st April 1952, *f.n.*, to 14th May 1952, *a.n.* and Sri K. Balasubramanyam, B.E., held the post from 15th May 1952 to 31st March 1953.

PUBLIC HEALTH DIVISIONS.

The following officers held the post of Executive Engineers (Public Health) of the Public Health Divisions mentioned against them during the year:—

1 *Vijayavada Public Health Division*—Sri P. Thambumalla Reddi, B.A.

2 *Central Public Health Division*—Sri G. R. Subramanya Iyer, B.E.

3 *Tiruchirappalli Public Health Division*—Sri B. Satyamurthi, B.E.

4 *Coimbatore Public Health Division*—Sri O. Dhananjayan, C.E., from 1st March to 24th April 1952.

Sri O. R. Subramanya Iyer, B.E., from 24th April 1952, *f.n.*, to 4th October 1952.

Sri M. M. Mani, B.E., A.M.I.E., from 4th October 1952, *a.n.*, to 31st March 1953.

APPENDIX 'A' (Municipalities).

Serial number and name of station.	Scheme when initiated.	Cost of scheme as executed in lakhs of rupees.	Scheme designed as partial or full.	Rate of supply in gallons per head per day.		Source of supply and treatment method.	Supply pumped or gravitational.	Details of the pumping plant.	
				As designed.	As actually obtained.			Type of plant.	Full number.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Adoni	1893-1895	1.37 Full	..	10	..	1 Rainfed storage tank water treated slow sand filter at Nallacheru.	Gravitational	..	..
Improvements ..	1895-1940	7.70	..	..	..	2 Second source infiltration wells in Hagari river bed near Karavi.	Pumped	..	..
2 Anantapur ..	1907-1924	4.811 Full	..	15	..	Infiltration gallery in the Pandama neru river bed.	Pumped	..	..
3 Bellary	1890-1927	1.00 Full	..	10	..	Infiltration wells in the Hagari river bed.	Pumped	..	..
4 Bodinayakanur ..	1937-1944	5.88 Full	..	15	..	Hill storm (Kothagudi) water treated on Paterson's mechanical filters.	Gravitational	..	..
5 Chidambaram ..	1900-1915	1.00 Full	..	15	..	Raja valai canal bed storage tank water treated on Jewells' pressure filters.	Pumped	..	..
6 Chingleput ..	1900-1923	2.36 Full	..	15	..	Infiltration works in the Palar river bed.	Pumped	..	..
7 Cochin	1933- ..	0.21 Partial	..	3	..	Bulk supply purchased from Mattancheri water work.	Gravitational	..	..
Improvements ..	1950	3.10	..	..	..	..	..	..	..
8 Colimbature ..	1905-1929	46.67 Full	..	20	..	Siruvani river water dammed into lake and diverted through tunnel.	Gravitational	..	..
Improvements ..	1907	13.07	..	..	..	..	..	..	..
9 Coonoor	1897-1905	2.56 Full	..	20	..	Ralliah river dammed up (by masonry dams).	Gravitational	..	..
10 Cuddalore ..	1836-1940	2.09 Partial	..	5	..	Infiltration well and gallery in the Pumar river bed.	Pumped	..	..
1925-1932	2.42	..	..	..	..	(1) (Old) Infiltration gallery in Bugga stream.	Pumped	..	..
1890-1893	1.00 Full	..	..	5	..	(2) Pumar water works	Pumped	..	..
Improvements ..	1936-1939	2.80 Full	..	10	..	(3) Chilkacharu pumping station.	Pumped	..	..
..	..	..	..	..	..	..	Pumped	..	..

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APPENDICES

13 Eluru	1890-1896	2.76 Partial	..	10	..	Odukkom valley infiltration gallery and wells	Gravitational and pumped.	..	..	5.8
14 Erode	1905-1919	8.30 Full	..	15	..	Eluru canal fed storage tank, Water treated on slow sand filters.	Pumped	..	..	7.5
1012-1919	3.50 Full	..	..	15	..	Canvey raw water treated on Jewels' gravity filters.	Pumped	..	..	5.9
Improvements ..	1904-1907	0.30 Full	..	6	..	Infiltration gallery in the Koundinya river bed.	Pumped	..	..	7.5
16 Gudur	1928-1931	1.14 Full	..	7.5	..	Infiltration well near irrigation tank.	Pumped	..	..	5
17 Guntur (Old) ..	1901-1908	2.39 Partial	..	5	..	(Old) Yengallapalayam infiltration gallery.	Pumped	..	..	30
Do. (New)	1941	.. Full	..	25	..	(New) Cammaru canal bed storage tank water treated on mechanical filter at Jagarlamudi head works.	Pumped	..	..	13
18 Kancheepuram ..	1895-1897	2.57 Full	..	15	..	Infiltration gallery in the Vegaathi river infiltration well in the same river.	Pumped	..	..	45
Improvements ..	1930	0.98	..	..	..	(Old) Samalkota canal fed Rajah tank stored water treated on slow sand filters.	Pumped	..	..	50
19 Kakinada (Old) ..	1897-1903	4.423 Full	..	15	..	..	..	..	..	10
20 Karakudi	1934-1939	0.33 Partial	..	5	..	Jambai wuthu (artesian source)	Pumped	..	..	10
Improvements ..	1950	0.50 Full	..	15	..	Infiltration wells in the Amaravathi river bed.	Pumped	..	..	18
21 Karur	1935-1940	0.29 Full	..	29	..	Panbar river	Gravitational and pumped.	..	..	30
22 Kodakanal ..	1905-1913	0.23 Full	..	5	..	Bore well near Mahamaham Tank.	..	..	..	25
23 Kumbakonam (Old) ..	1901-1914	5.29 Partial	..	..	..	..	..	..	..	45

APPENDIX 'A' (Municipalities)—cont.

Serial number and name of station.	Details of pumping plant—cont.										Remarks.	
	Duty.		Date of installation.	Present condition of plant.	Cost per thousand gallons of water pumped in annas.	Pumpage from head works per day in the year.		Capital cost of the pumping plant.	Maintenance cost of the pumping units during the year 1952-53.	Whether mechanical recorder is provided to measure the quantity pumped.		Weather chlorination plant is installed or not.
	G.P.M.	Head in feet.				Minimum.	Maximum.					
1 Adoni ..	..	..	500	March 1941	Satisfactory.	..	..	..	..	Venturi meter.	No	..
Improvements	320	500	March 1941	..	..	..	..	..	..	..	No	One of the Gas engine units which is stand by to the pump driven by the 15 H.P. Motor has been gifted to Engineering College and has been removed.
2 Anantapur ..	..	..	75	July 1936	Satisfactory.	..	..	17,500	..	..	No	..
3 Bellary ..	240	75	September 1936.	Do.	..	..	..	..	..	..	..	..
	240/275	240	February 1926.	Do.	4.65	450,400	218,200	77,320	35,9	Venturi meter.	No	Order for second twin pump placed by municipality.
4 Bodhanayakanur	..	240/275	210	1950	..	..	..	..	..	..	..	..
5 Chidambaram	..	400	300	January 1942.	Do.	..	..	..	..	No	No	..
6 Chingleput ..	..	350	100	27th May 1941.	Satisfactory.	1.71	441,000	262,000	13,305	Venturi meter.	No	..
	350	100	30th June 1941.	Do.	1.67	276,450	108,640	25,056	9,122	Venturi meter.	No	..
7 Cochin	..	150.5	150	1928	Do.	..	..	..	..	..	..	..
Improvements	..	250	180	February 1950.	Do.	..	..	..	..	..	..	..
8 Coimbatore	..	240	178	1942	Do.	..	..	..	..	..	..	..
9 Coonor	..	..	..	..	..	..	..	..	..	..	..	..
10 Cuddalore ..	..	..	146	1930	Satisfactory.	4.00	135,300	52,500	9,919	Yes	No	The Rotor of the Electric Motor was not rewound in April 1952 since there was an internal short circuit in the coils.
11 Cuddapah ..	..	100	146	1943 (Motor)	Do.	..	..	..	..	..	..	..
	100	220/150	..	..	Old unit retained as standard.	..	..	..	..	..	..	..
Improvements	..	500/450	150/170	6th August 1941	Do.	..	..	..	15,763	Venturi meter.	No	..
12 Dindigul	..	509/450	150/170	28th March 1946.	Satisfactory.	5.89	87,700	28,400	3,610	..	..	..
	..	150	70	17th August 1938.	Do.	..	..	..	..	..	..	..
13 Eluru ..	..	130	75	September 1951	Do.	..	..	..	..	..	..	..
	..	120	80	28th August 1938.	Do.	..	..	..	..	..	..	..
14 Erode	..	150	50	60 February 1947.	Do.	..	9,54,200	411,900	45,383	No	No	Due to drought conditions only intermittent pumping was possible.
Improvements	..	850/650	60/55	1919	Do.	..	..	..	..	..	..	..
	..	3,400	20	February 1947.	Do.	..	..	..	..	..	..	..
15 Gudiyatam	..	300	144	30th March 1938.	Satisfactory.	2.54	6,24,000	4,56,000	21,625	Venturi meter.	No	Order for third sets were under review.
	..	300	144	Do.	Do.	..	..	..	..	..	..	..
	..	300	62	Do.	Do.	..	..	..	..	..	..	..
	..	300	65	1910	..	2.12	4,58,000	9,000	4,000	No	No	The pump of Gas Engine unit No. II was dismantled and a new Electrical unit 30 H.P. was installed in the pump pit in 1952.
16 Gudur	..	400	65	1952	..	..	..	..	..	..	..	..
	..	118	91	1930	Fair.	..	..	..	..	No	No	Electrification under execution order placed for equipments and works.
17 Gunbur (Old)	..	118	91	1930	Do.	..	..	..	..	..	..	..
	..	300	48	16th November 1937.	Satisfactory	1.73	312,960	274,560	10,096	..	..	..
18 Kanchipuram (New)	..	300	86/74	27th April 1946.	Do.	1.58	864,300	325,000	18,818	Venturi meter.	No	Due to drought conditions water had to be pumped from the infiltration well and centre man hole well of the gallery to the suction by Auxiliary pumping arrangements.
	..	1,100/1,306	86/72	Do.	Do.	..	..	..	..	..	..	..
Improvements	..	1,100/1,306	86/72	Do.	Do.	..	..	..	..	..	..	..
19 Kakimada (Old)	..	1,250	86	1st January 1947.	Satisfactory	1.16	1,041,900	593,200	23,600	Venturi meter.	No	..
	..	1,250	86	1st January 1947.	Do.	..	..	..	..	..	..	..

APPENDIX 'A' (Municipalities)—cont.

Serial number and name of station.	Scheme when initiated.	Cost of scheme as executed in lakhs of rupees.	Scheme designed as partial or full.	(4)	Rate of supply in gallons per head per day.		Source of supply and treatment method.	Supply pumped or gravitational.	Details of pumping plant.		
					As designed.	As actually obtained.			Type of plant.	Unit number.	H.P.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kumbakonam (New).	1941-1953	16.81	Full	..	15	..	Infiltration gallery in Cauvery river bed at Padugai.	Pumped	Electrical	1	35
24 Kurnool ..	1897	32.24	Full	..	15	..	B.C. Canal fed storage tank water treated on slow sand filters.	Pumped	Electrical	2	35
Improvements ..	1951	1.04	..	..	..	..	..	..	Do.	2	21
25 Madurai ..	-1894	14.82	Full	..	15	..	Infiltration gallery in the Vaigai river bed at Kochadai.	Pumped	Gas engine (stand-by).	3	19
Improvements ..	-1950	2.90	..	..	..	..	Filters gallery at A.R.A. Palayam across Vaigai river.	Pumped	Electrical	1	170
26 Masulipatnam ..	1907-1918	6.78	Full	..	15	..	Bandar canal bed storage tank on water treated Jewells' pressure filters.	Pumped	Electrical	2	40
27 Mettupalayam ..	1930-1934	2.80	Full	..	5	..	Bharani river water treated on Patersons gravity filters.	Pumped	High lift electrical.	1	13
Improvements ..	-1950	8.33	..	..	..	..	..	..	Do.	2	13
28 Nagapattinam ..	1897-1914	9.05	Full	..	15	..	Infiltration gallery in Vettar river bed.	Pumped	Low lift	1	8
29 Nellore ..	1904-1908	1.722	Full	..	15	..	Impounding reservoirs ..	Gravitational	Do.	2	40
Improvements ..	-1910	5.50	Full	..	20	..	Karasapur canal storage tank water treated on Jewells' pressure filters.	Pumped	Electrical	1	40
30 Ootacamund ..	1926-1931	4.225	Full	..	5	..	Palari river water tapped in the wells.	Pumped	Do.	2	50
31 Palacole ..	1912-1932	1.00	Full	..	10	..	Berijam water (from Kodai Hills) treated on slow sand filters.	Gravitational	Steam engine stand-by.	3	30
32 Palani ..	1906-1912	2.14	Full	..	15	..	..	..	Electrical	1	30
33 Periyakulam ..	-1923	0.51	..	..	..	..	..	..	Do.	2	30
Extensions ..	..	..	..	..	..	..	..	..	..	..	..

34 Pollachi ..	1930-1937	6.30	Full	..	15	..	Infiltration gallery in the Aliyar river bed.	Pumped	Electrical	1	35
35 Proddatur ..	1928-1933	0.50	Full	..	10	..	Infiltration well in the Pennar river.	Pumped	Steam engine	2	35
36 Pudukkottai ..	-1900	..	Full	..	5	..	Rainfed tank water treated on Jewells' pressure filters in Commission-Pudukulam.	Pumped	Oil engine	1	10
37 Rajahmundry ..	1923-1934	6.42	Full	..	15	..	Old jewell gravitational filter stand by rainfed tank.	Pumped	Electrical	2	13
38 Salem ..	-1911	8.27	Full	..	5	..	Adappakulam infiltration well in Vellar Ammayappatti.	Pumped	Do.	1	15
Improvements ..	-1951	31.45		..	..	..	Godavari river water treated on Patterson gravity filters.	Pumped	Oil engine	2	10
39 Srirangam ..	1909-1939	1.14	Full	..	10	..	(Old) Rainfed Pananarathupatti lake water treated on slow sand filters.	Pumped	(High lift) electrical.	1	30
Improvements ..	-1950	0.38		..	..	..	(New) Mettur Reservoir water treated on Patterson gravity filters.	Pumped	Do.	2	30
40 Tadipatri ..	1930-1933	0.95	Full	..	15	..	Infiltration well near Thiruman-jana Cauvery.	Pumped	(Low lift) electrical.	1	16
41 Tanjore ..	1891-1895	5.30	Full	..	15	..	..	..	Do.	2	16
Improvements ..	-1950	2.56		..	..	..	..	..	..	..	..
42 Tiruchirappalli ..	-1896	9.30	Full	..	15	..	Infiltration well in the Pennar river bed.	Pumped	Electrical	1	110
Improvements ..	-1951	0.63	..	..	..	..	..	..	..	2	110
..	..	1.59	..	..	..	..	..	..	..	3	310
..	..	2.01	..	..	..	..	..	..	..	4	310
..	..	..	..	..	..	..	..	..	..	5	30
..	..	..	..	..	..	..	..	..	..	1	8.5
..	..	..	..	..	..	..	..	..	..	2	8.5
..	..	..	..	..	..	..	..	..	..	1	6
..	..	..	..	..	..	..	..	..	..	2	6
..	..	..	..	..	..	..	..	..	..	1	65
..	..	..	..	..	..	..	..	..	..	2	65
..	..	..	..	..	..	..	..	..	..	1	120
..	..	..	..	..	..	..	..	..	..	2	120
..	..	..	..	..	..	..	..	..	..	3	100
..	..	..	..	..	..	..	..	..	..	4	100

APPENDIX 'A' (Municipalities)—cont.

Details of pumping plant—cont.													Remarks.		
Duty.			Date of installation.		Present condition of plant.		Cost per thousand gallons of water pumped in Anas.		Pumpage from headworks per day in the year.		Capital cost of the pumping plant.	Maintenance cost of the pumping unit during the year 1952-53.		Whether mechanical recorder is provided.	Whether chlorination or not.
G.P.M.	Head in feet.		(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)					
20 Karaikudi	80	85	27th April 1937.	Satisfactory ..	14.55	70,700	25,000	10,000	14,788	Yes	..	No.	(23)		
Improvements	80	85	27th April 1937.	Satisfactory ..	..	..	..	..	..	..	..	No.	(23)		
21 Karur	395	102	22nd July 1939.	Satisfactory ..	1.10	494,800	293,200	10,620	10,724	Water-Meter	..	..	(23)		
Improvements	395	102	22nd July 1939.	Satisfactory ..	..	..	..	..	..	..	..	No.	(23)		
22 Kodakanal	35	335	..	Satisfactory ..	..	..	..	..	..	..	..	No.	(23)		
Improvements	35	335	..	Satisfactory ..	..	..	..	..	..	..	..	..	(23)		
23 Kumbakonam (Old) ..	650	100	13th August 1945.	Satisfactory ..	1.30	493,000	293,000	3,587	7,935	No	..	No.	The installation of the 3rd unit was taken up in March 1953.		
Improvements	650	100	13th August 1945.	Satisfactory ..	..	..	..	..	..	..	..	..			
24 Kurnool	600	65	1930	Satisfactory ..	1.68	720,000	150,000	8,573	17,435	"V" Recorder.	..	No.	Order placed for 3 Recorder electrical units to be erected in place of the pump driven by gas engine.		
Improvements	600	80	1939	Satisfactory ..	..	..	..	..	..	..	..	..			
Improvements	2400/3300	95/75	17th January 1940.	Satisfactory ..	..	..	..	..	..	..	..	..			
25 Madurai	2400/3300	95/75	17th January 1940.	Satisfactory ..	..	..	..	..	..	..	..	..			
Improvements	2400/3300	95/75	17th January 1940.	Satisfactory ..	..	..	..	..	..	..	..	..			
26 Masulipatnam	750	100	1st April 1952.	Satisfactory ..	1.68	700,000	359,375	7,007	23,276	Venturi Meter.	..	Chloro Feeder.	One new spare motor and starter was purchased for stand by requirements.		
Improvements	603	75	1938	Satisfactory ..	..	..	..	..	..	..	..	..			
27 Mettupalayam	603	75	1938	Satisfactory ..	..	..	..	..	..	..	..	..			
Improvements	160	130	1947	Satisfactory ..	..	..	..	..	..	..	..	..			
Improvements	160	130	1947	Do.	..	..	..	..	..	..	..	..			
Improvements	160	57	1947	Do.	..	..	..	..	..	..	..	..			
Improvements	160	57	1947	Do.	..	..	..	..	..	..	..	..			

28	Nagapattinam	750	120	1st December 1949.	Do.	..	..	..	1,85,230	15,562	Venturi Meter.	Chloro Feeder.	
	Improvements	750	120	1949	Do.	..	..	..	..	..	..	..	
	Improvements	650	125	1914	Do.	..	..	..	..	..	..	..	
	Improvements	700/750	74/66	1935	Do.	0.90	8,04,000	3,84,000	8,356	14,080	Venturi Meter.	No.	
	Improvements	700/750	74/66	1935	Do.	..	..	..	..	..	..	..	
	Improvements	240	68	1931	Satisfactory	4.05	2,29,704	1,82,130	15,712	21,350	No.	..	
	Improvements	240	68	1931	Do.	..	..	..	..	..	..	..	
	Improvements	240	68	1931	Do.	..	..	..	..	..	..	..	
	Improvements	..	..	..	..	..	..	..	..	..	..	..	
	Improvements	..	..	..	..	..	..	..	..	..	..	..	
	Improvements	470	..	325 5th September 1948.	Satisfactory	2.56	..	..	..	..	..	..	
	Improvements	470	325	Do.	Do.	..	..	..	91,000	17,123	Venturi Meter.	Yes.	
35	Proddatur	208	55	1931	Stand by not quite satisfactory.	..	..	..	..	..	..	..	
	Improvements	208	55	1931	Do.	..	..	..	26,261	12,882	No.	No.	No. 1 steam engine unit was sold out by the municipality. Rec-trification proposals are under consideration.
36	Pudukkottai	250	110	November 1951. (Engine only)	Satisfactory	..	..	..	5,500	..	..	..	
	Improvements	137	133	19th January 1936.	Do.	2.71	3,07,500	1,10,250	..	12,674	..	..	
	Improvements	137	133	12th August 1947.	Do.	..	..	..	..	..	..	..	
	Improvements	30/60	34/22	..	Satisfactory	6.95	36,000	3,000	3,591	..	No	No.	
	Improvements	90/150	160/120	4th March 1949.	Do.	..	..	..	..	..	..	..	
37	Rajahmundry	875	86	..	Satisfactory	..	1,59,400	96,900	7,379	31,381	Venturi Meter.	Yes.	Replacement of pump-set by bigger size units in progress.
	Improvements	875	86	..	Do.	..	..	..	..	..	..	..	
	Improvements	875	45	..	Do.	..	..	..	..	..	..	..	
	Improvements	..	..	..	..	..	..	..	..	..	..	..	One permanent unit for auxiliary pumping in place of the unit on loan was purchased and erected the intake tower.
38	Salem	..	..	..	..	..	..	..	..	..	..	..	
	Improvements	1570	147	March 1952.	Satisfactory	..	..	..	..	..	..	..	
	Improvements	1570	147	Do.	Do.	..	..	..	..	..	..	..	
	Improvements	1570	431	Do.	Do.	..	..	..	..	..	..	..	
	Improvements	1570	431	Do.	Do.	..	..	..	..	..	..	..	
	Improvements	250	65	1st April 1940.	Do.	1.80	1,92,000	42,190	6,346	5,980	Yes.	No.	
39	Srirangam	250	65	1940.	Do.	..	..	..	..	..	..	..	
	Improvements	250	65	Do.	Do.	..	..	..	..	..	..	..	
40	Tadipatri	104	75	1933	Satisfactory	3.50	1,13,100	62,000	6,000	7,165	Yes.	No.	
	Improvements	104	75	1933	Do.	..	..	..	..	..	..	..	

APPENDIX 'A' (Municipalities)—cont.

Serial number and name of station.	Scheme when initiated.	Cost of scheme as executed in lakhs of rupees.	Scheme designed as partial or full.	Rate of supply in gallons per head per day.		Source of supply and treatment method.	Details of pumping plant.		
				As designed.	As actually obtained.		Type of plant.	Unit number.	H.P. (11)
43 Tiruvannamalai	1900-34	3.45	Full	5	..	(7) Infiltration gallery in the Periaeri river.	..	..	20
44 Tirupathi	1895-99	1.00	Full	15	..	Infiltration gallery in the Kalyani river.	Pumped by gravitation.	1	20/22
45 Tirumalai	..	..	..	..	..	Infiltration well in the confluence of Kalyani and Swarnamukhi rivers.	Pumped and by gravitation.	1	5
46 Tiruppur	1928-1940	1.84	Partial	5	..	Papayanasam water-falls diverted through pipe line and fed to pump set.	Unit ..	2	5
Improvements	-1950	0.49	..	..	..	Pumped to S.R. and supply by gravity from S.R.	P. Station No. 1, Electrical.	1	40
47 Tiruvallur	1930-1936	1.43	Full	5	..	Infiltration gallery in the Kollai river.	..	..	40
48 Tuticorin	1896-1929	2.00	Full	15	..	Infiltration well and gallery in the Cooum river.	..	..	40
Improvements	-1950	0.04	Full	15	..	Infiltration well and gallery in the Tambaram river.	..	..	40
49 Vellore	1902-1907	1.39	Full	15	..	(Old) rainfed tank water (Oteri) treated on slow sand filters and supplemented by infiltration gallery outside tank bund (new) infiltration works in the Palar river bed.	..	..	40
50 Vijayavada	1898-1909	7.06	Full	15	..	Infiltration well in the Krishna river padagai.	..	..	47/52
Improvements	-1959	2.50	..	..	..	Infiltration well	..	..	47/52
51 Vijayanagaram	1898-1912	4.98	Full	15	..	Infiltration gallery in the Naillmarla river bed.	..	..	35
Improvements	..	0.45	..	..	..	..	..	..	35
52 Virudunagar	1929-1933	6.41	Full	10	..	Infiltration gallery across the arjuna river.	..	..	35
53 Vishakapatnam	1897-1903	4.21	Full	15	..	(Old) impounding reservoir at mudasarlova and stored water treated on slow sand filters supplied by infiltration gallery along the toe of the bund.	..	..	16/17 1/2
						(New) infiltration wells in the Gosthani river bed.	..	..	16/17 1/2
						..	..	..	22
						..	..	..	95
						..	..	..	95
						..	..	..	13.5
						..	..	..	13.5
						..	..	..	13.5
						..	..	..	10
						..	..	..	10
54 Walajpet	1913-1946	1.10	Full	5	..	Infiltration well in the Palar river ..	..	..	12
						..	..	..	12

APPENDICES

APPENDIX 'A' (*Municipalities*)—cont.[illegible][illegible]



(Health)

G.O. No. 885, 6th April 1954

Administration Report—Sanitary Engineering Branch—1952-53—
Reviewed.

READ—the following papers:—

Letter from the Sanitary Engineer to the Chief Engineer, P.W.D. (General and Buildings), dated 31st October 1953, No. 17638-G/53-2.

Letter from the Chief Engineer, P.W.D. (General and Buildings),
dated 18th December 1953, No. 3945-P.H./53-7.

Order—No. 885, Health, dated 6th April 1954.

Recorded.

2. The number of Municipal and Panchayat Water-supply Schemes in operation during the period under review was 65 as against 64 in the previous year. The Water-supply Scheme for Tirumalai (Tirupati) was completed during the year. The number of municipal drainage schemes in operation was thirteen as in the previous years. No drainage scheme is functioning in any of the panchayats.

3. The water-supply schemes under execution during the year were 50 out of which 39 were municipal schemes and eleven panchayat schemes. The number of drainage schemes under execution was eleven in municipalities and one in panchayats.

4. Detailed plans and estimates were prepared for sixteen water-supply schemes and five drainage schemes. The plans and estimates for thirteen water-supply schemes and five drainage schemes were under preparation during the year.

APPENDIX 'B' (*Drainage*).[illegible]

.. ..
steam unit is under major overhaul Plant-ification proposals are in progress to be taken up shortly for execution.

5. The year under review was the fourth year of the first Five-Year Programme for the execution of municipal water-supply and drainage schemes on the basis of priority.

(By order of the Governor)

S. VENKATESWARAN,
Secretary to Government.

To the Chief Engineer, P.W.D. (General and Buildings) (45 copies).

- „ Sanitary Engineer.
- „ Director of Medical Services.
- „ Director of Public Health.
- „ Director, King Institute, Guindy.
- „ Director, All-India Institute of Hygiene and Public Health, Calcutta.
- „ Public Health Commissioner, Government of India (with covering letter).
- „ Librarian, Secretariat Library.
- „ Public Department.
- „ Press (as per distribution list in G.O. No. 4831, P.H., dated 11th November 1941).
- „ Industries, Labour and Co-operation Department (2 copies).
- Copy to Education, Health and Local Administration Department, Andhra Government, Kurnool.

