



REPORT
OF THE
WATER-SUPPLY AND DRAINAGE
COMMITTEE

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REPORT OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE

CHAPTER I

Introductory

Constitution of the Committee.

In G.O. No. 1907, Public Health, dated 2nd June 1947, the Provincial Government of Madras constituted a committee consisting of the following members to go into the entire problem of our water-supply and drainage—urban and rural—and to suggest ways and means to accelerate progress in the execution of the schemes :—

PRESIDENT.

Sri A. Kaleswara Rao, M.L.A.

MEMBERS.

Sri N. Ranga Reddi M.L.C.

The Chief Engineer, Public Works

„ K. A. Nachiappa Gounder, M.L.A.

Department (General and Works).

Janab H. S. Hussain Sahib, M.L.A.

The Director of Public Health.

Sri A. V. Raman, Editor, *Peoples Health*, Madras.

The Sanitary Engineer to Government.

SECRETARY.

Sri S. Rajagopalan, Executive Engineer (Public Health), Southern Circle.

Terms of reference

2. The terms of reference to the committee run as follows :—
“ The committee is requested to consider the question of expediting the investigation, design and execution of all water-supply and drainage schemes, urban and rural, comprehensively taking into consideration all aspects of the problem such as paucity of technical men, dearth of materials of construction and the limited State finance which would be available for the purpose. The terms of reference are framed widely so that the committee may not feel handicapped in the consideration of the subject from any point of view. The committee is requested to make definite and constructive proposals which could be put into execution without delay. The committee is requested to submit its report as early as possible.” In their subsequent Memorandum No. 37206/46-19 E-1, Public Health, dated 9th June 1947, the Government stated “ in order to facilitate the speedy investigation and design of the rural water-supply scheme, a suggestion

has been made that private engineers may be authorized to take up the investigation and design of the scheme. The Government desire that this question could be considered and reported on by the committee appointed in G.O. No. 1907, Public Health, dated 2nd June 1947." The scope of the terms of reference to the committee was amplified again in Government Memorandum No. 21671 H-1/47-3, Public Health, dated 16th June 1947, to the effect that "the Government desire that the general question relating to the matters to be taken into consideration in fixing ranks for schemes in the compendium for provincial requirements of water-supply and drainage may also be considered by the committee appointed in G.O. No. 1907, Public Health, dated 2nd June 1947."

Minister inaugurates proceedings

3. While inaugurating the deliberations of the committee on the 23rd June 1947 the Hon'ble Sri A. B. Shetty, Minister of Health, said that the committee was a fully representative one consisting of non-officials with great experience and ability and officials who can give expert advice on the subject, and that he could look forward to a valuable report from them giving constructive suggestions on the issues involved. The Editor of *Peoples' Health*, he said, had been rightly stressing the need for environmental sanitation as the most essential work to be taken up for the improvement of the peoples' health, and for water-supply and drainage schemes to be given first importance in any programme for the improvement of the health of the Province. The Government had on hand the post-war scheme No. 97 for rural water-supply and No. 98 for urban water-supply and drainage.

"Insistent demands", the Minister continued, "are being received from several quarters for installing water-supply and drainage schemes. But due to some reason or other, these schemes take years for investigation, design and execution. The position is much more difficult now than ever before. It is said that the slow progress in carrying out these schemes is due to three causes: lack of materials, lack of adequate technical personnel and the inability or unwillingness of local bodies to find their share of the capital expenditure. It is necessary to survey the present position and suggest how best these difficulties can be got over."

It has been suggested, the Minister added, that the Sanitary Engineering department should be made a separate department altogether, but there was the difficulty of finding adequate technical personnel for the purpose. There was also a proposal, he said, to include Public Health as a branch of studies in our Engineering Colleges.

The Minister proceeded to say that in regard to rural water-supplies again, difficulties were being experienced. The revenue

staff in charge of the works did not show sufficient interest and the inspection of works was not being properly done. The difficulties of getting labour, materials, tools and plant were also there, not to speak of the inadequacy of staff for supervision. Consequently a substantial portion of the funds allotted for rural water-supply was allowed to lapse without being utilized on the execution of works as programmed. The Collectors of the districts had been asked to report on their difficulties in the working of the scheme and the Revenue Board had also been asked to consider certain suggestions made in this connection and report thereon in consultation with the departments concerned. The special staff necessary in the district as well as in the centre to select sites for wells, to scrutinize the proposals and to supervise the works and so on, were all to be considered. It had been suggested in this connection that a special course of L.C.E. for securing candidates as Minor Irrigation Overseers should be started.

"I am glad to tell you, gentlemen," the Minister concluded, "that the present Prime Minister is very much interested in the rural areas and their development. He wants to institute a special fund for rural water-supply like the one inaugurated in 1937-38. All these matters and many others pertaining to this important subject may be considered by you. I hope your labours would bear fruit and will enable me to go forward with the prosecution of water-supply and drainage schemes in urban areas as well as rural."

Committee's proceedings

4. The committee held three sittings in the Library Hall of the Public Works Department office buildings, Chepauk. The first sitting was for four days, from the 23rd to 26th June 1947, the second one was for three days from the 8th to 10th July 1947 and the final one was held on the 28th August 1947. All the members were present on all the days. A note prepared by the Secretary of the Committee setting out facts and figures (Appendix III) was very helpful to the members to understand the problems to be considered by them.

The terms of reference to the committee were very wide and the committee applied themselves to the task before them as comprehensively as the terms of reference visualized, with such data as were available to them. Unlike the procedure usually adopted by similar committees constituted to consider such large problems, the committee did not consider it necessary to call for oral or written evidence from outside. The official members of the committee were there to furnish facts and figures relating to the problem. All the members, non-official and official, possess personal experience of the conditions obtaining in the Province. The members had a full, frank and detailed discussion on all points connected with the problem, as will be evidenced from the abstract of the proceedings (Appendix IV).

CHAPTER II

The Importance of Environmental Sanitation

“ The health of a people is really the foundation upon which all their happiness and all their powers as a State depend ”—
Disraeli.

Prevention is better than cure

5. Before we give a general survey of the situation we wish to state that one cannot over-emphasise the importance of the maintenance of the health of the people. Nor is it necessary to mention that the general standard of health of our countrymen as also their vitality and resistance to disease is low. Mortality is high. The span of life is short. Hence, the productive capacity of the people naturally falls low. It is indeed highly regrettable that those in authority all along had not paid as much attention to this all important problem as they ought to have done. “ Prevention is better than cure ” is an ancient and wise adage, which applies with great force to this particular matter.

Bhore Committee's views

6. The Bhore Committee appointed by the Government of India in 1943 which was charged with as wide terms of reference as this committee has been, laid very strong emphasis on the importance of environmental sanitation. “ Drugs, Vaccines and Serum ”, they said, “ can in no way replace such essentials as fresh air, a safe water-supply, hygienic home and good food.” According to an authority quoted by the Bhore Committee in their report, the minimum criteria for any village to be called ‘ a sanitated village ’ are :—

(1) Water-supply protected from surface contamination, (2) drains for the removal of waste water, and (3) regular removal of filth and refuse outside the village to a place prepared for their reception. The water pipes of a city have been compared to the arteries of the body, the sewers to its veins.

7. In this connection, we would like to quote from the Bhore Committee's report some more passages relevant to the problem before us. They wrote, “ the provision of a safe water-supply should receive the highest possible priority from the administration responsible for the welfare of its people. This has been recognized by every civilized country in the world. Many have yet to fulfil adequately their responsibilities in this connection. But few have as much leeway to make up as the Governments in India. The provision of a safe and adequate water-supply is a basic requirement, the importance of which cannot be over-emphasised, and this remark applies with special reference to

a tropical country like India which is subject to epidemic waves of water-borne diseases of great magnitude . . . The percentage of population urban and rural served by protected water-supplies is 6:6 in Madras . . . The history of sanitary developments in western countries shows that it was agitation for the provision of pure water and proper disposal of excreta which led to the general improvements now achieved. The first town in India to have an underground sewage disposal system was Calcutta, it having been introduced as far back as 1870. In spite of this early start, the development of the sewerage system in India has been very slow, even slower than the provision of protected water-supplies. Broadly speaking, the collection and disposal of excreta is a service confined to Municipal towns only and by no means to all of them. For a number of even the larger urban cities, this service is at present of a low standard . . . In Madras there are only three sewered towns at present . . .”

War against ill-health fought on the wrong front

8. We may perhaps quote pertinently Sir Arthur MacNalty to indicate how the improvement in the environmental sanitation wrought wonderful improvement in its turn in the national health of England. Sir Arthur states, “the water-borne diseases, formerly so rife, have become almost negligible. Cholera has disappeared and typhoid is exceptional though ‘carriers’ may still cause epidemics of the disease. Personal cleanliness and lessened over-crowding have stamped out typhus, and smallpox no longer claims a deadly toll on victims annually . . . Here two things must be remembered. The first is that these triumphs of Public Health were not born out of legislative enactments of Parliament or devised in the offices of Whitehall. The second point that is often forgotten is that work in environmental hygiene must be continually maintained and never stand still. The dividing line between environmental and individual hygiene is a very narrow one.”

9. We do not like to multiply authoritative opinions to establish how environmental sanitation reflects on the promotion and maintenance of the health of the people. But we feel that it is necessary to call back the experience of Great Britain which was not however, applied by our administrators in this country. We refer to the efforts of Edwin Chadwick in that country. Notwithstanding powerful opposition to his efforts to improve the living conditions of man as the first and primary step towards promotion of national health, Edwin Chadwick struggled hard from 1830 onwards. It was not long before it was recognized in England that the improvement brought about in the living conditions reflected in the reduction of the mortality figures. On the other hand, sanitary reform in this country centered round the provision of hospitals, the training of medical men and incidentally, importing drugs to this country from foreign countries in a progressively

increasing measure, instead of removing the root causes of ill-health of man, by improving his living conditions. Thus, the war against ill-health in this country was being waged all along on the wrong front.

Deterioration of Nation's Health

10. No wonder therefore, the general opinion is that after over 150 years of British administration of this country, the national health has progressively deteriorated.

We give hereunder in graphical form the mortality rates of admittedly preventible diseases (Appendix I). The graphs show the mortality rates in the Province every year for the period 1890 to 1945 from cholera, dysentery and diarrhoea, and from fevers. The figures reveal how the epidemics shot up periodically without any concerted measures to prevent it. In addition, we also give below figures showing the death rate, infantile mortality, and expectation of life (male and female) for this country as compared with similar figures obtaining in some of the advanced countries of the world :—

Name of country.	Expectation of life in years,		Death rate per thousand.	Infantile mortality rate per thousand.	Death rate below 10 years as percentage of total deaths at all ages.
	Males.	Females.			
New Zealand ..	65.04	67.88	9.1	31	
Australia ..	63.48	67.14	9.4	28	
Union of South Africa (Whites) ..	57.78	61.48	10.1	37	
Canada ..	59.32	61.59	10.2	70	
U.S.A. (Whites) ..	59.12	62.67	11.2	54	
" (Negroes) ..	47.55	49.51	..	..
Germany ..	59.86	62.75	11.7	64	
England and Wales	58.74	62.88	12.4	58	10.0
France ..	54.30	59.02	15.0	65	
Japan ..	44.82	46.54	17.0	106	
India ..	26.91	26.56	22.4	162	48.4
Madras Province..	..	..	24.18	170	

Further, malaria attacks at least 100 million persons every year, taking an annual toll of about 2 millions. About 2.5 millions active cases of tuberculosis exist in the country accounting for half a million deaths every year from this cause alone. Endemic diseases such as leprosy, filariasis, guinea-worm and hook-worm cause considerable amount of morbidity in the country. "Among the different countries of the world for which statistics are available", observe the Bhore Committee, "India ranks as one of the largest reservoirs of infection in respect of cholera, smallpox and plague. These and the other two—malaria and tuberculosis—are all preventible diseases, and their incidence should have been brought under effective control long ago."

The legacies of ill-health

11. People generally lay emphasis on the mortality rates only, as a measure of damage incurred. But they ignore a far more significant fact. It is the psychological reaction on the families

which sustain the loss of the bread winner of the family by premature death. A loss of this kind visited practically on every family in the country cannot but engender a mental make-up of gloom and depression, affecting their very outlook on life in this world. Such a state of mind is responsible for the bitterness and intolerance all round.

This aspect of the question has been brought out well by Sherwood Taylor in his "Century of Science". He writes:—"Much emphasis has here been laid on the death rate, but the tale of lives prematurely ended is but a part of the woes of an unhealthy population. A high death rate meant a high bereavement rate, which meant a high proportion of families reduced to abject poverty through loss of their bread winner. A high death rate also implied a high sickness rate, and a population of which many are reduced to miserable poverty by unfitness for work. There were very few of the large families of the day which had not lost a dearly loved brother or sister; nearly every mother had lost a child. The effect of familiarities with death was sometimes mere callousness. More often it led to a deepening of religious feeling, for there was need to postulate a hereafter for loved ones if not for oneself."

CHAPTER III

A Survey of the Situation

Statistical particulars

12. To enable a correct appreciation of the situation, we proceed to give certain statistical particulars relevant to the subject—

The area of the Madras Province is 126,166 square miles and its population is 49,341,810 (1941 census). For purposes of local administration the Province is divided into 81 municipalities—apart from the Madras Corporation—24 district boards, 238 panchayats with annual income above Rs. 5,000 and over 6,000 panchayats with smaller incomes. The total population is distributed as under:—

Municipal towns	(82)	..	4,467,772
Urban villages of over 10,000 people	(167)	..	2,403,619
Urban villages of 5,000 to 10,000 people	(830)	..	5,365,336
Rural villages below 5,000 people	(34,757)*	..	37,105,083

* This number is based on the revenue village as a unit; the actual number of residential villages is about 50,000. Out of these villages about 6,336 are said to have constituted themselves into panchayats—major and minor.

Poor achievements in past 60 years

13. Of the 81 municipalities excluding the Corporation of Madras only 46 have protected water-supply schemes in operation. Of these 46 schemes, five are 20 gallon schemes, twenty-six are 15 gallon schemes, nine are 10 gallon schemes and six are 5 gallon schemes. Even so, the actual rate of supply of water per capita is much less than the quantity assumed as the basis of design of these schemes. Thus in a "so-called" 15 gallon scheme in operation, the actual supply per head is as low as three gallons in certain municipalities and is somewhat higher than this figure in some other stations but it is seldom anywhere near the 15 gallons, the basic rate of supply assumed in the design of the schemes. An additional defect is that the supply of water does not extend to the entire municipal town. Thus even though a municipality may be said to have the benefit of a protected water-supply scheme, the actual conditions are that portions of the municipal area do not enjoy the benefit of a drinking water-supply, and in the other portions the actual supply is inadequate in quantity. As many as 40 of the 46 municipal water-supply schemes in operation are in dire need of additions and improvements. Even district headquarters like Mangalore, Calicut, Tinnevely and Chittoor, have no protected water-supply whatever while other important places like Guntur, Vizagapatam and Cuddalore have no protected water-supply worth mentioning.

As regards municipal drainage schemes the position is much worse as only seven municipal towns can claim to have something like a partial drainage system. Extensions and improvements are badly required in every one of these cases. In this sense no municipality in the Province can be said to have a complete drainage scheme to serve its entire area. Even in the case of Madras City, its drainage scheme was initiated as early as 1911 and some Rs. 225 lakhs has been spent so far, but the city is yet to realize its full scheme of drainage.

Schemes pending for decades

14. The committee desire to give some instances of places which have won notoriety for gross insanitation and for prevalence of malaria and filariasis, not being provided with any kind of drainage scheme, in spite of investigations and re-investigations which have been carried on indefinitely. Trichinopoly drainage was first mooted four decades back and the investigation of the scheme has been pending since 1921 with no result. The town is the headquarters of the district and is besides, the third largest city of the Province. Masulipatam likewise, an ancient municipality and the district headquarters has been suffering chronic insanitation by water-logging, mosquito nuisance and filariasis through successive decades; all the time the investigation of its drainage scheme was seeing several vicissitudes without any tangible result. Calicut, another important district headquarters, has been notorious for the insanitary conditions prevailing in the town; its drainage scheme was being discussed as far back as in 1908, but conditions remain unchanged to

this day. As for Ellore, again another district headquarters, its drainage scheme also has been pending over the past four decades; the scheme was investigated and re-investigated; and even the designs are supposed to have been drawn up, but nothing as yet has been done. In the case of Kumbakonam the importance of a drainage scheme for the place was recognized even half a century ago but no scheme has been provided. Vizianagram drainage scheme likewise, has only been discussed repeatedly without any practical result. Again the consideration of a drainage scheme for Cuddapah has been pending since 1896, for more than half a century. The cries of even enlightened municipal citizens in these and other places have been of no avail during all this time. Appendix II to this report shows the position in regard to municipal water supply and drainage in the whole province.

Villages completely neglected

15. As for non-municipal urban units the situation is extremely lamentable. Out of about 997 urban panchayats only some 12 have a protected water-supply, and the amenity of a drainage scheme is altogether non-existent. The position in regard to rural water-supply and sanitation is most pathetic. The villager and his essential needs have been grievously neglected; safe drinking water has been a rarity to him. The Harijans and their cheries are the worst sufferers in this respect. The Bhoré Committee have rightly recognized the place of the villager in the plan for relief. "We have taken the country side," they say, "as the focal point of our main recommendations, for it is the tiller of the soil on whom the economic structure of the country eventually rests. It is his patient toil that year in, year out, gives the nation its food, such as it is, and the country's main manufacturing industries, their raw material. It is from his meagre earnings that the larger provinces drew nearly a third of their total revenues before the war. It is on the produce of his husbandry that the country's balance of foreign trade largely depends. When pestilence and famine sweep through the land it is he who pays the heaviest toll, while it is only the outermost fringe of such public services and amenities as the country enjoys that occasionally comes within the orbit of his daily life."

We gather that in all about Rs. 65 lakhs was spent from Government grants and local finance during the long period of 1895-1936, on rural water supply and rural sanitation. No data however is made available as to how far this expenditure has resulted in the execution of works useful to the villagers as such. But the total expenditure of Rs. 65 lakhs over a long period of 40 years is in itself a revealing index of the negligible importance attached to rural water supply in the provincial health programme during the period.

C.R.'s Rural Water-Supply Fund

16. It was given to the popular ministry in 1937 to launch upon a planned programme for the first time for provision of rural water

supply. We may, with justification, recall here the budget speech of the then Prime Minister Sri C. Rajagopalachari made on 1st September 1937. He said, "92 per cent of the total population of our province live outside municipal towns. The problem of an adequate drinking water supply to these people is still to be solved. Foremost among the things that the school of public service which the present Government represents wishes to achieve, is to make pure drinking water available for the people of every village in our land. Not roads, not even literacy can possibly be a greater or more urgent need. My hon'ble colleague in charge of public health hopes to issue ere long a comprehensive memorandum on the subject. But I may broadly indicate the principles on which we propose to work. There are some 50,000 villages in our province in which some 80 lakhs of families live. If our experts adopt the urban standards to which they are accustomed, we can never hope to solve this problem . . . A survey would be made and data secured in respect of all the districts and a priority list setting out the exact order in which the work should be executed will be prepared on definite principles. With a definite and clear cut priority list, not only lapses in grants would be avoided but also a pre-determined progress in the programme would be achieved. . . . The importance of the subject induced me to dwell on this problem at some length though without a precedent in the presentation of budgets. . . ."

Definite proposals in this regard were announced in his next budget for 1938-39. Sri C. Rajagopalachari then stated:—

"Our aim is to secure by means of a comprehensive scheme spread over a number of years that within a reasonable time, every village in the province will have the benefit of a pure water supply, in the form of either a protected well with a pulley, if not with overhead tanks and taps, or a borewell with hand pump attached, or a connection from an existing municipal water main for villages through or near which such a main might happen to pass. *We consider that this scheme should be financed from the provincial funds without insisting on any contribution from the villages or the district boards.* . . . In order that the scheme may not be held up for want of funds the Government propose this year to establish an earmarked fund like the Famine Relief Fund for the improvement of rural water supply which will serve this one specific and great purpose . . . I hope the house will give its seal of approval to this great step by which the Government hope to ensure steady progress of the scheme independently of the budgetary exigencies of particular years."

A determined effort was thus made for the first time in the history of our administration, to provide drinking water to our villagers. It is also the first time when the principle that the Provincial Government should take up the responsibility for supply of drinking water to the rural areas without expecting any contribution from the people was enunciated. The Bhore Committee have

not failed to take note of this fact. They have stated in their report, "In 1937 the Government of Madras formulated a comprehensive scheme of development for rural water supplies and constituted a rural water supply fund to which yearly contributions were to be made. A comprehensive 10-year plan was worked out but unfortunately before it was brought into operation the outbreak of the war put a stop to its progress. It is to be hoped that this important subject will receive early consideration in this province during the post-war period."

The procedure in vogue

17. The scope of the rural water-supply fund so started was to provide free drinking water supply to all non-panchayat rural villages with 5,000 and less population; and also to panchayats with 5,000 and less population and with an annual income of Rs. 3,000 and less. The fund has been administered by the Revenue Board through the District Collectors, who in their turn are assisted by minor irrigation overseers in technical matters. The procedure in vogue for prosecuting rural water-supply schemes is based on the orders of Government in G.O. No. 5825, P.H., dated 11th December 1940. It is the revenue field staff—consulting local health staff where available—who select the site for wells, tanks and the like for villages. The minor irrigation overseers usually prepare the plans and estimates and the Collectors sanction them up to a limit of Rs. 2,500. Schemes costing more than Rs. 2,500 are sanctioned by the Revenue Board who consult the Sanitary Engineer on such estimates if they so desire. The Sanitary Engineer however has to be compulsorily consulted in respect of schemes costing more than Rs. 10,000. The works are executed under the inspection and supervision of the revenue staff and minor irrigation overseers.

Little progress in subsequent years

18. The rural water-supply fund began with an initial contribution from provincial revenues of Rs. 15 lakhs in 1938-39. In the subsequent years in the Advisers' regime about Rs. 10 lakhs per year was added. But with regard to execution, according to the data available, all the works as planned were not executed. We learn, that out of 31,707 works originally planned only some 8,673 works were carried out and the total expenditure incurred up to 30th September 1946 was about Rs. 78 lakhs. We have no precise information as to how many of these wells struck water, how many of them yielded drinkable water and how many of them are actually put in use by the villagers. The fund as such was altogether closed down from 1946-47.

Rural Water-Supply Committee, 1939-40

19. In June 1939, a committee was constituted to report on the best and most efficient way of providing potable water in the rural areas of the province, the type of water supply to be provided for different kinds of villages and soil conditions, the agency for putting down bore wells, the agency for their maintenance, the suitable

type of pump for bore wells, on centralized purchase of stores, local manufacture of equipment for rural water supplies, and the best method of utilizing waste water. The report of that Rural water-supply committee was submitted to Government in 1940. The Government passed orders from time to time on individual issues only without visualizing the picture as a whole. No concerted action was taken on the report as a whole. Nay the report itself has not been made available to the public.

Local bodies saddled with unequal task

20. From the foregoing it will be seen that though municipalities and local boards charged with the duty of providing safe drinking water and drainage in urban and rural areas have been functioning in our province for more than sixty years the progress made in this direction is lamentably poor. Thirty-five out of the 81 municipalities in the province have not been provided with any protected water supply and even in those which have a protected water supply the supply is very inadequate in most cases and is unable to cope with the needs of the population. Only seven municipalities have partial drainage schemes. Out of about 997 urban panchayats only 12 enjoy the "luxury" of a protected water supply and there is nothing like a drainage system anywhere in the non-municipal areas. With regard to rural water supply we are not even on the very fringe of it. The reason for this deplorable state of affairs is not far to seek. The Provincial Government has all along not realized its own responsibility to provide the fundamental necessities of good and safe drinking water and drainage to all the people of the province. It has shoved it to the shoulders of the municipal councils and local boards. It has been content with doling out occasionally some grants or loans to these bodies for the purpose. The local bodies with their slender financial resources have been unable to cope with this most important and huge task. The Provincial Government spent its money more on remunerative enterprises like irrigation and electricity besides the maintenance of law and order. It may be that it considered that money invested on environmental sanitation, drinking water supply and drainage, does not repay in the shape of profits or dividends. But it overlooked the fact that money spent for enhancing the vitality and the longevity of the people of the province and increasing their productive capacity as a consequence is a better investment in the long run. What little it spent on public health was spent more on the curative (medical) side and that too in towns. The rural population who are admittedly the very backbone of the province are completely neglected and left in dirt, disease and helplessness.

In a note prepared by Mr. F. J. Richards, Secretary to Government, Local and Municipal Department in 1920, he wrote that presumably when in 1871 the Government diverted to the rate-payers all responsibility for sanitation and similar amenities, they expected to rid provincial revenues for ever of an awkward burden.

He also wrote that "Subsidies became the object of much haggling and loud clamour; and the growth of the mendicant habit demoralized boards and councils." These remarks made twenty-seven years back, hold good even to-day.

Postwar Reconstruction Schemes 97 and 98—Defective

21. It was only when a popular Ministry was in office from 1937 to 1939 that a serious attempt was made as shown above by Premier Rajagopalachari to create a fund for rural water-supply and to provide drinking water to all the neglected rural population within ten years; entirely at the cost of the Provincial Government. But it proved abortive on account of the outbreak of the Second World War and the resignation of the Ministry in September 1939. The Government did not at any time till 1944 take steps to formulate a planned scheme for the provision of drinking water and drainage to the whole province within a measurable time. While the war was going on however, postwar reconstruction and development schemes were planned during the Advisers' regime in 1944 on various subjects. Scheme No. 97 relating to rural water-supply was practically the same as Sri Rajagopalachari's scheme. Scheme No. 98 which related to urban water-supply and drainage was framed on the very old conception that the primary responsibility of providing these amenities rested on the local bodies and that the Government should only come to their aid by paying half the cost as grants. Nor has the scheme made any headway so far.

Government agency ill-organized

22. Another important reason for the deplorable state of affairs in this matter is the way in which the Government agency for investigating, designing and executing water-supply and drainage schemes has all along been organized. The Government has not organized a separate self-contained, fully developed and efficient Public Health (Sanitary) Engineering Department to be in sole charge of these works. The investigation and design of schemes is done by the Sanitary Engineering Department, their execution by the general Public Works Department, and their maintenance is left to the municipal agencies. There is thus diarchy in the prosecution of the works, and triple control in the end. The neglect of this important department by the Government will be referred to in greater detail later in this report.

In the matter of executing the rural water-supply scheme inaugurated in 1938 the progress has not been satisfactory, due to the absence of a properly organized Public Health Engineering Department to take up such work. The Collectors who were entrusted with the work could not do justice to it for want of adequate technical assistance.

Provincial State should assume entire responsibility

23. Our object in this retrospect is not to criticize the foreign Government that has quitted, for its omissions during its regime, but to suggest ways and means for the successful fulfilment of this

all important task in future by our National Government. It is in the fitness of things that the first Health Minister of the National Government of this province should have constituted a committee like ours to give a planned scheme for providing the two fundamental necessities of water-supply and drainage to all the people of the province, living both in the rural and urban areas, within a measurable time. *We are emphatically of opinion that the entire responsibility for providing these two basic necessities to all the people of this province irrespective of their ability to pay, should be taken up by the Provincial State, and that the municipal councils, local boards and panchayats should be divested of it. Unless this is done, the progress in future will be as bad as in the past and the health of the province will not improve. Finding the necessary finance, organizing the department that carries on the work on sound lines and procuring the materials of construction, should become the duty of the State.*

We now proceed to discuss these subjects and offer our proposals thereon in the succeeding chapters.

CHAPTER IV

Finance

A ten-year plan recommended

24. We consider that it is highly desirable and necessary to have a ten-year plan for the completion of water-supply and drainage works all over the province. We would commend the example of Soviet Russia which has managed to achieve spectacular results in nation-building activities within a short time. It is that country's five-year and ten-year plans and the successful execution thereof within the prescribed time which have made it a model to the world in this respect. That country started on its programmes under conditions no better than now obtaining in this province. But with a determined effort it succeeded in its object. We believe that the stage has come when the common man's primary necessities have to be fulfilled by the State within as short a time as possible, whatever be the cost. We are strongly of opinion that the supply of safe drinking water to all the rural and urban areas should not be deferred to more than ten years under any circumstances. If for any reason the Government feel financial handicaps, we suggest that the drainage schemes may be spread over a period of fifteen years. Even as early as 1938 there was a proposal that the rural water-supply scheme should be completed within ten years. Had not the war broken out and had the popular Government continued the whole scheme would have been completed by this time. It is also most deplorable that after a continued existence of more than sixty years municipal water-supplies are not yet completely installed.

We therefore urge that water-supply for the whole province, rural and urban, should be completed within ten years at any cost, and a fundamental responsibility of the State be thereby discharged.

Rough cost of schemes ahead

25. We give below the approximate cost of the schemes, water-supply and drainage, rural and urban, based on the prices given out in Schemes 97 and 98 of the Madras Postwar Reconstruction and Development Schemes of 1944. We know that the present rates of labour and cost of materials are as much as two and a half times the prewar rates. But with State manufacture or State control of most of the materials, it might be possible to reduce the cost considerably. We also hope that the present labour position will improve if the conditions settle themselves in the country and if prices of foodstuffs become lower. Moreover as it must take some two years before the organization of personnel and the procurement of materials can be in full swing, we hope by that time conditions of labour and prices of materials would assume normal levels. It is likely that in the initial stages of the plan the progress will be somewhat slow but we visualize that it will be progressively accelerated in the after years so much so that the whole work will be completed within the ten years' limit. In giving therefore a ten-year plan there need be no alarm at the abnormal conditions prevailing at this stage.

	Crores.
1. Rural water-supply (for all villages with 5,000 or less population and for panchayats with 5,000 or less population and with annual income of Rs. 3,000 or less (vide G.O. No. 2310, P.H., dated 24th June 1938)	6.26
2. Petty rural drainage works	1.74
Total, Rural schemes ..	8.00
3. Water-supply for municipal and other urban areas including municipalities and all the villages not covered by the Government Order above mentioned	13.00
4. Drainage schemes for the municipal and other urban areas mentioned in item 3	19.00
Total, Urban schemes ..	32.00
Grand Total, Capital cost ..	40.00

Financing the Schemes

26. As regards the method of financing the schemes by the State, we are of opinion that the provision of safe drinking water-supply and drainage works for rural areas should be carried out by the Government from their own funds without asking for contribution or taxes in return. The villagers are too poor to contribute towards them except perhaps by way of providing labour at times.

The G.O. No. 2310, P.H., dated 24th June 1938, is based on this principle.

With regard to water-supply and drainage schemes in municipalities and other urban units it is the State that should provide them without any considerations of financial return. But, as the people of those areas are capable of making some contribution for these amenities, the State may levy water and drainage taxes on the various municipalities and panchayats according to the capacity of each locality to bear the burden and may vary the rates of taxation from time to time judging by the same standard. According to our view therefore, the whole planning—investigation, design, execution and maintenance—of all those schemes should be entirely provincialized.

The water revenues based on the tap rate or metered system as well as the income on sewage farms, should be taken over by the Provincial Government itself. The municipality and panchayat should merely act as the agent of the provincial Government in the collection of the abovementioned water and drainage taxes and water and sewage farm revenues; and assist the Government in the maintenance of the works.

A Provincial Water and Drainage Fund

27. The Financial Relations Committee appointed by the Madras Government in 1920 recommended that the maximum tax which a municipality may levy for financing water-supply and drainage should be taken as 12½ per cent of the annual rental value. We propose that the *maximum* water and drainage tax which the Government may levy should not exceed 15 per cent in municipalities and 10 per cent in other urban areas. All the taxes and water and sewage farm revenues realized by the Provincial Government from all the urban areas should be pooled together into a separate fund called the "Provincial Water and Drainage Fund." This fund by itself, we realize, will not be sufficient to meet the cost of the schemes under our plan. The Provincial State should earmark some amount annually from the Provincial revenues for this purpose and add to this fund, having regard to the programme immediately ahead.

Expenditure on public health very meagre

28. In this connection we want to show by the following table how ludicrously low is the amount spent by the Provincial Government hitherto for public health compared to Great Britain and United States of America :—

Country.	Income per capita.			Expenditure on medical and public health activities per capita.			Percentage of the total Provincial expenditure spent on medical and public health activities.	
	RS.	A.	P.	RS.	A.	P.		
United States ..	1,371	7	3	51	6	0	13·8	
Great Britain ..	1,049	6	5	54	8	11	20·4	
Madras (Indian Union).	..	62	3	3	0	6	2	4·7

These figures are taken from the Bhole Committee report. The Provincial State of Madras should spend at the rate of Rs. 3-3-0 per capita instead of six annas two pies per capita as now spent for Public Health if the ratio is to be the same as Great Britain's; and Rs. 2-5-0 per capita if the ratio is to be the same as that of the United States. We suggest that the Government should spend much more than it does now from its revenues for this purpose.

Provincial Government should raise earmarked funds

29. It may be that the Provincial State may not be able to provide all the funds needed for the ten-year plan from current revenues. We therefore propose that the Provincial State should augment the fund by getting loans on a large scale earmarked for this purpose. We are hopeful that insurance companies will come forward to invest their surplus funds in loans to Government for this specific purpose at reasonable rates of interest, to be repayable over a long period, say 50 or 60 years. The advantage to the companies is that their loan is well secured, and the purpose for which it is spent is calculated to improve the health, enhance the productive capacity and increase the longevity of their policy holders. It will also increase their popularity with the people and bring in better business. We also expect that other philanthropic bodies and well meaning business people will come forward to lend money to the Government for this laudable purpose on similar easy terms.

We also want to emphasize that the supply of safe drinking water and provision of drainage is as important as Prohibition and more important than all other ameliorative measures adopted by the Government. We therefore suggest that the Provincial State should freely resort to raising loans for the purpose as otherwise it may feel handicapped by paucity of funds at every turn on account of its limited financial resources. The interest and annuity which the Government has to pay year after year on these loans is only an insurance premium paid by the State against the ill-health, low vitality, and high mortality of its people. It may be said to correspond to the old age pension and sickness insurance payments made in other countries in modern times. The municipalities and local boards should not be permitted to raise loans for these purposes.

All schemes to be under Government control

30. We have advisedly proposed that not only the execution but also the maintenance of completed schemes should be under the control of the Government agency, as we consider that the present level of efficiency in maintenance of schemes by municipalities and local boards is not up to the standard. Costly water-works and drainage installations are allowed to fall into decay without appropriate repairs and renewals in time; essential items of maintenance are neglected and the whole system allowed to deteriorate. Above all, the collection of water charges in municipalities at present is not uninfluenced by local politics; waste of protected water-supply is being allowed unchecked and municipal water revenue is being

lost. This cannot be allowed to continue when the Provincial State have to shoulder heavy commitments in the prosecution of the schemes ahead. A high level of efficiency is to be ensured in the maintenance of schemes, and vigilance exercised in the collection of water and drainage revenues, so that the maximum return is secured by the Government for the amount spent from the Provincial Fund.

CHAPTER V

Materials of Construction

Requirements for the ten-year plan

31. We now proceed to give some idea of the materials of construction which will be necessary for the fulfilment of the ten-year programme proposed by us. Dearth of materials is an acute problem at present, and concerted measures are called for to overcome it successfully.

It can be assumed that about 50 per cent of the cost of urban water-supply schemes may comprise the price of cast-iron pipes and specials as well as galvanized iron pipes and fittings. Cast-iron pipes are usually required for the conveyance of water from the source to the town and again for distribution of water-supply within the several areas of the town. Galvanized iron pipes are needed for the provision of house service connections from the street mains and also for providing public fountains. Pumping plant and machinery including manufactures of a proprietary nature like filtration plants and the like, would constitute a portion of the total cost. The remaining portion of the cost comprises the value of normal building materials such as bricks, stone, cement, lime, steel, wood-work and also labour.

Similarly in all underground drainage schemes, very nearly half the total cost constitutes the price of stoneware pipes for sewers and cast-iron pipes for pumping mains. Pumping plants will be necessary where the configuration of the town necessitates a pumping scheme. In other respects the bulk of the drainage schemes will require normal building materials such as bricks, cement and lime. In our Province where vast tracts of open country are available which could be fully exploited for farming, it may not be necessary to import from foreign countries mechanical contrivances for the disposal of sewage. Farming if properly organized is financially a paying proposition and offers other advantages besides. We make special reference to this subject as we feel that sewage farming should invariably be adopted for disposal of sewage in our Province except in the rare cases where paucity of suitable land and other exceptional local features may point to the adoption of any alternative methods of disposal.

Rural schemes must essentially suit rural life

32. As far as rural water-supplies are concerned it may be possible to do with a minimum of piping work as a distribution system or a long pumping main will not be normal features of these schemes. It is uneconomical and even undesirable to adopt urban standards of distribution of water in rural areas. In fact rural water-supply schemes are usually designed to supply at the rate of 5 gallons per head per day. Village wells and tanks form the usual rendezvous for the womenfolk to pass a few chatty moments, while drawing their water for the day. The provision of street fountains apart from adding to the cost unnecessarily would also alter the character of the rural habits. Our design of a rural water-supply scheme must essentially suit the genius and tradition of our village life.

Almost all rural water-supply wells could thus be managed with normal building materials like brick, cement and lime. Bore wells will of course require boring pipes, galvanized iron pipes and hand pumps. In designing rural water-supply schemes the engineering profession has so far completely ignored to exploit the possibilities of wind mills. It seems to us that natural forces could be usefully utilized for reducing the maintenance charges in cases where water has to be pumped. If in any of the villages electricity is made available within the ten-year period, it should be used for pumping water, with an electric motor and pump.

Non-availability of cast-iron pipes

33. Cast-iron pipes and some specials are manufactured in this country, but other specials and fittings have to be imported from abroad. Likewise pumping plants and machinery and manufactures of proprietary equipments for water treatment will have to be imported from abroad. All other building materials including stone-ware pipes are available within the country.

The position regarding the availability of cast-iron pipes is however uncertain. At present only Bhadravati Iron Works, Mysore, and the Bengal Iron Company are manufacturing these pipes. We gather that it may not be possible to obtain cast-iron pipes from Mysore Iron Works for some years as they have already heavily booked orders. The position may be eased if and when this company expands its productive capacity. We understand that there is such a proposal but we do not know how long it will take before it fructifies. As regards Bengal Iron Company, we understand that the company is booking orders so heavily that it is unable to promise deliveries within any reasonable time limit. Even at the present time we are told that many schemes under execution are held up by delay in obtaining cast-iron pipes from the manufacturing firm. It would appear they are not prepared to book any orders at present for delivery within the next two years. The position is likely to get more acute when other provinces proceed to implement their own programme in regard to their water-supply and drainage schemes. Besides non-availability of pipes, an

increasing level of prices also will result in such a contingency. It would take some years before any scheme of industrial expansion within the country could be brought into effect to increase the output in the manufacture of cast-iron and galvanized iron pipes.

Import from abroad of pipes and plant necessary

34. In the circumstances, we would favour the bulk purchase of cast-iron pipes and necessary pumping plant and machinery from abroad. We have to secure the materials required from the United Kingdom and the United States of America and other countries at competitive prices. Financiers would be coming forward to negotiate on behalf of the Provincial Government with overseas markets for shipping them. This is however a matter which should be negotiated at higher levels by the Indian Dominion. Madras should make representations to the Dominion Government and get full help for importing these materials from abroad at top priority. The Provincial State will also have to arrange full facilities for the quick transport of these materials from the unloading port to the inland work site by road and by rail. The Dominion Government should also be requested to waive the import duty, which is as much as Rs. 65 per ton, on cast-iron pipes, and other necessary plant and machinery imported from abroad by the Provincial State for water-supply and drainage schemes.

State control necessary for manufacturing other materials

35. As regards the other materials, stoneware pipes, bricks, cement, lime, steel and so on, they are all required by the State in large quantities over successive years, for the schemes. It is our view that the State should take over the manufacture of these materials in its own factories, for that would save a lot of money to it. The State should also see—whether it manufactures these materials itself, or purchases them from others—that the quality of the materials supplied to these works conforms to specific standards.

Water-supply and drainage schemes are not the only works contemplated in the coming years. There is the Housing Scheme; large projects and public buildings are also under contemplation. In addition, private buildings and structures would also be growing up rapidly. In the circumstances, it would be too much to expect that the building materials would continue at a normal level as regards availability or prices. Therefore it is necessary that the State should take up the manufacture of these materials itself or at least it should control private manufacturers to supply to the State the required materials at controlled rates in preference to others.

36. If there is any unavoidable delay in the execution of urban works on account of the delay in getting materials from abroad and such other reasons, the rural water-supply scheme may be accelerated in their place and finished earlier than the ten years contemplated in our plan. But the organization of the technical personnel required should be taken up immediately.

CHAPTER VI

Organization—Urban Schemes

Supreme importance of organization.

37. We need hardly point out that in the carrying out of the large-scale plan ahead, the question of organization holds the key position. The State may draw up the programme and lay down the policy to be followed; it may find the money by taxation, borrowing or otherwise; it may procure the materials from within or without the country by concerted measures; but in the actual prosecution of the schemes, it is the organization of technical personnel of various grades as created and built up by the State that becomes most important. The measure of efficiency of the organization is the measure of achievement of success of the plan.

Water-supply and drainage schemes have now to be investigated on an extensive scale; such investigations call for competence which would ensure that the scheme proposed for a particular station is the cheapest and the best. These can be attained only if an expert eye visualizes the hidden potentialities of local conditions. In the design and drawing up of the schemes, again, the same degree of efficiency is essential. In the execution of the schemes also, a sound knowledge of Public Health Engineering is indispensable to see that the quality of the works and quickness of execution are secured for the minimum of expenditure. To the extent to which the State builds up its technical organization to an efficient level, to that extent alone can it obtain good results for the time, labour and money spent. We attach special importance to this aspect of our plan, as the schemes involve the expenditure of several crores of rupees and the consequences of an inadequate or ill-equipped technical organization would be too serious to the State and the people for whose benefit these schemes have to be executed.

The Sanitary Engineering Department—A historical retrospect

38. Earlier in this report we had occasion to refer to the defective organization obtaining at present and to the treatment meted out to the Sanitary Engineering Department. A Sanitary Engineering Branch which was brought into being as early as in 1890 has nevertheless remained a shadow department of the State all these years. It was not permitted to develop to its full stature, nay even its stunted growth was being cut from time to time. The rapid and efficient growth, development, and achievements of the Hydro-Electricity Department—a department of recent origin—is a picture of perfect contrast. It is true that the latter department paid out handsome dividends, and the Government spent all the necessary money for its rapid growth, which they were disinclined

to do in the case of the Sanitary Engineering Department which is not demonstrably remunerative in money values.

Apart from finance other factors also had largely contributed to the stunted growth of the Sanitary Engineering Department. The Minister of Health, in his inaugural speech, has referred to the subject of making the Sanitary Engineering Department an independent one. Before we proceed to give our concrete proposals on this subject it will be highly desirable to trace the history of the Sanitary Engineering Department up to the present time so that the authorities may look back and avoid the mistakes of the past. We consider this is very necessary to enable the Minister to appreciate properly our proposals in this matter.

39. A Sanitary Commission was appointed for Madras in 1864 at the instance of the Government of India. It was considered expensive and less and less useful in later years. In 1888 the Government of India suggested the formation of a Sanitary Board. The Government of Madras did not favour such a Board, but considered that, "the appointment of a Special Sanitary Engineer was a reform absolutely required," and that "the officer should be one with adequate experience of sanitary works both in Europe and the East and whose duty it would be to act as adviser relating to Sanitary Engineering." With the concurrence of the Government of India, a Sanitary Engineer was accordingly appointed in 1890. The Chief Engineer, Public Works Department, then proposed that the Sanitary Engineer should be graded on the Public Works Department as a Superintending Engineer, extra to the regular cadre. The Government did not agree to this proposal and called for a joint note from the Chief Engineer and the Sanitary Engineer in the matter.

40. This joint note, dated 21st May 1891, dealt with the difficulties in the way of the Public Works Department carrying out the execution of schemes designed by the Sanitary Engineer. The note recommended that the Sanitary Engineer and his department should be made totally independent of the Public Works Department as far as designing and execution of works was concerned and that the Chief Engineer should merely act as adviser to the Government on schemes which they might refer to him. Three sanitary circles were proposed; and the Sanitary Engineer, with a Deputy Sanitary Engineer had to direct, supervise and execute schemes with subordinate staff to be transferred gradually from the Public Works Department and the latter augmenting its strength with new hands. The proposals were generally approved by the Government. Under that arrangement a large volume of work on several water-supply and drainage schemes was turned out in the nineties. Many of the major schemes now in operation in the Province were executed or initiated at that time. But the organization underwent a change after a short period. When in 1896 the Sanitary Engineer represented with justification, that he was understaffed to cope with the growing volume of work, the

Government instead of augmenting the staff of the Sanitary Engineer revoked their earlier decision, and agreeing with the view of the then Chief Engineer, directed that the work of the Sanitary Engineer be confined to the investigation and design of schemes, and that the execution of the schemes be entrusted to the Public Works Department.

Diarchy results in inefficiency

41. Here started the first deflection of the normal course of development of the Sanitary Engineering Department. A designer divorced from the execution of his work cannot do justice either to the design or to the maintenance of the completed scheme. The officers in the field executing works designed by another department were also handicapped in that they were unable to understand the significance of the details of design. So much so inefficiency crept in on both sides. There have been many instances when the Sanitary Engineer had taken exception to the execution of the work, not to speak of the controversy between the municipal councils and the Public Works Department officers in charge of execution.

42. To the further representations of the Sanitary Engineer on the handicaps of such a dual system, the Government agreed that "if funds were abundant, the best plan would be a separate Sanitary Engineering Department," but the Government would not afford funds. The argument is not sound. It does not take into account the inefficiency of execution and wastage of what little funds could be spared for the purpose.

In 1898 again, Mr. J. A. Jones, the Sanitary Engineer pleaded most appealingly for a reconsideration of this decision, pointing out that this dual system did not actually result in any saving or expedition, but the Government did not pay heed to his appeal. Eventually the father of Sanitary Engineering in the Madras Presidency was driven to despair. He left these shores for good. Soon after another British Expert occupied the chair for a very short time. He also left here as he felt the conditions stifling for him.

Thus the department was not allowed to develop. The Sanitary Engineer was graded to the Public Works Department extra to the cadre. If subsequent events are any proof, diarchy turned out to be a tragedy in the Sanitary Engineering Department as it did prove a failure in other spheres of administration. All the time, however, the additional posts created for the so-called separate Sanitary Engineer's department were being availed in practice for advance promotion to the Public Works Department officers, even before their turn in their regular line.

Recommendations of the Public Works Department Reorganization Committee not implemented in practice

43. In 1919, agreeably to the recommendations of the Public Works Department Reorganization Committee, specialist services were formed under the terms and conditions laid down by the Secretary of State. The Madras Government however did not

favour the formation of such specialist service and took the stand that officers of the general Public Works Department would be competent to handle major sanitary schemes also. Apparently they went contrary to their own earlier stand taken in 1890 when they held that the appointment of a Sanitary Engineer with necessary qualification was a reform absolutely required. Nevertheless the organization of a specialist Sanitary Engineering branch became inevitable in the light of the decision of the Secretary of State. Sanction was obtained for the number of posts to be created in this branch but barring a few exceptions, the posts continued to be filled by officers of the general Public Works Department as was being done till then. Even when specialist officers happened to occupy the post of Sanitary Engineer, the conditions under which they had to serve, did not make for success or efficiency in the work. The net result was that the recommendations of the Public Works Department Reorganization Committee and the final decision of the Secretary of State thereon were nullified.

A short-lived change

44. In 1933, the Government transferred the control over the Sanitary Engineer from the Public Works Department to the Local Self-Government Department for the better co-ordination of Public Health Engineering activities. The Sanitary Engineer was also made the head of his department occupying an analogous a position to the Surgeon-General and the Director of Public Health. In 1935, the Government declared the Sanitary Engineering Department as a Provincial service entitled the Sanitary Engineering Service and issued special rules therefor.

In 1936, the Government directed that the execution of all large municipal schemes 'involving technical skill' would be entrusted to Engineering firms on contract under the supervision of the Sanitary Engineer. The Government also decided that in the case of water-supply and drainage schemes costing less than Rs. 5 lakhs the scrutiny of plans and estimates by the Chief Engineer, Public Works Department, need not be obtained.

In 1938, however, the Government stated that the new system, though it had not worked for long, had led to delays and difficulties in execution and therefore decided to place the Sanitary Engineering Department back again under the expert control of the Chief Engineer, Public Works Department, and under the administration of the Education and Public Health Department. In December 1938 again, the Government kept the post of the Sanitary Engineer in abeyance and created a temporary post of Superintending Engineer (Public Health) and Deputy Chief Engineer. But in 1940 they cancelled this arrangement and made the Sanitary Engineer's office separate from the Chief Engineer's. In G.O. No. 5337, P.H., dated 12th January 1940, the Sanitary Engineering Service was merged into the Madras Engineering Service as a separate class and rules were issued for this service.

The Department rendered ineffective

45. We are unable to resist the feeling that at no time during the long period of 1890 to 1947 was any full-hearted attempt made to build up this special branch into a separate, self-contained and useful organization. We find that the principle of a separate and independent Sanitary Engineering Department which found acceptance by the Government in 1890-96 was, after a long interval of 40 years, revived in 1936 but was again given up. Whatever be the exigencies which might have operated from time to time, the fact remains that after 57 years of existence the Sanitary Engineering Department is now reduced to the extraordinary position of having not a single permanent officer in it, and all that we are left with is a nucleus of draftsman staff in the Technical section, most of them on the verge of superannuation! Such a result could only have been the outcome not of any constructive policy but a negation of it.

Progress held up by procedural defects

46. Here we wish to bring out how the defective procedure obtaining hitherto in the matter of investigation, design and execution has impeded progress of schemes at every stage. It is left to a municipality or other local body to take the initiative for its water-supply or drainage scheme. When a municipality approaches the Government for having the scheme investigated, the Government and their Engineering department take their own time to respond. The Sanitary Engineer will have a preliminary investigation made and report to the Government on the probable cost and feasibility of the scheme. The municipal council is then asked to establish its financial ability to pay its share of cost of the scheme. If it succeeds in doing so, a regular investigation will be ordered at the cost of the municipality. The investigation drags on for a long time. The report on the investigation with details of alternative schemes and costs then passes from the Sanitary Engineer to the Chief Engineer and to the Government.

The local body has then to choose between the alternatives and settle on its methods of financing the scheme. Generally, when going into the details at this stage, the local body finds itself unable to shoulder heavy expenditure on such schemes from its existing revenues. It also feels nervous to levy the additional taxes required for the purpose. At this stage, therefore, the scheme is dropped *sine die* in many a case. If, however, the local body crosses this hurdle, and shows its capacity to bear its share of the burden, then the Government orders the preparation of plans and estimates for the scheme.

Here the matter is set for another protracted delay. The Sanitary Engineer takes his own time for preparing the plans and estimates. He pleads want of staff if more than a limited number of schemes are to be drawn up at a time. He also proposes the reinvestigation of the scheme in part or full if its previous investigation was done years ago. When he is at all able to take up the

scheme, he prepares the designs in pencil stage in his technical section, which are then scrutinized by the Chief Engineer with the help of his own technical staff. The plans and estimates are then finalized by the Sanitary Engineer and sent to the Chief Engineer again for scrutiny and approval. This check and re-check as between the two offices at different stages, involves delay at every stage and the planning of the scheme between the Sanitary Engineer and the Chief Engineer is thus spread over a long time.

Even when the planning sees the light of day, the scheme must cross other hurdles. The Government must assign a high rank for it in the priority list. The assigning of a high rank depends on the favours of the Government that be and the pressure brought to bear on it. Very often schemes in a less advanced stage steal a march over others in a more advanced stage. And finally, when plans and estimates are ripe for execution and everything else is ready, the Government must feel the ability or inclination to dole out their moiety of the cost of the particular scheme before they include it in the Budget.

Several hurdles before the local bodies

47. Thus between the local body's initiative for the scheme and its coming up for execution, there are several hurdles to be crossed at many stages. On account of this, most of the schemes get stuck up in various stages without moving forward. And local bodies go on paying the cost of investigating and reinvestigating their schemes at intervals of years.

The Sanitary Engineering Department too design and redesign schemes revising plans and estimates for the same scheme as and when they become out of date because of the growth of the population or a change in the cost of materials and labour—due to this long time lag between investigation, design and execution of the scheme. Even during the very execution of schemes delays are occurring due to lack of co-ordination. The failure to take timely action in securing the pumping plant for the Salem-Mettur Water-supply Scheme has kept the entire scheme out of use for the municipality for good many years now. As much as Rs. 20 lakhs out of the sanctioned cost of Rs. 33 lakhs have been spent on the scheme long since, but it has remained idle capital. Even now, we understand that it took nearly one full year for the Public Works Department to decide on the tenders for the pumping plant received in 1946, and the cost of the plant was soaring up all the time. The completion of the Negapatam Drainage Scheme is another instance where the scheme though completed some years since is yet to be handed over to the Municipality. We do not wish to multiply instances. All these procedural delays, duplication of work and lack of co-ordination will disappear if the State itself takes up the responsibility of installing all these schemes of its own accord in a planned method and a unified technical department is charged with such work at all stages, so that responsibility for results is undivided.

Further handicaps and anomalies

48. In addition, there are other defects in the very working of the organization as it exists, which prevent the efficiency of work. The investigation and design alone of schemes is done by the Sanitary Engineering Department. The general Public Works Department carry out only the execution of the schemes. And completed schemes are maintained by the Municipal Engineering staff. There is thus divided responsibility and multiple control. Each of the three agencies is feeling handicapped in its work as such distribution of functions is the least conducive to efficiency.

Another important feature has been that officers of the Public Works Department, mechanical, irrigation or electrical, who possessed no special qualifications for investigation, design or planning of sanitary schemes, have been appointed to the specialist post of Sanitary Engineer. Besides, the practice to appoint officers of the Public Works Department to the post of Sanitary Engineer is not conducive to the efficiency of that department inasmuch as he has to look to his prospects and promotion in the regular line and can have no abiding interest in this department to which he is temporarily posted.

As early as 1920, the Public Works Department Reorganization Committee recommended special recruitment of specialists who should be responsible not only for the design, but also for the supervision of construction of major sanitary schemes. They also said. "it is probable that it will be many years before India can compete with Europe as a school for Sanitary Engineers. . . . We recommend that in future posts in the Sanitary service should be filled by officers specially recruited for the purpose, the main qualification being the candidates should have sound practical training on sanitary works and should be conversant with the latest development of modern sanitary science." It is unfortunate that the Madras Government has not been following these recommendations. If proof is required at all that a competent specialist can achieve results, we may quote the instance of Mr. J. A. Jones who, as the first Sanitary Engineer from 1890 to 1904, has more substantial work to his credit than any other officer who succeeded him, and many of the old schemes in the Province which are still under satisfactory operation bear the stamp of his professional skill and executive ability.

To add to these anomalies, the designs and plans prepared by the Sanitary Engineer with his technical staff, who are trained in the line, are scrutinized by the Chief Engineer's technical staff who have no such special training. This can only lead to friction and delay without adding to efficiency of work. What is required is the superior scrutiny of the Chief Engineer himself, at a higher level, depending on his proficiency and experience in this special subject.

Further, the defects in the organization extend right down to the subordinate technical staff and even to the administrative section of the Sanitary Engineer's Office. We understand that until recently the technical section engaged in the designing of water-supply and drainage schemes and connected works was so

ill-organized that men in service faced permanent stagnation in prospects, so much so a draftsman otherwise qualified, entered in the Third Grade and ended his thirty years of service as a Third Grade draftsman; a factor which is bound to tell on the efficiency of work in the office. We are glad to learn that proposals are under consideration for organizing the technical section on more rational and progressive lines. Further, the Administrative Section of the Sanitary Engineer's Office has been organized only as if it was a circle office of the Public Works Department despite the fact that the Sanitary Engineer's functions extend over the entire Province and his staff has to deal with provincewide matters. An inadequate and ill-organized section would result in the officers being saddled with non-technical work to the detriment of their more important duties. The position of the Municipal Engineers and their subordinate technical staff is also not satisfactory. They are charged with the duty of day-to-day maintenance of the sanitary works, but they are poorly equipped for it. We learn that in most cases they are not supplied with the completion plans of the works they have to maintain. While they are the subordinates of the Sanitary Engineer, they have also to serve other lay masters like the Municipal Commissioners, Chairmen and Councillors. The defects and anomalies in the present system have been pointed out by us at some length to show how the Sanitary Engineering Department which has to perform the important work of improving the environmental sanitation of the Province has been ill-equipped and ill-organized from top to bottom and neglected all along.

An Independent Public Health Engineering Department should be organized immediately

19. We have dealt so far with the defects in the present system which have prevented progress hitherto. We now proceed to give our proposals regarding the organization of the technical personnel necessary for executing our Ten-year plan. We consider that the time has come to give up the term "Sanitary Engineer" for various reasons and substitute the term "Public Health Engineer," who will have even wider scope of activities as explained by the Bore Committee. We are emphatically of the opinion that an independent and self-contained Public Health Engineering Department should be organized on sound, progressive and well recognized lines. The entire work of investigation, planning, execution and maintenance of all water-supply and drainage schemes, as well as works pertaining to Public Health Engineering in general, should be entrusted to its unified control. The divided responsibility which has impeded progress all along should cease at once. A single directing head for this independent department should be held responsible for the whole work. He should have the rank and status of a Chief Engineer. He should be designated Chief Engineer, Public Health.

Having regard to the magnitude and importance of the works ahead, we strongly recommend to Government that immediate steps should be taken to secure the services of a top ranking

specialist in Public Health Engineering to organize and build up the new department. Unless and until direction from such a specialist is made available efficiency in investigation, designing and execution of works cannot be achieved and matters would continue to move in the same old rut.

Decentralised work—North and south.

50. We propose that the Public Health Engineering Department be organized into two independent Circles, self-contained in staff for all stages of work, called Northern and Southern Circles, in charge of two Deputy Chief Engineers, Public Health. For the present both of them may be under the control and direction of the Chief Engineer, Public Health. The Corporation of Madras is now beyond our purview. But it should come under the technical and administrative control of the Chief Engineer, Public Health, so long as public funds are utilized for providing Public Health Engineering schemes in the City. The Northern Circle should comprise all the Circars and Rayalaseema districts (Vizagapatam, East Godavari, West Godavari, Kistna, Guntur, Nellore, Chittoor, Anantapur, Cuddapah, Kurnool and Bellary districts) and the Southern Circle should comprise all the other districts of the province. This bifurcation will not only ensure prompt decentralised activities in investigations, designs and execution of all the works in both the areas simultaneously and give satisfaction to the people concerned, but also will enable the plan to be successfully executed within the ten years prescribed.

Both the Deputy Chief Engineers, Public Health, should be specialists in Public Health Engineering, possessing adequate experience in the line. They should be officers of sufficient rank and standing for them to occupy the Chief Engineer's post when their turn comes up. We make special mention of this fact because it is our view that the Deputy to the Chief Engineer must be the prospective occupant of the Chief Engineer's post. Unless the Deputy succeeds the Chief Engineer, it is not possible to ensure continuity of policy and a high-level of efficiency in the work.

How to form the nucleus of the Public Health Engineering Department.

51. We are dealing with the training of Public Health Engineers and subordinate staff later. At present, we are confronted with the problem of finding suitable personnel immediately, to man the proposed Public Health Engineering service and go forward with the work ahead. It is an admitted fact that there is an acute shortage of professional men in the province as elsewhere in the country. The Chief Engineer, Public Works Department (Mr. McIntosh), brought to the notice of the Committee that qualified Engineers are being attracted to other parts of the country as the pay and prospects in this province are unsatisfactory. The number of Engineers annually trained now in the province is considerably short of the demand.

So far as Public Health Engineering is concerned, it will be some time before a class of trained Public Health Engineers are

put into the field. In the early stages of development of this department it would be necessary to utilize the existing available personnel to the best advantage. The relative importance of Public Health Engineering and Buildings and other Branches of Engineering should be taken into account in allotting personnel to this branch. But the co-operation of the Public Works Department is indispensable for the starting of this new independent Public Health Engineering branch to go ahead with our programme from now. We, therefore, recommend for immediate adoption, that a Chief Engineer, Public Works Department, be appointed as Chief Engineer, Public Health, till such time as the Government are able to find a competent specialist to relieve him. This procedure would help the new organization being built up smoothly. The Chief Engineer, Public Works Department (Mr. McIntosh), has recognized the reasonableness of the claims of the proposed Public Health Engineering Branch on the existing personnel of the Public Works Department, who have had some training and experience in this special field of work. The Committee have every hope that with the full hearted co-operation and assistance of the Chief Engineer, Public Works Department, a nucleus for the new organization could be readily found. The Chief Engineer has also recognized the desirability of posting officers, who have had some experience in this class of work, in charge of execution of works where special divisions or sub-divisions are needed.

Public Health Engineering staff for Northern and Southern Circles.

52. Immediately, therefore, such a nucleus for the new Public Health Engineering department could be formed by taking over the officers, who had served in this Branch and who have carried out the execution of major schemes of water-supply and drainage. The programme ahead of us is heavy and a start has to be made on proper lines. To begin with, in addition to the two Deputy Chief Engineers, Public Health, we consider that *under each of them* the following *minimum* establishment should be appointed: Two officers of the rank of Executive Engineers, three Assistant Engineers, and six Field Supervisors. The Committee consider that this is the absolute *minimum* nucleus with which the organization should be started. As regards the Technical Section at the centre, the committee are strongly of opinion that there should be an amalgamation of the technical staff now employed under the Chief Engineer, for the scrutiny of sanitary schemes, with the technical staff at present under the Sanitary Engineer. The staff so amalgamated may be equitably divided as between the two Deputies, so as to form two self-contained and independent sections to deal with the work of the North and South Circles separately. This procedure should serve to release, for effective work, a certain number of qualified Engineers who are now serving as draughtsmen, and subordinate staff who are at present employed on avoidable duplication of work. A similar amalgamation and division of the administrative Office staff should also be carried out for the North and South

Circles. We append herewith a chart showing the organization of the new department under the two circles as proposed by us.

To digress for a moment, we do not understand what were the intentions of the authorities to entertain draughtsmen and overseers when the classes for training these types of subordinates were abolished. Is it not wastage of talent to employ qualified Engineers as mere draughtsmen? This however is by the way. So far as this Branch of work is concerned the Junior Engineers, Public Health, whom we propose to train, would be equipped in such a way that they would be usefully employed both in the field work and in the office work. We consider that field workers and technical office staff should be interchangeable, both in the interest of design and execution in the field.

Central direction and decentralized execution.

53. The Deputies with a self-contained staff at the centre will deal with the investigation and design of schemes in their respective circles and direct and control their execution through the agency of the Executive Engineer of the Division concerned. It is our view that until a self-contained Public Health Engineering Department is built up from top to bottom, the execution of water-supply and drainage schemes should be carried out by the officers of the Public Works Department, under the direct control of the Chief Engineer, Public Health. Special divisions and sub-divisions will no doubt be formed for the execution of major schemes or schemes of some importance irrespective of costs, outside the purview of the regular division. Here we would urge that Municipal Engineers and Municipal subordinate engineering staff should all be provincialized and absorbed into the Public Health Engineering Department forthwith, so that they could all be utilized to the best advantage in the execution and maintenance of water-supply and drainage schemes. Such a step is now essential as under our plan the State is to take over the entire responsibility including the maintenance of schemes, and it is but proper that Municipal Engineering staff should all form part of the Public Health Engineering Department.

Private agencies and their important role.

54. We visualize that within a few years properly trained Public Health Engineers and subordinate staff will be available to man the Department. All the same, to execute successfully the schemes according to plan, the committee consider it necessary that the State should also enlist the co-operation of outside Technical Agencies to carry on the work. The State department alone will not be able to cope with the work which lies ahead. The provisions of the Public Health Act include an empowering clause whereby a local body may contract with an outside agency for the supply of water. The desirability of implementing the statutory provision in practice has also been considered by the Board of Public Health and commended to Government. It very often happened in other countries, that it was the private agencies, who took the initiative first in launching local schemes of water-supply for the service of

the local population, and ran their own undertakings as a commercial enterprise, and the State later stepped in for controlling and co-ordinating the public utility schemes. The Metropolitan Water Board, London, is a classic example of how the various private water companies which were started to supply water to the London area have been merged into one concern by an Act of Parliament. Such procedure was of an immense benefit to the people in that they were able to realize several amenities infinitely earlier than if they had depended on the State. In addition, it also gave an enormous fillip to the healthy growth and advancement of the Engineering profession. In this country, Engineering is merely a service under the State till now. Engineering as an independent profession is just coming into existence. A healthy competition in talent with an outside independent Engineering profession is necessary to remove the self-complacency of the State Engineers and improve their professional efficiency. Thus the public will have the benefit of what the Engineering profession as a whole could give them.

We recommend that the investigation, design and execution of water-supply and drainage schemes may be thrown open to private Engineering firms of standing and experience. To safeguard public interests however, their work will be subject to the control, direction and supervision, at all necessary stages, by the State Engineers. The standards of design and specification for works should all be made to conform to a high level approved by the State Engineering authority. Investigation, design and execution of works should be entrusted to competing firms of standing based on competitive tenders at every stage.

When such an encouragement is given, we have no doubt that private firms, who have an eye to business will import top ranking specialists from outside the country if necessary, to advise them on the technical aspects of water-supply and drainage schemes. In that case, the State Department officers themselves stand to gain professionally through the services of these specialists. Having regard to economic conditions in the West after the War, we believe a large number of such technical personnel may be available for the purpose from the Western countries. In addition, there is the factor that private firms can and will employ retired engineers with experience and aptitude for such works from within the country also. Such firms have an eye to business and will naturally try to attract men of talent. They are not fettered by rigid rules regulating appointment, pay and other conditions of service. They may even grant a share in profit to these professional men. The State, on the other hand, cannot easily attract such men in the face of their rules and regulations. The role of private agencies in our plan is thus bound to yield immense and positive public benefit.

There is yet another advantage in this proposal. "Instances have been brought to our notice", wrote the Bhoré Committee, "in which private agencies have been able to carry out new building works at less than 50 per cent of the estimate prepared by

Public Works Departments. We do not venture to base any criticism on such information, but there is undoubtedly a widespread and persistent belief that the Public Works Departments are unduly expensive agencies for the construction of public buildings. This calls for a careful investigation, as considerations having far-reaching consequences for development in many spheres are involved An enquiry into building method and costs, with special reference to the Central and Provincial Public Works Departments in India would be helpful" We do not propose to comment on these observations except to say how desirable and essential it is to allow the competition of private agencies both in talent and in cost at every possible stage of the vast programme ahead of us.

Some exceptional cases

55. We have, however, to mention certain exceptional cases where the employment of private agencies may not be desirable. In cases where the sources are indefinite, or are of a speculative character as in underground sources of water-supply, it may not be profitable to have such water-supply schemes investigated by outside agencies. The results of the field investigation in such cases are conditioned by several indefinite factors, and payments to private agencies for specific results may not be quite practicable. We, therefore, consider that the investigation of such special schemes may continue to be carried out only by the State Department as heretofore, to the extent to which such works, in the opinion of the Chief Engineer, Public Health, cannot be entrusted to private agencies.

56. We recommend that all the Urban Water-supply and Drainage schemes, Municipal and non-Municipal should be investigated, designed, executed and maintained by the Public Health Engineering Department, as set out in the foregoing paragraphs. But the Department may also utilize the services of private engineering agencies in the prosecution of the plan as suggested by us.

CHAPTER VII

Organization—Rural Water-supply

Rural water-supply—Present system unsatisfactory

57. We have now to discuss about the organization necessary for the execution of rural water-supply schemes under our plan. At present, several departments—the Revenue Department, the Labour Department, the Fisheries Department and the Harijan Uplift Department—are pursuing parallel activities in this matter without any co-ordination. The Revenue Board which is at present the central authority for administering the Rural Water-supply Fund has perforce to depend on the Collectors exclusively

for achieving results. But Collectors of districts, over-burdened with multifarious duties and with distractions in other spheres, can have no time, even though they may have the inclination, to devote the time required for this purpose. So is the case with Revenue subordinate staff. The adverse remarks of the Board of Revenue on the progress made in their half-yearly reviews only prove this fact.

We may here recall the remarks of the Minister of Health while inaugurating our proceedings. He referred to the very poor progress being made in rural water-supply schemes, to the lapse of large funds allotted for such works, and to the lack of interest on the part of the Revenue Department and its technical staff. There is no gainsaying the fact that the Minor Irrigation Overseer is the least competent technically to initiate and prepare rural water-supply schemes. It is not as yet realized that the selection of suitable sites for sanitary draw-wells and the choice of the proper method of development of any source as may be available for a village, calls for some training and experience in hydrology of ground-water which a Minor Irrigation Overseer does not possess. In areas where only saline water could be tapped through the soil, the alternative of improving surface storage and tanks and evolving a safe water-supply scheme therefrom, is beyond his competence although the Sanitary Engineering Department may have prepared type-designs for his guidance. Again, simple field tests for ascertaining the quality of water from local wells and their salinity contents are outside the scope of Minor Irrigation Overseers. Above all, Minor Irrigation Overseers have other duties to do in addition to rural water-supply schemes and invariably neglect these works or scamp them. The result has been that wells undertaken on the unsuitable advice of such men have involved wasteful expenditure without the expected measure of relief to the people.

We have again to lay stress on a very significant aspect. The actual measure of relief conferred on the rural people is not to be judged by the amount allotted and expended, but only by that portion of the total amount spent on wells and other sources which actually gave potable water and were actually serving the needs of the people. We have already referred to the paucity of information on this important aspect of the problem and the difficulty in securing data as to the number of wells which have actually yielded drinkable water. Several instances, however, have come to our notice where wells sunk under the rural water-supply schemes have been partial or total failures, one reason being the lack of technical competence and of discernment in their location.

In respect of the major rural water-supply schemes which are sanctioned by the Revenue Board after prior consultation with the Sanitary Engineer, the procedure only adds to the delay without corresponding advantage. It is seldom that the advice of the Sanitary Engineer is obtained in time. Works are already under different stages of progress before his remarks are transmitted.

By that time it becomes too late to give effect to them. Delay and confusion result. There have been instances of the Sanitary Engineer's advice being sought in respect of works under execution when it was found that the revised estimate for such works after their partial completion exceeded the powers of the sanctioning authority. Such belated references to the Sanitary Engineer defeat the very purpose of prior consultation with that officer. Moreover, no rural water-supply scheme executed after professional scrutiny of the Sanitary Engineer has been inspected by that officer or his subordinates during or after execution apparently because no such duty is imposed on them. We have also learnt that frequently wells, particularly bore wells, constructed under the rural water-supply scheme have easily gone out of use for some reason or other and that no action has been taken by anybody to restore them to their normal condition, and that the money spent became wasted in all such cases.

Complete re-orientation necessary.

— 58. We consider that the present machinery for the rural water-supply scheme is running in a manner not conducive to producing the desired results. We are convinced that the organization for the scheme should be radically re-oriented. We recommend that the administration of the rural water-supply scheme should be taken over from the Board of Revenue and that the Collectors should be divested of their duties in this behalf. The entire responsibility in this matter should be transferred to the Public Health Engineering Department which would be the pivot of the future organization in regard to all matters pertaining to environmental sanitation all over the province.

Responsibility should vest in the District Engineer immediately

59. The essence of our plan is central direction and decentralized execution. We are strongly of opinion that progress should be made simultaneously in all the districts for providing water-supply in the rural areas under the competent technical control of the District Engineer, Public Health. We also consider that the works in the rural areas should reflect the advances made in modern sanitary science and give the fullest benefit thereof to the masses. It will no doubt take some time before Public Health District Engineers and Junior Engineers, Public Health, are trained and put in charge of their duties. The Executive Engineers of the Public Works Department have to take charge of the rural water-supply scheme in every district immediately according to our plan and continue the work, till they are relieved by the District Engineers, Public Health. The District Engineer, Public Health, or the Executive Engineer, Public Works Department, till the former relieves him, should be clothed with adequate technical sanctioning powers, so that he would be the ultimate technical authority for all rural water-supply schemes within his jurisdiction. This alone would ensure speed in executing the programme without sacrifice of efficiency at the same time. It has been

pointed out to us that under the existing Public Works Department Code, the Executive Engineer has certain money limits for technical sanction in respect of original works; and that if his powers of sanction for rural water-supply works were to be raised above these limits, he would have to operate with different power limits relating to different types of works, which may not be desirable. We do not, however, consider this to be an insuperable objection. In the case of rural water-supply schemes of the nature we visualize, the general principles of design and directions thereon are usually laid down by the Chief Engineer, Public Health. The local District Engineer's function is normally restricted to the adaptation of these designs to suit specific local conditions. Such modifications to standard designs would be well within the competence of an officer with the standing and experience of an Executive Engineer. We do not therefore consider it necessary to limit the powers of technical sanction of the District Engineer in respect of rural water-supply schemes to the same money limits as may be laid in the case of Public Works Department works. We accordingly recommend to the Provincial Government that the District Engineer of our plan should be made the final sanctioning authority for all rural water-supply schemes within the district irrespective of money limits. In shouldering this responsibility, the District Engineer will no doubt in his own interest consult his superior officers in all cases of doubts and difficulties.

Field Staff under the District Engineer

60. The transfer of the control and direction, sanction and supervision of rural water-supply schemes from the District Collector to the District Engineer as proposed above, should remove the several anomalies and handicaps in the working of the present system. We shall now proceed to indicate the manner in which the District Engineer will, in future, carry out his functions in respect of this work. So far as the execution of rural water-supply works is concerned, till a self-contained Public Health Engineering staff comes into full operation, all the subordinate field staff, irrespective of the Public Works Department of Engineering in which they are employed, should be placed under the control and direction of the District Engineer. The Chief Engineers will doubtless examine and decide as to which of the divisions of the Buildings and Irrigation branches (excluding special divisions and project divisions) could be entrusted with the task of handling all the rural water-supply schemes within the division. The Executive Engineer so selected will then be the District Engineer of our plan. He will be assisted by his Assistant Engineers, Supervisors and all subordinate technical staff and in addition, by the Assistant Engineers and subordinate staff of the Highways Department, who may be stationed within his divisional jurisdiction. We make this suggestion with circumspection. The Public Works Department officers and subordinates do a lot of touring work and it should be possible for them during

their itineraries to devote some time to the furtherance of rural water-supply schemes within their individual jurisdictions. The District Board and Local Fund Engineering staff are not new to this work. They have been attending to rural water-supply works hitherto. This course, we hope, would enable the maximum of work being secured from the existing technical men serving in the districts. We also recommend that all the special technical subordinate staff already employed by the Collector with the sanction of the Revenue Board for the execution of rural water-supply scheme should be transferred to the control of the District Engineers concerned, so that this additional staff may also be usefully engaged to expedite the progress on these works.

Future procedure for Rural water-supply works

61. It would thus be possible for the District Engineer with a subordinate technical staff spread all over the district to have the necessary plans and estimates prepared for each village adapting standard type designs as may be suitable to each locality, and have all such schemes sanctioned by himself. The choice of a particular type of scheme for each place would of course have to be initially based on an inspection of the locality by the supervisor or his higher officer, and in special cases, by the District Engineer himself according to the needs of each case. Once the site for the well and the type of well or other source to be adopted and the details therefor have been decided upon by the technical officers and scrutinized and sanctioned by the District Engineer, the actual execution of these works can, in the majority of cases, be left to the supervision of maistries trained in the line. As for the agencies for the execution of these works, we consider it may be feasible and indeed desirable in a large number of cases, to entrust the work to the local villagers themselves. Even if an outside contractor is given the work on contract, it is invariably the case that local labour only has to be employed by him in the actual execution of work. This is, however, a detail which the District Engineer and his subordinate officers could decide on the spot on the merits of each case. Likewise, the touring officers and the subordinate staff would include inspections of these rural water-supply works, during their tours, to ensure that their execution and maintenance are on satisfactory lines.

In order to ensure success of the plan at all stages we consider it would be a very desirable course for the Chief Engineer (Public Health), to issue professional circulars and pamphlets on the general principles and technical details pertaining to rural water-supplies, so that the field technical staff down to the lowest subordinate may be made conversant with the latest technical knowledge. Along with the issue of typical designs for alternative sources which may figure in rural water supplies, clear notes should be sent for the information of local officers. In addition, we would also recommend that as and when a sanitary well or other alternative type of source is completed, a permanent educative notice board should be erected side by side pictorially depicting the evils of defective maintenance

which would result in the contamination of the drinking water. The rural folks will then have some education on the rudimentary principles of a "safe" drinking water.

Rural drainage.

62. Provision of water-supply however small the per capita consumption may be, would necessarily involve drainage of waste water from the immediate vicinity of dwellings. But this does not necessarily mean that a drainage scheme as in the case of municipal and other urban areas should be introduced. Decentralized disposal of waste water can be arranged according to local conditions. It should be possible for the District field technical staff to deal with such engineering problems. Further we keep this aspect of the work of the field staff in giving training to the Junior Engineers. Public Health.

Co-ordination with Public Health Department essential

63. Both in regard to the urban water-supply and drainage schemes and in respect of rural water-supply schemes, we have indicated the manner in which we could organize a nucleus of the Public Health Engineering Department as an immediate measure with the existing personnel and expand it in due course as and when qualified Public Health Engineers and field subordinates get trained. We should, however, like to make one point clear. An important function of the Public Health Engineering Department of our scheme will be to co-ordinate all the activities with those of the Medical Public Health Department. It is exactly this co-ordination which was expected when the first Sanitary Engineer to Government was appointed. In practice, however, this was not achieved. As the Director of Public Health is assisted in the field, besides Medical Officers of Health, by a class of subordinates called Health Inspectors, the Chief Engineer (Public Health) in our scheme will be assisted in the field, besides District Engineers (Public Health), by a class of men known as 'Junior Engineers.' In their training the Health Inspectors will have the Medical (preventive) bias, and the Junior Engineers, the Public Health Engineering emphasis. The Committee are strongly of opinion that these two branches of services should work in unison like the two eyes in the forehead of a man. Without such co-ordination national health cannot be promoted.

CHAPTER VIII

Priority for Schemes

"Priority" without progress of schemes.

64. We have so far dealt with the organization of technical personnel in relation to our programme for urban and rural areas. It would be relevant for us now to dwell on certain administrative

aspects bearing on our plan. First and foremost of these is the question of priority for schemes. This question, we may say, has been there ever since the very inception of the Sanitary Engineering Department. As we remarked elsewhere, a good number of schemes to serve some of the major municipalities in the Province were initiated and installed in the nineties with Mr. J. A. Jones as the Sanitary Engineer. With his retirement from the field and with a retrograde policy which barred all subsequent progress of the department, the progress on schemes too slowed down inevitably. The question of priority for schemes then tended to assume an unreal importance. When schemes were difficult to attain, a priority for the sequence of their attainment carried with it, perhaps, a psychological solace to those in despair! We have the instance of Government in 1913 announcing a five-year programme in respect of certain schemes to be taken up in a particular order for the period 1913-18 but, as the Government themselves frankly stated in their Note, it did not commit them to anything. What is the good of a programme without a committal of carrying it out?

The position continued like this over a long stretch of years, up to the thirties. Priorities for investigation, for design and for execution were drawn up, revised and altered, only to be partially followed. The criterion for high priority was not so much the relative need between place and place but the extent to which the local body was prepared to finance its share of the cost of the scheme. As already remarked, such a policy resulted merely in a lot of infructuous work. Schemes were taken up and dropped at different stages, as local finance could not afford costly ventures.

Province-wide priority lists of 1941 and 1946.

65. During 1939-1945, when there was the least activity on actual progress of execution of works, the drawing up of a priority list assumed prominence. A list was issued in 1941 showing schemes sanctioned or ready for sanction, schemes investigated and ready for design, and schemes to be investigated. The attention of Government was drawn to the practical difficulties and defects in working to such a list. Thereupon Government in 1944 ordered the preparation of a revised priority list and a compendium of Provincial requirements of water-supply and drainage. This was published eventually with G.O. No. 55, P.H., dated 7th January 1946. The priority lists so drawn up are under three heads: Schemes under execution, schemes sanctioned by Government, and schemes for which plans and estimates are ready but for which sanction is awaited. The compendium of provincial requirements is set out in two separate lists: one for water-supply and one for drainage schemes, for the remaining requirements for the whole province, "showing the works in an order of priority determined solely by the considerations applicable in respect of water-supply and drainage respectively from the point of view of public health." These lists include water-supply schemes for panchayats with a population of 10,000 and over as well as all municipalities; and drainage schemes for all urban panchayats and

municipalities. The compendium shows 195 places under water-supply and 1,063 places under drainage schemes, arranged in their order of importance. This gave rise to a crop of correspondence ever since. Local bodies lower down in the list have been importuning Government for advancement of their ranks, and Government have been negating such requests on the plea that the ranks have been assigned on their relative public health importance on an all-Province basis, and that they should not be further disturbed. Nevertheless, modifications to the lists are being made and the priority for a few local bodies is being reshuffled. And, strangely enough, local bodies are easy to please. A mere advancement of their prospective drainage scheme, from the remote say 900th rank to the less remote say 700th rank, would seem to leave them content that their representations had not been after all in vain!

Simultaneous execution in all districts—Essence of our plan⁷

66. We are definitely of opinion that the existing priority lists and compendium should be abandoned, and the approach to the problem made on altogether different lines. We are no doubt alive to the fact that a list of priority is a desirable adjunct to a planned programme. But we should equally emphasize that the principle behind such a list, must fit in with the central idea of our plan. It is our view that with central direction and decentralized execution as proposed in our scheme, the progress of urban and rural water-supply and drainage schemes should proceed simultaneously as far as possible, at each district level, *the priority of the schemes being limited to the district level*. The progress which we visualise will not be possible with the compendium referred to. We have after due consideration of all relevant factors, concluded that the best course to adopt would be to have a compact list of priority for municipal water-supply and drainage schemes only, in the Northern and Southern Circles, leaving the priority of other urban schemes and all rural water-supply schemes to be decided by District Committees to be constituted for the purpose. We shall now proceed to deal with the question of the District Committee in some detail.

Priorities of non-municipal and rural schemes in each district to be settled by District Water and Drainage Committee

67. We recommend that in each district a committee be constituted, to be termed "District Water and Drainage Committee", consisting of the Provincial M.L.As. and M.L.Cs., resident in the district, the President, District Board—so long as District Boards are functioning—the District Health Officer and the District Engineer. The Committee's function would be to fix the priority for the villages, hamlets and cheries in the district for the provision of rural water-supply, and to administer the funds allotted to the district under the rural water-supply scheme. The Committee will also settle the order in which all the non-municipal urban water-supply and drainage schemes in the district should be taken up, and furnish such priority lists to the Government. The Committee will deal

with all non-technical and administrative matters pertaining to these spheres in a general way and also act as a *liaison* between the local areas in the district and the Government Department concerned. We are confident that the members of the committee so constituted can be expected to decide on matters of priority and the like in accordance with the real needs of the people and actual local conditions. The District Engineer will act as the Secretary and Treasurer to the District Committee and carry out their intentions without prejudice to the general policy which the Government may lay down.

Local bodies' with accumulated funds and local philanthropy to be encouraged

68. In fixing priorities, however, there is one aspect of the question which might arise. There are several urban places which have long been taxing themselves towards financing water-supply and drainage schemes and have accumulated funds in the hope of being able to obtain their schemes as soon as conditions permit. If in the proposed schemes of provincial water and drainage fund these places do not happen to get a priority over other stations, and if their accumulated funds were nevertheless to be pooled into the provincial fund straightaway, it might lead to a lot of local discontent. To overcome this difficulty we would suggest that such of the urban units which have already accumulated water and drainage funds need not be made to pay their amounts into the provincial fund until their water-supply and drainage schemes are actually installed by the Government. We also believe that when a philanthropist comes forward to bear the entire cost of a municipal or non-municipal or rural scheme, there is nothing wrong in giving priority to that scheme and arranging for the immediate execution thereof. This will be an incentive to utilize local philanthropy.

Priorities drawn up for municipal schemes in Northern and Southern circles separately

69. In regard to municipal water-supply and drainage schemes, we have ourselves drawn up a revised priority list as appended hereunder which we recommend to Government for adoption. We advise the Government not to reopen the order which we have determined as we feel that this would lead to delays and discussions. It will be seen that we have divided the municipalities into the Northern and Southern circles, so that progress is evenly and simultaneously maintained in both the circles. We believe such bifurcation is essential as it is only a question of time before the division of the Province into linguistic provinces takes place. Our proposals on this as well as the question of the technical organization, are calculated to maintain and continue a uniform level of progress by having the staff and the programme distributed on a regional basis in anticipation of such division of the Province. We consider this a wise precaution. In the priority lists for each circle again, separately for water-supply and drainage schemes, we have grouped the municipalities under three different

categories, (i) those for which schemes are under execution, (ii) those which have schemes in operation but which require improvements, and (iii) those for which new schemes are to be provided for the first time.

PRIORITY LIST FOR MUNICIPAL WATER-SUPPLY AND DRAINAGE SCHEMES.

WATER-SUPPLY.

List I.—Schemes to be newly provided.

Southern Circle.

- 1 Mangalore.
- 2 Tinnevely.
- 3 Palamcottah.
- 4 Mayavaram.
- 5 Devakottai.
- 6 Palghat.
- 7 Dharapuram.
- 8 Rajapalayam.
- 9 Tiruvarur.
- 10 Mannargudi.
- 11 Srivilliputhur.
- 12 Tirupathur.
- 13 Tellicherry.
- 14 Vaniyambadi.
- 15 Villupuram.
- 16 Cannanore.
- 17 Udumalpet.
- 18 Udipi.
- 19 Sivakasi.

Northern Circle.

- 1 Nandyal.
- 2 Chittoor.
- 3 Tenali.
- 4 Hospet.
- 5 Chicacole.
- 6 Gudivada.
- 7 Hindupur.
- 8 Poddapuram.
- 9 Anakapalli.
- 10 Ongole.
- 11 Bimlipatam.
- 12 Narasaraopet.

List II.—Existing schemes to be improved.

Southern Circle.

- 1 Cuddalore.
- 2 Dindigul.
- 3 Conjeevaram.
- 4 Madura.
- 5 Tiruppur.
- 6 Virudhunagar.
- 7 Chidambaram.
- 8 Palni.
- 9 Tiruvannamalai.
- 10 Karaikudi.
- 11 Tuticorin.
- 12 Tanjore.

List II.—Existing schemes to be improved—cont.

Southern Circle—cont.

- 13 Negapatam.
- 14 Chingleput.
- 15 Srirangam.
- 16 Karur.
- 17 Gudiyattam.
- 18 Periyakulam.
- 19 Coonoor.
- 20 Ootacamund.

Northern Circle.

- 1 Vizagapatam.
- 2 Tirupati.
- 3 Bezwada.
- 4 Cuddapah.
- 5 Kurnool.
- 6 Proddatur.
- 7 Bellary.
- 8 Nellore.
- 9 Adoni.
- 10 Anantapur.
- 11 Rajahmundry.
- 12 Masulipatam.
- 13 Ellore.
- 14 Tadpatri.
- 15 Vizianagaram.
- 16 Palacole.

List III.—Schemes now under execution.

Southern Circle.

- 1 Salem (new scheme).
- 2 Calicut (new scheme).
- 3 Kumbakonam (new scheme).
- 4 Coimbatore (improvements).
- 5 Trichinopoly (improvements).
- 6 Pollachi (new scheme).

Northern Circle.

- 1 Guntur (new scheme).
- 2 Cocanada (improvements).

List IV.—Existing schemes not requiring improvement.

Southern Circle.

- 1 Bodinayakanur.
- 2 Erode.
- 3 Kodaikanal.
- 4 Vellore.
- 5 Wallajapet.
- 6 Cochin.

Northern Circle—Nil.

DRAINAGE.

*List I.—Schemes to be newly provided.**Southern Circle.*

- 1 Trichinopoly.
- 2 Kumbakonam.
- 3 Calicut.
- 4 Mangalore.
- 5 Cochin.
- 6 Chidambaram.
- 7 Tanjore.
- 8 Perisyakulam.
- 9 Erode.
- 10 Virudhunagar.
- 11 Palni.
- 12 Mayavaram.
- 13 Tiruvarur.
- 14 Tinnevely.
- 15 Palamcottah.
- 16 Cuddalore.
- 17 Conjeevaram.
- 18 Tiruvannamalai.
- 19 Telloherry.
- 20 Palghat.
- 21 Cannanore.
- 22 Coonoor.
- 23 Dindigul.
- 24 Rajapalayam.
- 25 Srivilliputhur.
- 26 Mannargudi.
- 27 Vaniyam^ladi.
- 28 Wallajapet.
- 29 Villupuram.
- 30 Tiruppur.
- 31 Pollachi.
- 32 Bodinayakanur.
- 33 Karur.
- 34 Udipi.
- 35 Dharapuram.
- 36 Gudiyattam.
- 37 Tirupattur.
- 38 Karaikudi.
- 39 Devakottai.
- 40 Sivakasi.
- 41 Udumalpet.
- 42 Kodaikanal.

Northern Circle.

- 1 Ellore.
- 2 Masulipatam.
- 3 Vizianagaram.

*List I.—Schemes to be newly provided—cont.**Northern Circle—cont.*

- 4 Tenali.
- 5 Vizagapatam.
- 6 Nandyal.
- 7 Cocanada.
- 8 Palacole.
- 9 Cuddapah.
- 10 Nellore.
- 11 Chicacole.
- 12 Kurnool.
- 13 Anantapur.
- 14 Hospet.
- 15 Adoni.
- 16 Gudivada.
- 17 Guntur.
- 18 Peddapuram.
- 19 Anakapalli.
- 20 Hindupur.
- 21 Tadpatri.
- 22 Proddattur.
- 23 Ongole.
- 24 Narasaraopet.
- 25 Bimlipatam.

*List II.—Existing schemes to be improved.**Southern Circle.*

- 1 Madura.
- 2 Ootacamund.
- 3 Vellore.
- 4 Chingleput.

Northern Circle.

- 1 Bezwada.
- 2 Rajahmundry.
- 3 Bellary.

*List III.—Schemes now under execution.**Southern Circle.*

- 1 Salem.
- 2 Coimbatore.
- 3 Negapatam.
- 4 Srirangam.
- 5 Tuticorin.

Northern Circle.

- 1 Tirupati.
- 2 Chittoor.

List IV.—Existing schemes not requiring improvements—Nil.

Principles in deciding priority

70. We have considered it unnecessary to give any special priority for schemes which are now under investigation or preparation, apart from those which are under execution. In fixing the priority for new schemes and improvement schemes for water-supply and drainage, we have been guided solely by the relative needs as between place and place, based on the intensity of water-borne epidemics, endemicity, partial and total scarcity, the industrial, commercial and religious importance of the place, the incidence of malaria, filariasis and mosquito nuisance and so on. The State having to assume the responsibility of providing water-supply and drainage hereafter, the financial capacity of any particular place to shoulder its scheme, is not recognized by us as any ground for deciding on the priority for the place. As this cannot be said to apply in respect of schemes now in progress, we have allowed priority only for those schemes which are under execution, leaving the others to take their turn in our revised list.

Lines of policy in the allocation of funds

71. In the matter of allotting funds we recommend the following broad lines of policy :—

(i) Schemes under execution should be allowed to go forward without any break and be completed as early as possible.

(ii) The allotment of funds for schemes between the Northern and Southern circles as also between district and district, shall be on an equitable basis.

(iii) Special consideration should be shown to the Ceded districts in regard to the allotment of funds for their urban and rural water-supply schemes. We put forward this special plea for those districts as Nature has denied them the normal facilities obtaining elsewhere.

(iv) The apportionment of allotted funds as between new schemes and improvements to existing schemes, water-supply and drainage, may be made roughly on a 50-50 basis.

(v) The allotment of funds as between water-supply and drainage schemes may be in the ratio of the respective estimated costs.

A Provincial Water and Drainage Board unnecessary

72. With the constitution of the District Water and Drainage Committees to deal with all rural and non-municipal urban schemes, and with a priority list for all municipal schemes, we are of opinion that a Provincial Water and Drainage Board is quite unnecessary. In our opinion such a Provincial Board will merely serve as a fifth wheel to the coach of progress. Such a board may be found necessary elsewhere to settle claims for development of sources of water-supply as between one local authority and another. Here the sources are only waiting for the hand of man to develop them. There is no question of competition.

CHAPTER IX

Miscellaneous

Re-employment of retired technical men necessary

73. We should now like to dwell on some miscellaneous aspects in regard to the organization under our proposals. One of them is the need for the re-employment of technical men who have reached the age of retirement. The Bhole Committee's recommendations in this behalf are relevant. They say, "The need for trained personnel is so clamant as to make the rigid maintenance of the normal rule that Government servants should be superannuated at the age of 55 inconsistent with the requirements of the situation . . . Subject to physical and mental fitness persons who have reached the age of superannuation should be permitted to continue to work on a year to year basis. In order to ensure that the continuation in service of such persons does not stand in the way of normal promotion in the services, they should be made to retire before they are re-employed." Those recommendations apply with greater emphasis to the Engineering services, as qualified and trained technical personnel are too few for the actual requirements. For the successful implementation of our proposals we recommend to Government to search and list out the men who have already retired and who are likely to retire in future and to take steps to secure the services of such of them as are mentally and physically fit. Their employment should not however be allowed to act as a bar to the promotion of men in service. We stress the need for immediate action in this matter.

Army Engineering Divisions and Labour Corps to be employed

74. We consider it would be of immense advantage if the Army Engineering Division and Labour Corps, stationed in any area during peace-time, could be usefully employed in the execution of water-supply and drainage schemes in the neighbouring localities, now that the Army is Nationalized. The maintenance of these units is a charge on the funds of the State. The employment of the military during peace time on such Nation Building activities would be a gain to the State. The proposal has also the added advantage that the Army Labour Units in whom ideas of personal hygiene and collective discipline are highly developed, would serve as a model to the people in the midst of whom they work. It is of course to be understood that the Army Personnel will carry out works according to the specifications furnished to them by the Public Health Engineering Department. The desirability for this course is further emphasized by the fact that there is a general dearth of contractors to carry out such works, not to speak of the labour unrest prevailing at present. Above all the employment of

the Army on such works would lead to public appreciation of the work of the National Army for the benefit of the people, and would develop better relationship and cordiality between them and the people, which is highly essential.

Improvement of roads for transport of materials

75. It is well known that our villages in several areas stand out as so many inaccessible islands during the monsoon months. Any attempts to reach such villages through village roads such as they exist, tend to assume the characteristics of an amphibious campaign. In our plan, the execution of water-supply schemes in some cases may involve transport of building materials and equipment to up-country places. It might easily put our programme out of gear if the impassable condition of village roads in any particular area were to hold up transport of much materials on the route indefinitely. Further experience has proved that the inaccessibility of our villages prevents effective measures being taken to stamp out epidemics when they break out. We therefore recommend that as part and parcel of our programme for water-supply and drainage schemes, the Government should direct special attention to the improvement of roads leading to all such areas.

Expanding electricity

76. Likewise we feel that the expansion scheme of the Government Electricity Grid should keep pace with our schemes of water-supply and drainage so that electricity is made available over as wide and extensive an area as possible. In such a case, the provision of electric motor and pump sets for water-supply and drainage schemes would be facilitated, avoiding the use of complicated and uneconomical diesel, steam or charcoal gas units. Incidentally, the expansion of such electricity supply would give a fillip to the grow more food campaign with added facilities for well irrigation.

Revenue Department should give up certain dues

77. Local bodies are now being asked to pay water charges (at about Re. 1 per 1,000 cubic yards) to the Government for the sale of raw water by the Government from their rivers and canal systems. We consider that the sale of water by the Government to its citizens for drinking purposes, however nominal be the sale price, is not a worthy practice; we therefore recommend that this practice should be given up.

Similarly, there have been instances when the Revenue Department put up claims for compensation for abatement of land revenue in cases where the development of a drinking water-supply source came into clash with existing riparian interests. We are dealing separately with the question of legislation in regard to such riparian interests. But it is our view that the Revenue Department should give up this practice of levying a toll as it were on drinking water supplies, and waive the loss in revenue consequent on a water-supply scheme being developed from an irrigation

source. It follows that the Government agency in the Irrigation Department should also give first priority to drinking water-supply requirements in preference to the demands of land irrigation. It should be borne in mind that the quantity abstracted for drinking water-supply is but a small fraction of the quantity required for irrigation purposes.

Centage charges to go

78. The present practice of levying centage charges for the investigation, design and execution of schemes by the state department for local bodies will not hold good hereafter, as the entire responsibility for them rests with the State itself. We recommend that centage charges should no longer be included in estimating costs for schemes.

Government should assume larger powers in relationship with local bodies

79. We suggest that Law (Legislative) Department should examine whether amendments to existing statutes are necessary to implement the policy which we have enunciated, in respect of levying and collecting water and drainage tax and remitting it along with water and drainage revenues, to the Provincial Water and Drainage Fund; and with regard to the maintenance of those works by Government agency. Action should be taken in this respect by Government as may be found necessary.

80. As the Government are to take over control and maintenance of water-supply and drainage schemes of all municipal and local boards, the existing powers of the Government to appoint Municipal Engineers to Municipalities may have to be amplified, so as to include other categories of officers, and also other local bodies besides municipalities.

Legislation regarding riparian claims

81. There have been many instances in the past when the investigation of sources of major and minor water-supply schemes has had a chequered progress, extending over a long number of years, because of the opposition put up by local riparian interests. The investigation of water-supply schemes for Peddapuram, Tirupati, Chittoor, Bodinayakanur and Arni, are but a few instances in point. Under the existing conditions of land tenure, the pursuit of subsoil source of a river or even surface flow, is not allowed to go forward by local ryots who raise imaginary and exaggerated claims to the subsoil and surface flows, and obstruct the progress of the very investigation of such drinking water-supply schemes,—to putting down test borings, carrying out yield tests from experimental wells and so forth—on the apprehension that their existing rights would be adversely affected thereby. This has caused hardship on the entire municipal population as the investigation of water sources which might lead up to future contentious litigation had to be given up, and alternative sources even if available, were not always within the means of the municipalities.

As drinking water-supply to the community must transcend all such legal claims pertaining to land irrigation, it is essential that a provision in law should be made under which drinking water-supply schemes could be taken up and completed without allowing local riparian and irrigation rights to obstruct or hinder such work at any stage.

Legislation for quick acquisition of land

82. The existing provisions in the Land Acquisition Act involve protracted delays in acquiring lands required for water-supply and drainage schemes. We recommend that legal provisions for quick acquisition, somewhat on the lines adopted by the Army under the Defence of India Act, should be made.

All villages with twenty thousand or more population to be compulsorily constituted into municipalities

83. There are several anomalies in the criteria on which municipalities and panchayats are at present constituted. There are many overgrown panchayats which should more appropriately be converted into municipalities. We recommend that all villages with more than 20,000 population be compulsorily constituted into municipalities so that they may shoulder greater responsibilities and enjoy better amenities.

CHAPTER X

Training of Personnel

A competent Committee of Public Health Experts should settle the syllabus.

84. The need for training in this country a special class of 'Civic Engineers' was advocated some time ago by the eminent statesman Sir Tej Bahadur Sapru. He urged that this class of Engineers was necessary in any plan for improving the living conditions of the masses. But his efforts bore no fruit.

We have already pointed out how the Bhole Committee stressed the importance of environmental sanitation in their report. But their composition and their terms of reference related more to the curative side of medicine. Besides, environmental sanitation is essentially a field for Public Health Engineers and not for medical men. All the same they gave out some syllabus of studies for Public Health Engineering also. In our opinion, the committee have made a fundamental error in not including Housing and Town Planning in the scope of work of Public Health Engineers. It is recognized that slum clearance should be done by the engineers serving in local areas. We fail to understand how an officer can perform this duty without a knowledge of town planning and housing. Further, in our country we have not as yet evolved a

national building code prescribing the minimum standards of health and sanitation relating to dwellings. We are therefore of opinion that the syllabus and course of training should be settled by a competent committee of experts.

Three years' course suggested

85. We had the benefit of hearing the views of the engineer members of our committee. We are of opinion that the course of training should extend for a period of three years. The first 18 months should be devoted to what is known as "Basic Training" in Engineering. The next 18 months should be devoted to giving instruction in all the specialized subjects pertaining to all aspects of Public Health Engineering not excluding Humanities.

An independent institution should be started

86. The syllabus of studies for training Civil Engineers in the College of Engineering, Guindy, is no doubt comprehensive. The syllabus of study includes in it Sanitary Engineering subjects also. A perusal of the syllabus would doubtless carry a *prima facie* impression that it is unexceptionable. But the defect is that the teaching is given only by educationists who have no special training and experience in the actual field work of the engineering profession. Besides, the College is overcrowded, and is unable to cope with the demand for Civil Engineers. The Madras University has already put too many irons in the fire. For instance, it has a diploma course in Architecture. But in practice no course is actually available for training architects. Our considered view is that an independent institution should be started at once and without any further delay for training Public Health Engineers.

A register of trained men

87. The Ministry of Health should open a register in which the names of those who pass out of the new institution as Public Health Engineers and Junior Engineers (Public Health) should be entered. The Municipal Engineers and Supervisors and others who are already in service may also be eligible to have their names entered in the register subject to their undergoing such courses as may be prescribed.

In this connexion it would be pertinent to point out that the committee which we propose for drafting the syllabus should be composed primarily of professional men in Public Health Engineering and Medical Preventive. The committee should be charged with the responsibility of drafting not only the syllabus of studies but also other details such as examinations, Board of Examiners and procedure.

Sri A. V. Raman's Scheme of Organizing Public Health Engineering as a "Social Service"

88. Of us, Sri A. V. Raman is emphatically of opinion that the country cannot afford to bear the expenses involved in establishing and maintaining a Public Health Engineering Service on the

lines on which other services are maintained. He considers that Public Health Engineering is essentially a social service and only those who have a flair for rendering social service should be recruited and trained for service in the country. Remuneration should not be the sole consideration but the spirit of service should permeate in the rank and file of this service. He proposes that the State should undertake the training of officers for this class of work and that the remuneration offered to them should be just sufficient to maintain them above want—reasonable want—He suggests that Public Health Engineers during the first year after their training should be given, say, Rs. 100 as subsistence allowance so that they may earn even as they learn. This course replaces the present apprentice course for engineering students which in practice does not serve any useful purpose. The Junior Engineer (Public Health), Mr. Raman proposes, will likewise be given a subsistence allowance of say Rs. 60 per mensem. After they have satisfactorily completed a four years' training and service in the field (3 years in the College and 1 year in actual field work) they will be appointed to substantive posts on a salary of, say, Rs. 150 for Engineers and Rs. 75 for Junior Engineers (Public Health). If the officers are married or get married, they will be given an allowance of say Rs. 50 and Rs. 30, respectively. The State should support a family of not more than three children for this class of officers paying a family allowance at, say, Rs. 30 and Rs. 20 for Public Health Engineers and Junior Engineers (Public Health), respectively. According to Mr. Raman, the highest salary of a Public Health Engineer would thus be Rs. 290 and that of a Junior Engineer (Public Health), Rs. 165. Mr. Raman further suggests that those officers should have the benefit of housing accommodation wherever they are posted, free medical aid and free education to their children up to the S.S.L.C. standard. In addition, to meet any contingency, the Public Health Engineer will be insured for Rs. 5,000 and the Junior Engineer (Public Health), for Rs. 2,500 and the premium will be paid by the State. The foregoing is but a general outline. Details will have to be worked out by a special committee to determine the terms and conditions of this special service. Mr. Raman considers that the terms which he has here broadly outlined would attract candidates in adequate number and of proper calibre.

In Independent India every one is expected to be motivated by a spirit of national service. The Ministers of the State and top-ranking public men have been appealing recently to every one to do his utmost and come forward to render national service to the best of one's capacity. The principle of organization of course, holds good for other services also, particularly medical and public health. But those services have been in existence for long and a certain amount of vested interests have already been established and it is difficult to wrest them at this stage. Public Health Engineering is a new service and can be started without these handicaps. In Mr. Raman's view, the proposed service should be a

missionary service as it were. We leave this proposal to the State for its consideration without coming to any conclusions of our own, as it is a matter of high policy.

Short-term courses may be instituted for immediate needs

89. It is estimated that nearly 300 officers would be required to meet the immediate requirements of this Province just to maintain works in municipal areas and other urban areas with a population of 10,000 and over. The ultimate aim is to have one Health Inspector and one Junior Engineer (Public Health) for every unit of 10,000 people. We realize the practical difficulties of training men even to meet the immediate requirements. We, therefore, suggest for consideration the advisability of instituting intensive short-term courses to start with for Public Health Engineers and Junior Engineers (Public Health). We understand that to cope with the demand of Sanitary Engineers in the United States Army during the Second World War, short-term courses were given to men bringing home to their mind the essential fundamentals and supplementing the training by a series of professional circulars and executive instructions. We consider that such a step may be practicable here also. We consider that in any case the officers of the Public Health Engineering service should be given the benefit of such professional circulars and executive instructions not only to bring their knowledge up to date but also to give them the benefit of experience of others in the executive field. In due course, however, the training may be developed to a full-fledged and exhaustive one.

Training of Public Health Engineering personnel—Pivot of our plan

90. The training of the technical personnel in Public Health Engineering is the very pivot of our plans. We strongly urge that no further time should be lost in opening the training ground for this class of technicians. Indeed, almost the very first point on which action on our report is called for is on the training of Public Health Engineering personnel. We also plead strongly that no further time should be lost in setting up appropriate committees to work out the details of these training courses.

A. KALESWARA RAO (President).

N. RANGA REDDI.

K. A. NACHIAPPA GOUNDER.

H. S. HUSSAIN.

A. V. RAMAN.

M. K. RANGANATHAM.

R. M. MATHEW.

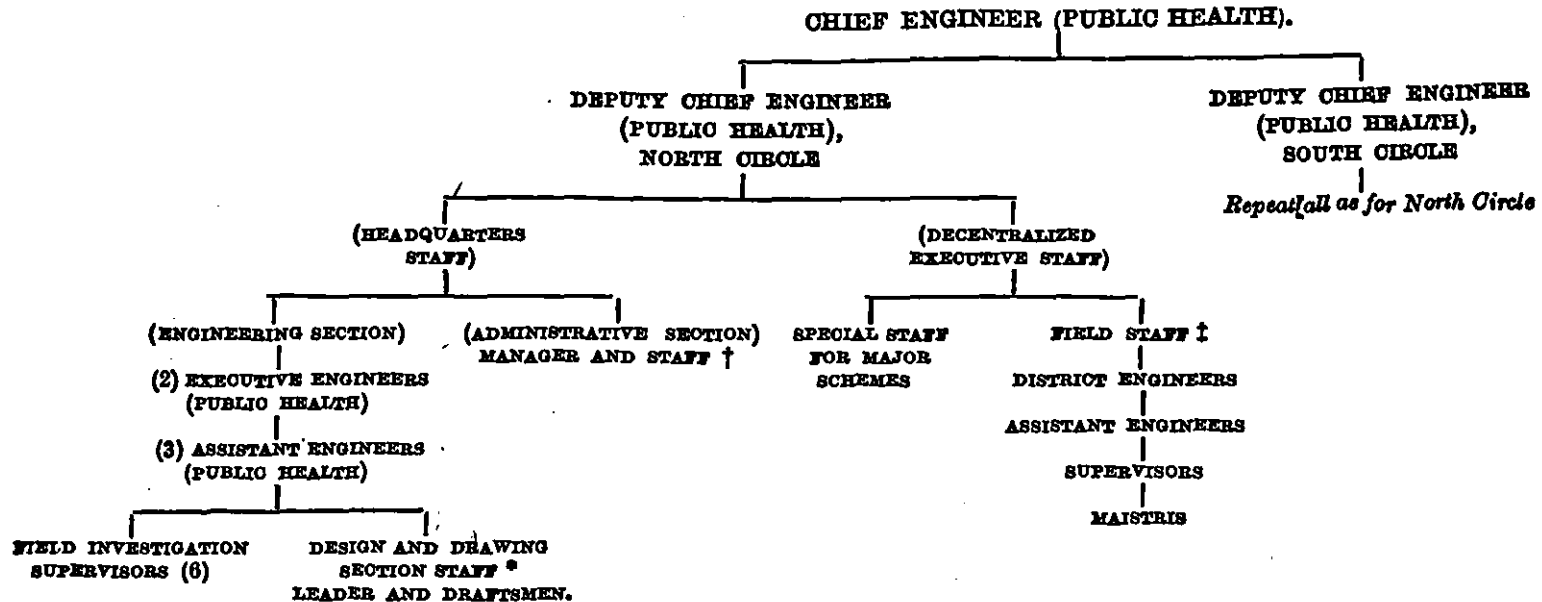
S. RAMCHANDRA.

S. RAJAGOPALAN (Secretary).

MADRAS,
28th August 1947.

CHART

(Vide paragraph 52 of the Report.)



NOTE.—(a) Numbers in brackets indicate the nucleus of technical staff to be formed as an immediate measure.

* (b) For the design and drawing section the existing staff employed under the Sanitary Engineer and the Chief Engineer (for Water-supply and Drainage Schemes) will be amalgamated and distributed between the South and North Circles.

† (c) The Administrative Section for the North and South Circles will be formed on the same lines as in the case of the Design and Drawing Section.

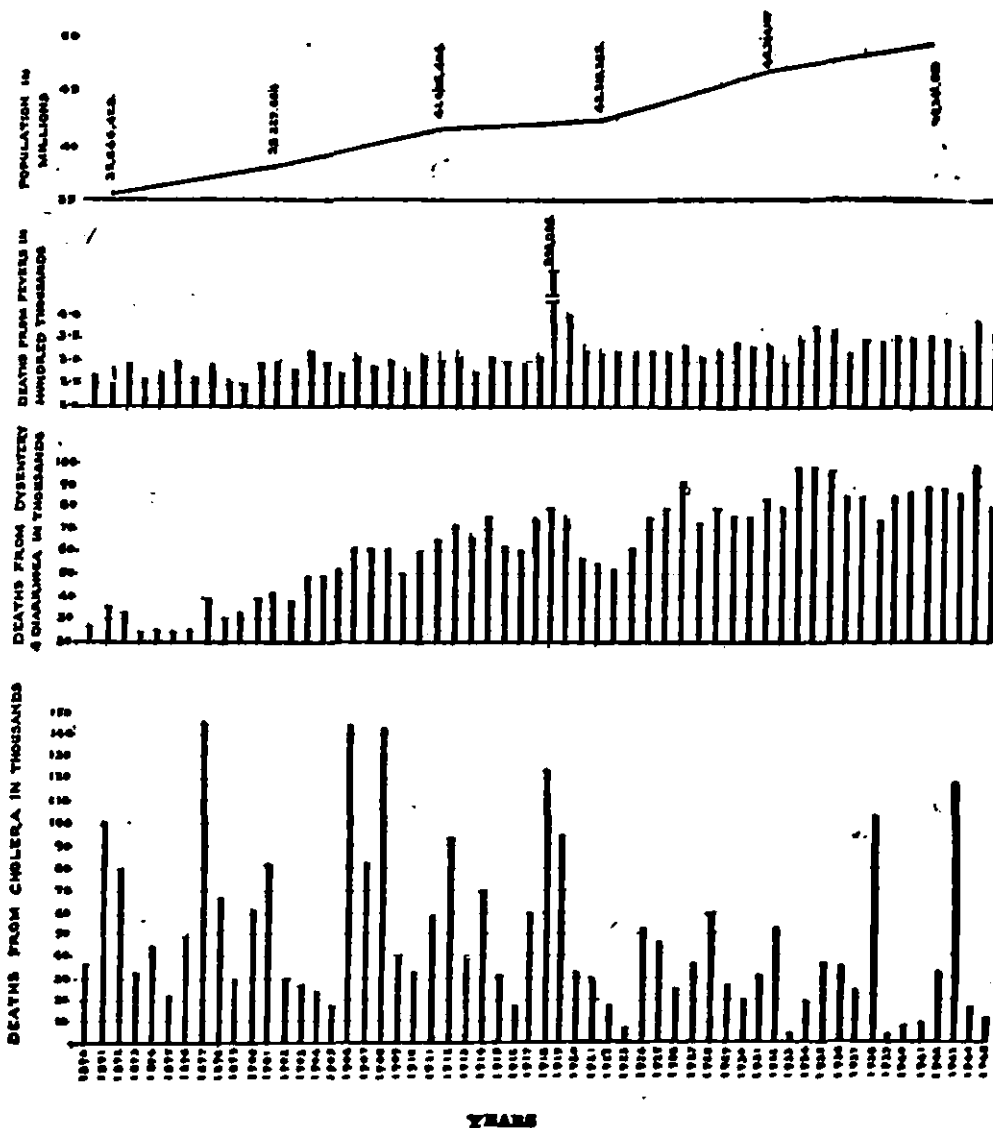
‡ (d) Until the Public Health Engineering Department is fully organized the execution of schemes (other than Major Works) will be carried out by the Field Officers of the regular Public Works Department as at present.

APPENDIX I

(Vide paragraph 10 of the Report.)

MADRAS PROVINCE.

POPULATION AND DEATHS FROM CHOLERA, DYSENTERY AND DIARRHOEA AND FEVERS DURING THE YEARS 1890-1945.



APPENDIX II

(Vide paragraph 14 of the Report.)

MUNICIPAL WATER-SUPPLY AND DRAINAGE—SOME PARTICULARS.

Serial number and name of municipality.	Population (1941 census).	Water-supply scheme.		Drainage scheme.		Present rate of taxation.		Rough cost of work ahead—rupees in lakhs (pre-war rates).		Remarks on W.S.— (a) Existing scheme to be improved. (b) Scheme to be newly provided. (c) Scheme under execution.			
		When initiated and when completed.	When improv- ed.	Actual rate of supply—gals/ head.	Investigations pending since when.	If existing when installed.	Investigations pending since when.	General.	Water-supply and drainage.		Water-supply.	Drainage.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1 Adoni	35,481	1898-95	*1948	6.8	..	..	1912	13.0	7.5	1.0	7.1	* New source.	(a)
2 Ankapalli ..	29,249	..	..	..	..	..	..	10.0	..	3.0	6.0	..	(b)
3 Anantapur ..	21,482	1907-24	1939	5.6	1941	..	..	22.0	5.0	2.0	4.8	..	(a)
4 Bellary	56,148	1890-27	1938	8.5	†1943	1940 (partial)	..	21.5	7.0	1.0	6.8	† W.S. improvements.	(a)
5 Bozwada .. .	86,184	1898-99	1937	..	..	1939	..	27.75	4.5	7.0	14.5	..	(a)
6 Bimlipatam ..	9,914	..	..	..	..	..	..	16.0	..	1.0	2.8	..	(b)
7 Bodinayakanur	28,435	1937-44	..	4.7	..	..	1936	22.0	9.25	..	5.0	..	(a)
8 Callcut	126,252	..	..	..	†1936	..	1903	9.5	5.0	3.3	29.4	‡ Under execution.	(c)
9 Cannanore ..	34,649	..	..	..	..	..	..	15.0	..	10.6	6.9	..	(b)
10 Chicacole ..	22,249	..	..	..	1912	..	..	23.25	1.0	7.0	5.7	..	(b)
11 Chidambaram ..	26,212	1900-15	..	10.4	..	..	1917 } 1938 }	22.0	8.0	1.0	8.0	..	(a)
12 Chingloput ..	17,829	1909-26	..	12.7	..	1938 (partial)	..	9.0	8.0	0.5	3.6	..	(a)
13 Chittoor .. .	20,835	..	..	..	1914 } 1946 }	..	1920	8.0	5.0	6.0	4.2	..	(b)
14 Cocanada .. .	75,140	1897-98	1939	9.9	..	..	1938	22.0	5.5	§ 31.6	26.4	§ At present rates.	(c)
15 Cochin .. .	26,320	† 1938	..	..	..	..	1910	11.25	3.0	..	11.4	..	(a)
16 Coimbatore ..	130,340	1905-29	1937	12.7	..	..	†1923	16.0	7.0	32.0	9.7	..	(c)
17 Conjeeveram ..	74,635	1895-97	..	13.1	..	..	1933	13.5	6.5	3.8	20.5	..	(a)
18 Coonoor .. .	18,783	1897-05	1941	17.6	..	..	..	21-1/6	3.0	1.0	3.8	..	(a)
19 Cuddalore ..	60,632	1932	..	3.02	¶1935	..	..	23.75	3.75	9.1	12.1	¶ New town.	(a)
20 Cuddapah .. .	28,246	1893	* 1939	9.8	..	..	1896	..	..	1.0	5.6	..	(a)
21 Devakottah ..	74,315	..	..	..	1928	..	..	17.50	..	3.4	4.9	..	(b)
22 Dharapuram ..	20,660	..	..	..	1937	..	..	13.75	2.0	2.2	4.1	..	(b)
23 Dindigul .. .	56,275	1890-96	1939	4.6	¶1937	..	1934	18.875	6.0	40.0	11.2	¶ Distant source.	(a)
24 Ellora	64,911	1895-19	1939	..	..	..	1912	10.5	7.0	8.3	14.6	..	(a)
25 Erode	39,483	1912-19	**	14.4	..	..	1921	18.5	8.0	..	7.9	** Improvements to filtration plant under execution.	(b)
26 Gudivada .. .	23,919	..	..	..	1945	..	..	9.0	2.5	§ 5.8	5.0	..	(b)
27 Gudiyattam ..	32,671	1904-07	1941	6.7	..	..	..	9.5	8.0	0.6	6.5	..	(a)
28 Guntur	83,599	1901-05	1923	4.7	††1921	..	1919	22.0	5.0	79.7	20.8	†† New source under execution.	(c)
29 Hindupur .. .	19,049	..	..	..	††1920-41	..	1933	22.75	6.0	2.6	3.8	‡‡ I stage under execution.	(b)
30 Hospet	26,023	..	..	..	1933	..	..	11.5	..	5.0	5.2	..	(b)
31 Karakudi .. .	28,908	1934-37	..	4.9	..	..	1935	7.5	..	0.5	5.8	..	(a)
32 Karur	27,575	1935-40	..	10.1	..	..	1934	18-13/30	4.1	0.5	5.5	..	(a)
33 Kodalkanal ..	9,124	1902-18	..	12.0	..	..	1933	16.0	3‡	..	§§ 1.5	§§ As per scheme drawn up.	(a)

34	Kumbakonam	67,006	1901-14	1945	7.2 (partial)	1939	..	1898	24.5	6.0	7.0	22.2	III I stage and advance schema of II stage completed.	(c)
35	Kurnool	45,250	1897	1917	10.6	..	..	1915	21.0	5.0	2.3	§ 5.3	(a)
36	Madura	239,144	1894	↓	18.5	..	1929	..	18.75	7.0	¶ 50.0	¶ 50.0	¶ Tentative.	(a)
37	Mangalore	81,069	1918-24	..	..	1897 } 1946 }	..	1897	10.0	2.0	51.0	16.6	(b)
38	Mannargudi	23,288	..	..	..	..	..	..	17.5	2.0	3.7	6.3	(b)
39	Masullipatam	50,145	1907-18	1937	7.9	..	..	1908	12.0	7.0	2.0	36.8	(a)
40	Mayavaram	32,670	..	..	..	..	..	..	11.0	..	3.3	10.6	(b)
41	Nandyal	25,886	..	..	..	1939	..	1919	11.1	..	§ 9.0	5.2	(b)
42	Narasaraopet	17,644	..	..	..	1912	..	..	10.0	5.1	2.3	3.5	(b)
43	Negapatam	52,936	1897-14	1935	14.8	..	..	1905	22.0	4.5	1.0	1.0	(a)
44	Nellore	56,315	1904-08	1938	11.0	..	..	1909 } 1931 }	5.57	2.257	3.7	11.3	(a)
45	Ongole	21,184	..	..	..	1909	..	..	12.0	..	2.2	4.4	(b)
46	Ootacamund	29,850	1910	1933	9.06	..	..	1911	12.5	3.0	1.0	6.1	(a)
47	Palacole	19,869	1926-31	1937	7.2	..	..	1932	7.25	12.0	1.0	5.5	(a)
48	Palamcottah	30,967	..	..	..	1909 } 1941 }	..	..	8.0	1.5	5.8	6.2	(a)
49	Palghat	55,100	..	..	..	1920	..	..	10.5	..	8.0	11.1	(b)
50	Paini	24,706	1912-32	..	9.6	..	..	1932	11.25	4.5	1.0	4.1	(a)
51	Peddapuram	20,835	..	..	..	1917	..	..	9.5	5.0	4.6	4.2	(a)
52	Periyakulam	25,882	1906-12	1927	11.5	..	..	1919	20.0	3.0	0.5	5.2	(a)
53	Pollachi	26,193	1937	..	..	1929	..	1920	6.25	4.75	1.0	5.2	(c)
54	Proddatur	26,981	1926-33	..	..	..	..	..	20.0	7.5	0.5	5.4	(c)
55	Rajahmundry	74,564	1923-34	..	11.6	..	1944 (partial)	..	22.57	6.0	1.0	24.0	(a)	
56	Rajapalayam	46,289	..	..	..	1939	..	..	14.5	1.0	4.6	9.2	(b)
57	Salem	129,792	1911	↓	3.5	1931	..	1920	23.0	10.0	8.0	2.8	(c)	
58	Sivakasi	16,626	..	..	..	1939 } 1941 }	..	1941	3.25	1.0	1.7	3.3	(b)
59	Srirangam	26,676	1909-39	..	5.8	..	..	1906	22.00	5.5	0.5	2.9	(a)
60	Srivilliputtur	34,642	..	..	..	..	..	..	15.5	1.0	6.5	6.9	(b)
61	Tadpatri	15,184	1930-33	..	3.4	..	..	..	5.0	3.75	0.5	3.0	(a)
62	Tanjore	68,792	1891-95	1930	15.3	..	..	..	22.0	5.50	5.3	13.7	(a)
63	Tellicherry	34,320	..	..	..	..	..	..	16.0	0.5	10.4	8.5	(b)
64	Tonali	40,639	..	..	..	1942	..	1912 } 1934 }	20.5	2.5	7.2	19.5	(b)
65	Tinnevely	60,676	..	..	..	1896	..	..	14.5/16	..	3.3	12.1	(b)
66	Tirupati	20,143	1895-99	1920	..	1923	..	1920	16.0	3.5	1.0	0.5	(b)	
67	Tirupattur	23,008	..	..	..	..	..	1946	17.01	..	2.3	4.6	(a)
68	Tiruppur	33,100	1923-40	..	3.05	..	..	1926 } 1938 }	15.1	4.5	1.0	9.2	(a)
69	Tiruvannamalai	33,575	1900-34	1937	5.9	..	..	1941	19.0	4.25	0.5	5.8	(a)
70	Tiruvarur	22,375	..	..	..	..	..	..	15.0	2.0	2.8	4.4	(b)
71	Trichinopoly	159,566	1896	↓	23.0	..	..	1906	14.25	5.0	16.0	66.6	(c)
72	Tuticorin	75,614	1896-29	1946	13.7	..	..	1933	8.5	1.5	2.0	16.6	(c)
73	Udipi	18,043	..	..	..	..	..	..	9.0	4.75	5.0	3.6	(a)
74	Udumalpet	17,791	..	..	..	1939	..	1939	7.7/24	1.0	11.6	3.5	(b)
75	Vaniyambadi	31,281	..	..	..	1907	..	1915	17.0	2.0	3.1	6.2	(b)
76	Vellore	71,502	1907	↓	12.3	..	1927 (partial)	1936	30.75	7.0	..	7.6	*** Supplemental.	
77	Villupuram	23,829	..	..	..	..	..	..	9.0	..	2.4	4.7	(b)
78	Virudunagar	34,560	1929-38	..	3.5	..	..	1933	17.5	5.0	1.0	8.9	(b)
79	Visagapatam	79,243	1903	1935	5.5	..	..	1929	10.5	6.0	24.0	14.2	(c)
80	Visianagram	51,749	1898-12	1929	9.7	..	..	1896	20.07	7.0	5.0	§ 30.0	(c)
81	Wallajpet	11,048	1943-46	..	..	..	..	..	14.5	5.5	..	2.2	(c)
										Tota.	..	663.0	811.0	

APPENDIX III

A Note by the Secretary read before the Committee
on 23rd June 1947

Relevant statistics from the 1941 census

" Towns " are places of usually not less than 5,000 inhabitants possessing definite urban characteristics. " Village " is the revenue administrative unit, not the residential village; " urban " and " rural " refer to towns or villages as above defined.

Definition of a house.—" Every dwelling with a separate main entrance."

Area of the Province (British territory)	126,166 sq. miles.
Number of towns.. .. .	407
Number of villages	35,430
Number of occupied houses. { In towns	1,463,646
{ In villages	8,173,146
Population—49,341,810 .. { Urban	7,864,883
{ Rural	41,476,927

	Number.	Population.
Villages with population of 500 and under ..	12,465	3,120,232
Villages with population of 500—1,000 ..	9,228	6,899,903
Do. 1,000—2,000 ..	8,203	12,253,684
Do. 2,000—5,000 ..	4,929	14,756,214
Towns with population of 5,000—10,000 ..	800	5,876,276
Do. 10,000—20,000 ..	128	1,803,466
Do. 20,000—50,000 ..	57	1,611,352
Do. 50,000—100,000 ..	21	1,376,467
Do. 100,000 and over ..	6	1,547,630
Floating population .. .. .	..	96,586
	<u>35,837</u>	<u>49,341,810</u>

The ratio of urban to rural population is 1 : 5.

Number of district municipalities, excluding Madras City—81.

Population of district municipalities, excluding Madras City—3,689,931.

Population of Madras City—777,841.

Facts about urban schemes

There are 46 municipal water-supply schemes in operation serving about 69 per cent of the municipal population, and installed at a cost of about Rs. 270 lakhs. The City of Madras, in addition, caters to a further 5 per cent of the municipal population, the capital cost so far spent being about Rs. 162 lakhs. Most of the municipal schemes are but partial and have to be expanded. Of the 46 schemes, 5 are 20-gallon schemes, 26 are 15-gallon schemes, 9 are 10-gallon schemes, and 6 are 5-gallon schemes.

There are only seven municipalities with a drainage scheme installed at a cost of Rs. 68 lakhs. All of them are in need of additions or improvements.

In addition to improvements and extensions to the existing water-supply schemes, the provision of water-supply schemes to the remaining municipal stations is estimated to cost about Rs. 400 lakhs at pre-war rates. Likewise the provision of drainage schemes to the remaining municipalities is estimated to cost about Rs. 670 lakhs.

Out of some 6,386 panchayats in the Province, urban and rural, only 12 have water-supply schemes now provided at a cost of Rs. 10 lakhs. Most of them are but 5-gallon or 10-gallon schemes, and also need expansion to serve the entire panchayat area concerned.

Thus 35 municipal towns are yet to be provided with new water-supply schemes altogether; as many as 40 existing municipal water-supply schemes are in need of improvements; and only 6 stations can be said to have a satisfactory scheme in operation. Similarly, 74 municipalities have to be provided with drainage schemes and seven existing schemes are to be improved. Almost the entire urban areas apart from municipal towns, are yet to be provided with water-supply and drainage.

In G.O. No. 902, P.H., dated 30th March 1944, Government ordered the preparation of revised priority lists and a compendium of provincial requirements of water-supply and drainage. A revised priority list and compendium drawn up by the Director of Public Health and Sanitary Engineer to Government were approved by the Government in G.O. No. 55, P.H., dated 7th January 1946.

Subsequently, the priority assigned to a number of stations has been reshuffled on reconsideration of the individual merits of the cases.

The priority list and compendium include for water-supply all places with population of 10,000 and over; and for drainage all places with a population of 5,000 and over.

In their Post-War Reconstruction Scheme No. 98, Government have indicated the scope of their plan—a 20-year plan in four 5-year stages. The full plan of development is to cover 82 municipalities and 167 urban units including schemes now in operation. This plan was since supplemented (in the Provincial Compendium) so as to include drainage schemes also for places with populations 5,000 to 10,000. The rough cost of the first 5-year plan is given out as Rs. 8.79 crores.

On rural water-supply.

The number of villages with population below 5,000 is 84,825 with a total population of 37,030,033, i.e., about 75 per cent of the provincial population. Places with population between 5,000 to 10,000 are 800 in number with a total population of another 5,876,276, i.e., another 12 per cent or so.

No correct figures are available, but it is gathered that some Rs. 65 lakhs were spent from Government grants and local finance between 1895 and 1936 on rural water-supply and rural sanitation.

The extent of improvement done in rural areas from 1921 to 1936 is stated to be: new wells sunk 11,624; new tanks dug 467; existing wells improved 14,924; and existing tanks improved 5,070. The Revenue Board has been requested by me to furnish information on (1) the total number of villages for which water-supply schemes are already installed and at what cost, (2) the number of villages for

which schemes are under investigation, design or execution and the amount involved, (3) the number of villages for which schemes are yet to be provided, and (4) the contemplated programme and staff organization proposed for the further work.

A comprehensive rural water-supply scheme spread over a period of ten years, and financed entirely from Provincial funds was inaugurated by Government in 1937-38. A separate fund was also created for the purpose. The object of the scheme was to provide a reasonably pure water-supply free from contamination for all rural units with a population of 5,000 and less and those which have an annual income of Rs. 8,000 and less. The whole scheme is administered by the Revenue Department through the Collectors of the districts.

In 1939, a committee was constituted to report on the best and most efficient way of providing protected potable water in the rural areas of the Province, the types of water-supply to be provided for different kinds of villages and soil conditions, the agency for putting down bore-wells, the agency for their maintenance, the suitable type of pump for bore-wells, centralized purchase of stores, local manufacture of equipment for rural water-supplies, and the best method of utilizing waste water. The report of the Rural Water-Supply Committee was submitted in 1940 with the dissenting minutes of Sri A. V. Raman. In G.O. No. 2307, P.H., dated 2nd June 1947, the Government directed that a yearly programme and not a 10-year plan may be followed. In G.O. No. 1989, P.H., dated 30th July 1945, Government included villages with a population of 5,000 to 10,000 also in the scope of the rural water-supply.

In their Post-War Reconstruction Scheme No. 97, the Government have proposed that, that part of the first half of the 1938 ten-year plan which remains unexecuted will be taken up for execution during the first 5-year post-war years, the balance being executed during the next five years. The supply sources to be provided in the villages will generally consist of bore-wells with iron and steel or cement pipes, masonry dug-wells according to approved designs, wells with infiltration galleries, etc. The types of supply to be provided will be left to the discretion of the Collector. The approximate cost of the first 5-year plan is Rs. 256 lakhs.

In G.O. No. 3242, P.H., dated 13th November 1946, the Government considered that the scheme outlined in the above plan should be vigorously implemented and the pace of execution accelerated. Certain suggestions have been made in this connexion, viz., a special course of Licentiate in Civil Engineering for securing candidates as Minor Irrigation Overseers, the appointment of an Assistant Engineer with each Collector and Special Overseers with adequate staff of maistries for each taluk and the expansion of the Sanitary Engineer's office to scrutinize special schemes, etc. The Board of Revenue has been requested to examine these suggestions and submit proposals to Government.

The procedure in vogue at present is based on the orders of Government in G.O. No. 5825, P.H., dated 11th December 1940. The plans and estimates for rural water-supply schemes are sanctioned by the Collector, up to a cost of Rs. 2,500. For works costing over Rs. 2,500 the estimates are to be sanctioned by the Revenue Board. The Board may consult the Sanitary Engineer on these estimates, if it so desires. Estimates costing over Rs. 10,000 are to be scrutinized by the Sanitary Engineer prior to their sanction by the Board.

In a reference received from the Board of Revenue, dated 23rd April 1947, details of the first 5 years of Scheme No. 97, are furnished as under:—

	Bore wells.	Draw wells.	Wells with infiltration galleries.	Other types.	Total number of works.	Cost. Rs.
I year ..	722	4,335	10	113	5,180	84,08,367
II " ..	705	4,410	31	105	5,251	86,16,210
III " ..	811	4,220	32	122	5,185	80,64,102
IV " ..	908	4,127	23	109	5,167	78,87,943
V " ..	860	4,068	4	134	5,066	77,23,650
	<u>4,006</u>	<u>21,160</u>	<u>100</u>	<u>583</u>	<u>25,849</u>	<u>4,07,00,272</u>

The Board proposes that out of the 25,849 works shown above, only estimates costing more than Rs. 4,500 will be sent to the Sanitary Engineer for scrutiny.

Further details called for from the Revenue Board are awaited.

The work ahead

The progress on water-supply schemes for municipal, urban and rural units during the past half a century has been far from satisfactory. Many a scheme has been hung up after investigation and consideration at periodical intervals, on the final issue of finance. Even the headquarters of some districts remain without a protected water-supply to the present day. The history of schemes investigated, designed and dropped through the past decades makes sad reading. As for drainage schemes, the further work ahead is practically to begin from scratch.

Only a very rough basis may be assumed for assessing the probable cost of the works ahead. On a broad approximation, the cost per head of population is about Rs. 10 for water-supply, and about Rs. 20 for drainage schemes, based on pre-war prices. These figures would be somewhat higher for urban units. A rough forecast of Rs. 18 crores may thus be assumed, for completing the provision of water-supply and drainage schemes for all units with more than 10,000 population. To provide similar facilities for all units with 5,000 to 10,000 population some Rs. 14 crores may have to be allowed. In addition to this Rs. 82 crores, rural water-supplies for all units below 5,000 population is a separate commitment; the first 5-year plan according to the estimate of the Revenue Board, is expected to cost Rs. 4.07 crores. Allowing for present day prices and the trends of coming years, it may not be far out of the mark for us to assume that the capital outlay on schemes, urban and rural water-supply and drainage, would be of the order of Rs. 50 crores if not more.

The problem of finance.

The over riding factor deciding the pace of execution of these schemes is the question of finance. There is the Rural Water-Supply Fund as far as rural water-supplies are concerned. Its limitations and augmentations concern the Government mostly, as the rural units look almost entirely to the Government for financing the schemes. In the case of municipal and panchayat schemes, a degree of self-help is expected of the local bodies, who usually contribute a moiety of the cost of their water-supply and drainage schemes. Two inability of many a municipality to raise funds—out of sheer financial

incapacity or reluctance to tax itself to the high level required—has, after a self-righteous confession by the Government of financial helplessness, postponed a much-needed water-supply or a drainage scheme for the station concerned. And public health, in so far as water-supply and drainage could improve it, continues to be neglected.

The financial resources of municipalities as at present constituted are too poor and limited while the duties they are charged with are exacting and always beyond their means. In the result, they have taken to the unenviable role of poor relations ever looking to the Government for succour in their difficulties and are also treated as such. In their present plight, many municipalities have but two options. Either they should tax themselves to a crippling limit or they should deny themselves essential civic amenities like water-supply and drainage. The former course has visible repercussions in municipal elections while the latter course can always be explained away to the satisfaction of the tax-payers. A change of policy is clearly indicated if progress is to be achieved.

Once it is conceded that the provision of public health amenities is a first charge on the State's funds, as much as maintenance of law and order, the financing of the schemes is more a problem to be solved than to be shelved. It should be possible to think on the lines of

- (a) an optimum level of taxation for each municipality based on its full resources;
 - (b) direct borrowing by local bodies by a State backing of the local bodies' credit;
 - (c) provincial borrowing;
 - (d) the utilization of the locked-up capital available with insurance companies and banks on mutually favourable terms;
 - (e) the sale of municipal bonds to local rate-payers, etc., etc.;
- and
- (f) a provincial water and drainage fund.

Materials of construction

About 50 per cent of the cost of urban water-supply schemes may be assumed as comprising the cost of cast iron pipes and specials and fittings and galvanized iron pipes and fittings. In the case of the rural water-supplies, it may be possible to do with a minimum of piping materials, as a distribution system or a long pumping main will not be normal features of most of these small schemes. Similarly, about 10 to 15 per cent of the total cost may form the cost of pumping plant and machinery in urban water-supply schemes, including manufactures of a proprietary nature like mechanical filtration plant, Chlorinators, etc. The balance of cost usually comprises normal building materials, brick, stone, lime, cement, wood-work, steel and labour.

Similarly, in all underground drainage schemes (which are to be provided for towns with population of 50,000 and over), about 40 per cent of the total cost forms the cost of stoneware pipes for sewers, in a normal scheme. The bulk of the work, on man-holes and flush tanks, storm water drains, pump-houses and sewage farm layout can be constructed with normal building materials. The pumping plant and machinery in non-gravitation drainage schemes

and special equipment for mechanical treatment and disposal of the sewage in the case of a few schemes would call for import of special manufactures and equipment. The drainage schemes for most of the smaller units could normally be drawn up providing for open drains and intercepting sewers (with or without pumping stations as may be necessary) and disposal by sewage farming.

The progress of water-supply schemes largely and of drainage schemes to a lesser extent, must, therefore, depend on the availability of cast iron pipes and specials and of stoneware pipes in quantities and at prices as may be programmed for. The procurement of pumping plant and machinery and other equipments of proprietary nature, would also influence the pace of our execution programme. It is for the committee to consider, and indicate the manner and means of securing cast iron pipes and specials, stoneware pipes and pumping units and machinery at reasonably economical prices, so that the supply meets the demand level without holding up progress of works. As these are materials required for nation-building activities, some form of State intervention would appear desirable to regulate and control the production and price levels, instead of the manufacturing combines exploiting the situation and making the best of it at the tax-payers' money. Similarly, the manufacture of cement as a State industry would seem to bring in substantial advantage and economy and the expedition of these public health schemes. The policy to be adopted in local manufactures of bricks, lime, etc., may also deserve to be considered in detail with a view to their adequate supply being maintained at economic prices as far as Government schemes are concerned.

Organization

The organization of the department on suitable lines is to be considered so that it is adequately staffed and equipped to investigate, design, execute and maintain schemes with efficiency and expedition and according to programme. The functions of the Sanitary Engineering Branch vis-a-vis the general branch of the Public Works Department, the functions and role of municipal engineers and municipal engineering subordinates, and the present administration of the rural water-supply scheme with the help of Minor Irrigation Overseers as the mainstay, are all questions which call for a re-orientation of the present set-up, if better results are to be achieved.

The procedure now being adopted may here be briefly stated. If and when a local body is desirous to have a protected water-supply or drainage scheme, it approaches the Government with a request. A preliminary forecast of the probable cost of investigating and installing the scheme is furnished by the Sanitary Engineer. The local body places funds for the investigation, entirely at its own cost. A scheme is investigated in detail and a report with installation and maintenance costs is furnished. It is at this stage that the financial capacity of the local body is examined in detail by the Government. If the local body is found solvent enough to face the enterprise or willing to tax itself to the level required, and if the provincial revenues permit of the Government doling out the moiety of the capital cost, the operations take a stride forward and the design of the scheme with plans and estimates is ordered by the Government. When this is completed, the scheme is sanctioned for execution. When the

scheme is executed and completed, it is handed over to the municipality for maintenance.

The investigation of schemes is carried out by the two Executive Engineers (Public Health) in immediate charge, with the help of five investigation supervisors. The investigation report goes through the Sanitary Engineer and Chief Engineer to Government, who obtain the views of the local body on the details before sanctioning the preparation of plans and estimates as the next stage. The design of the schemes with plans and estimates is then taken up by the Sanitary Engineer in his office. The technical section consists of 12 posts of III grade draughtsmen, 5 posts of II grade draughtsmen, 2 posts of I grade and one special grade draughtsman. (Proposals are under consideration for a reorganization of the technical section.) The Personal Assistant and the two deputies to the Sanitary Engineer direct and supervise the work. The deputies in addition to their investigation and design work, assist the Sanitary Engineer in dealing with administrative matters too. It is a composite office with the single file system.

The Chief Engineer scrutinizes the proposals at each stage, investigation and design. The Government accord administrative approval to all schemes; the Sanitary Engineer accords technical sanction to schemes costing up to Rs. 1 lakh and the Chief Engineer for bigger schemes. The execution of the schemes is by the Public Works Department without reference to the Sanitary Engineer who, however, can inspect works in progress and offer comments, if any, to the Chief Engineer. There is thus a separation of functions as between investigation, design and execution of schemes. Finally when a scheme is completed, it is taken over by the local body for maintenance with its own technical staff. The municipal engineers are under the administrative control of the Sanitary Engineer and Chief Engineer, while the subordinate engineer staff are under the control of the local bodies entirely except that prior consultation with the Sanitary Engineer is necessary in regard to their appointments and punishments, etc.

It is for the committee to decide if and what changes to this triple control are called for, in the interests of the expedition of the schemes and their after-care and maintenance. The investigator and designer of the scheme being different from the executor of the work and neither of the two having the immediate control of the completed work, would seem to lack the co-ordination necessary for economy and efficiency in water and drainage works, which are admittedly specialized in character. A proposal for the amalgamation of all engineering services was recently sponsored by the Chief Engineer (General); its present stage is not known. A concerted measure to pool all engineering personnel and talents and organize the existing multiple services into well co-ordinated groups would be inevitable sooner or later in the larger interests of the public works of this province.

It may be useful here to recount briefly the history of the organization of the Sanitary Engineering Branch.

A Sanitary Commission was appointed for Madras in 1864 at the instance of the Government of India. It became more expensive and less useful in later years. In 1888, the Government of India suggested the formation of a Sanitary Board. The Madras Government while opposed to the creation of the Board (with their past experi-

ence), considered however that the appointment of a Special Sanitary Engineer was a reform absolutely required. With the concurrence of the Government of India, a Sanitary Engineer was accordingly appointed in 1890. A Sanitary Board was also constituted consisting of the Sanitary Commissioner and the Sanitary Engineer.

In December 1890, the Chief Engineer proposed that the Sanitary Engineer should be graded on the Public Works Department, as a Superintending Engineer extra to the regular scale. The Government did not agree to such a proposal and called for a joint note from the Chief Engineer and the Sanitary Engineer. This joint note, dated 21st May 1891, dealt with the difficulties in the way of the Public Works Department carrying out the execution of schemes designed by the Sanitary Engineer and recommended that the Sanitary Engineer and his department should be made totally independent of the Public Works Department as far as designing and execution of work is concerned, the Chief Engineer merely acting as adviser to the Government on schemes which they might refer to him. Three sanitary circles were proposed, each corresponding to two Public Works Department circles, the Sanitary Engineer, his Deputy and Assistant Sanitary Engineer directing, supervising and executing schemes with subordinate staff to be transferred gradually from the Public Works Department, the latter augmenting its strength with new hands. The proposals were generally approved by the Government.

A large volume of work on several water-supply and drainage schemes was turned out in the nineties. The Sanitary Engineer Mr. J. A. Jones was, however, complaining all the time about the inadequacy of the staff for the ever-expanding work on schemes.

In 1895-96, when the Sanitary Engineer pressed for additional staff as he could not possibly cope with all the work with one Assistant Engineer at headquarters and two others on works under construction, the Government took the advice of the then Chief Engineer, and directed that the work of the Sanitary Engineer be confined to investigating and design of schemes, and their execution entrusted to the Public Works Department.

The Sanitary Engineer thereupon represented the handicaps and difficulties arising from a division of design and execution from each other. Government agreed that if funds were abundant, the best plan would be to create a Sanitary Engineering Department complete in itself and strong enough, not only to design works, but also to carry them out; but, financial considerations stood in the way.

In 1898, the Sanitary Engineer urged again for a reconsideration of the decision pointing out that the system did not result in any saving or expedition; but, the Government did not consider that a change was necessary. The same procedure was continued up to 1920. In 1913, the Government announced a 5-year programme for 1913-18 but, as Government stated in their note, it did not commit them to anything, apart from announcing a programme.

In 1920, the Government constituted a Board of Public Health, absorbing the Sanitary Board and Malaria Board in it.

In 1919, the Madras Government gave their opinion on the recommendations of the Public Works Department Reorganization Committee regarding the organization of the specialist branches of the Public Works Department. Thereupon, the Government of India

communicated to the Provincial Government the decisions of the Secretary of State for India that the specialist services will remain outside the Indian Service of Engineers and will be recognized under three main heads, Architectural, Sanitary and Electrical; that these services will be organized on a provincial basis, the specialist appointments being divided into two classes. The creation of one post in first class and six posts in second class were also sanctioned by the Secretary of State.

In 1933, the Government transferred the control over the Sanitary Engineer and his staff from the Public Works and Labour Departments to the Local Self-Government Department. For the better co-ordination of public health activities it was proposed that the Sanitary Engineer should deal directly with the Government in the Local Self-Government Department. He was accordingly made the head of the Sanitary Engineering Department occupying a position similar to the Surgeon-General and the Director of Public Health.

In 1935, the Government declared the Sanitary Engineering Department as a Provincial Service entitled Madras Sanitary Engineering Service and issued special rules therefor.

In 1936, the Government directed that the execution of all large municipal schemes involving technical skill will be entrusted to Engineering firms on contract, the supervision being entrusted to the Sanitary Engineer.

In 1937, Government decided that in the case of mufussal water-supply and drainage schemes, the scrutiny of plans and estimates by the Chief Engineer may be confined to schemes costing over Rs. 5 lakhs.

In 1938, however, the Government stated that the new system, though it had not been worked for long, had led to delays and difficulties in execution; and the Government had therefore come to the conclusion that the Sanitary Engineering Department should again be placed under the expert control of the Chief Engineer. They directed the Chief Engineer to take over the supervision of execution of works. The Government also defined the powers of the Sanitary Engineer and Deputy Sanitary Engineers and directed the Chief Engineer to address the Education and Public Health Department on all matters regarding the officers in the Sanitary Engineering Department.

In December 1938 again, the Government kept the post of the Sanitary Engineer in abeyance and created a temporary post of Superintending Engineer and Deputy Chief Engineer, Public Health Branch.

In October 1940, the Government directed that the Superintending Engineer (Public Health) be designated as Sanitary Engineer, who would also be the Deputy Chief Engineer for Sanitary Engineering.

In December 1940, the Government further modified their earlier orders and made the Sanitary Engineer's Office separate from the Chief Engineer and specified the relations between the two. In G.O. No. 5337, P.H., dated 12th November 1940, the Sanitary Engineering Service was merged into the Madras Engineering Service as a distinct class and rules were issued for the same.

Private agencies

The Government have asked for the committee's views on the employment of private agencies for the design and execution of rural water-supply schemes. Hitherto the investigation and design of water-supply and drainage schemes of any magnitude has been exclusively confined to the Government departments, engineering firms being employed only in the execution of the schemes. In recent years the Government permitted the entrusting of minor sanitary schemes for Government institutions to Engineering firms on payment of specified design fees. The non-Government professional field is thus not in any advanced or competent stage such as would justify the employment of private talents in the design of water-supply and drainage schemes. Until this field is thrown open to the competitive talents of private enterprise and the experience so gained has been rich in quality and quantity to clothe the private professional Engineers with reliable competence on this subject, the employment of private Engineers at this stage may not yield anticipated results. As far as investigation of such special schemes are concerned, width and richness of experience is a *sine qua non* for initiating any scheme on efficient and economical lines. All these factors however would apply to major urban schemes and may not operate with equal emphasis in respect of the more straightforward and simple rural water-supply schemes. It is for the committee to consider how far a change from the existing procedure will secure better results in the matter of progress of schemes.

Priority for Schemes

In G.O. No. 55, P.H., dated 7th January 1946, Government issued priority lists for water-supply and drainage schemes and a compendium of provincial requirements. A copy of the notes by the Director of Public Health furnished to the Public Health Board which met on 20th June 1947, is sub-joined, which explains the back ground.

In their Memorandum No. 21671-H-1/47-3, P.H., dated 16th June 1947, the Government have desired that the general question relating to the matters to be taken into consideration in fixing ranks for schemes in the compendium of provincial requirements of water-supply and drainage may also be considered by this committee and its views reported to Government as early as possible. The criteria for assigning ranks to the different places have to be gone into and decided by the committee, in the light of the data available.

Copy of the notes by the Director of Public Health explaining the basis of the compendium :—

WATER-SUPPLY AND DRAINAGE SCHEMES—PRIORITY LISTS— COMPENDIUM OF PROVINCIAL REQUIREMENTS.

The Public Health Board at its meeting held on 18th August 1949, recommended that—

“ With regard to water-supply and drainage, priority shall certainly be given to those areas where a water and drainage levy has been in existence for a long period; and to those also who in view of the financial position of the Provincial Government, are prepared not to wait and waive any contribution but would undertake the whole work on themselves.”

If a number of local bodies and municipalities applied under this stipulation then priority will be decided according to the conditions mentioned already by the Sanitary Board, viz.—

- (a) perennial water scarcity,
- (b) partial water scarcity,
- (c) endemicity or epidemicity of water-borne infection,
- (d) protection of existing sources, and
- (e) extension of existing sources.

The Government considered that the best way to give effect to the above recommendations of the Public Health Board was (i) to prepare a priority list on the general principles laid down by the Sanitary Board and (ii) to revise the list periodically and to rearrange the scheme *inter se* according to whether the local body has been levying a tax for a long period or is prepared to finance the scheme entirely from its own funds.

Accordingly a priority list in the following form was drawn up and issued by Government in 1941:—

List 1.—Schemes for which detailed plans and estimates have been sanctioned or have been submitted for sanction.

List 2.—Schemes for which investigation is complete and which are ready for preparation of plans and estimates.

List 3.—Outline schemes which have not been investigated.

In a joint report the Director of Public Health and the Sanitary Engineer raised a number of questions relating to existing procedure, particularly with regard to the practical difficulties encountered, the unsatisfactory form of the existing lists, financial aspects of the schemes, etc., and made a number of general recommendations in which the principles relating to the carrying into execution of items in the priority list and plans for future work had been suggested. The Government after careful consideration of all the aspects of the question passed orders in G.O. No. 902, P.H., dated 30th March 1944, abolishing the existing priority list and ordered the preparation of revised priority list and a compendium of provincial requirements of water-supply and drainage. Accordingly, a revised priority list and compendium were drawn up by the Director of Public Health in consultation with the Sanitary Engineer and they were approved by Government in G.O. No. 55, P.H., dated 7th January 1946.

The priority for water-supply in the compendium was based on the following principles:—

- (1) Existing priority;
- (2) endemicity;
- (3) scarcity;
- (4) partial scarcity;
- (5) pilgrim centres; and
- (6) others.

The priority for drainage in the compendium for places having a population of over 10,000 was arranged in the following order:—

- (1) Towns which already have water-supply.
- (2) Towns with water-supply and under execution.
- (3) Water-supply schemes ordered to be executed.
- (4) Plans and estimates for water-supply schemes ready and sanction awaited.
- (5) Other places based on the priority in the compendium for water-supply.

Priority in respect of drainage schemes for all places having a population between 5,000 and 10,000 was arranged based on the following principles:—

- (1) Malaria;
- (2) filariasis;
- (3) mosquito nuisance;
- (4) contamination of water sources; and
- (5) others.

The following statement shows how the priority was arrived at in the compendium:—

A.—WATER-SUPPLY.

Nos.	
1 to 47	.. Based mainly on previous list prepared as follows:— <i>List I.</i> —Schemes for which detailed plans and estimates have been sanctioned or have been submitted for sanction. <i>List II.</i> —Schemes for which investigation is complete and which are ready for preparation of plans and estimates. <i>List III.</i> —Outline schemes which have not been investigated.
48 to 50	.. Endemicity.
51 to 62	.. Scarcity.
63 to 91	.. Partial scarcity.
92 to 134	.. Epidemics with pilgrim centres.
135 to 195	.. Others.

Note.—In the absence of special reasons, the places were arranged alphabetically.

B.—DRAINAGE.

Nos.	
1 to 61	.. Arranged in the order of— (i) places which have water-supply; (ii) places with water-supply under execution; (iii) water-supply schemes ordered to be executed; (iv) plans and estimates for water-supply schemes ready and sanction awaited.
62 to 233	.. Based on rank in compendium for water-supply.
234 to 565	.. Existence of— (1) malaria, (2) filariasis, (3) mosquito nuisance and (4) contamination of water sources.
566 to 1,063	.. Others.

Note.—In the absence of any special reasons, the places were arranged alphabetically.

Points from the Bhoré Committee Report.—

Briefly stated, they are—

Water-supply.—(1) A policy to aim at the provision of protected supply to the entire population within a period of thirty-five years, 50 per cent within the first twenty years and the balance in the next fifteen years. (2) For the smaller villages with population under 1,000

provision of wells properly constructed, one well to serve 250 persons (average cost in Bengal Re. 1 per head), (3) for villages with population above 1,000, piped stand posts water-supply system (cost ranging from Rs. 10 to Rs. 15 per head of population), the source to be copious enough to be expanded to a 25/30 gallon scheme later on, (4) for most towns in India other than highly industrialized cities, a supply of about 35 gallons per head per day is considered adequate, the figure raised to 50 gallons in the case of large industrial cities, (5) assigning of priority for schemes based on incidence of cholera and other relevant considerations, (6) the formation of a Central and Provincial Water and Drainage Board.

Conservancy and drainage.—(1) The sewerage of all towns with a population of 50,000 and over within the short term programme of the first ten years; health resorts and industrial colonies included. (2) Extension of sewerage systems to all urban communities eventually; until this is possible adequate provision of open drains, etc., should accompany provision of water-supply. The Provincial Board to be responsible for the planning of this type of drainage. (3) For smaller places urban and rural, the use of septic tanks and soil absorption systems in order to extend the advantages of water-borne conservancy over as wide an area as possible. (4) Septic tank type public latrines in all unserved areas wherever possible. (5) A vigorous policy of latrine construction and the use of bore-hole latrines on a wide scale. (6) Refuse collection and disposals to be arranged on organized lines.

S. RAJAGOPALAN,
Secretary.

A Note by the Secretary placed before the Committee on 8th July 1947.

Some of the issues on which the Committee have yet to decide are as follows:—

(1) The question of priority of schemes in so far as municipal and non-municipal urban water-supply and drainage schemes are concerned. As the members are aware, the Government have made a special reference to this Committee that this subject among others may also be discussed and recommendations made to Government. I have already circulated to the members the Government reference in question and a copy of the compendium of provincial requirements as it stands at present and a copy of the notes of the Director of Public Health explaining the basis on which this compendium was originally arrived at. The Committee will have to go into this question and make recommendations to Government.

(2) The Committee have not yet been able to discuss the question of finance in relation to the 10-year or 15-year programme, the annual expenditure recurring as well as non-recurring, the question of staff required therefor and cognate matters. I have prepared particulars in this direction based on approximate data and attach copies of a blue-printed statement showing relevant particulars for the members to discuss the details and arrive at decisions.

(3) As will be seen from the proceedings of the meetings held on the 23rd to 26th instants the question of finance was discussed by stages as and when it related to other matters but each time it was left over for a further discussion at a later stage. It may be desirable that the members review this question of finance in the light of the further data now available and, having regard to the commitments involved by a 10 or 15-year plan, confirm or modify the previous broad decisions made. The various methods of raising funds and how far such a procedure as well as the proposal for the central pool are feasible; the need, if any, for a central authority to administer this collective fund; and the need for the enactment of any legislation is also to be examined by the Committee finally. The provisions in the Madras District Municipalities Act as well as in the Local Boards Act have to be examined in this context.

(4) On the question of rural water-supply again, the reply from the Revenue Board (copy of which I have circulated to the members) while it gives certain additional information beyond what we had already, does not however convey full information in the manner we required. The Board have stated that they would address the Collectors for this additional information if the Committee should want them. This might mean indefinite delay and it may perhaps be necessary for us to proceed with our work with the data actually available at present.

(5) On the question of additional personnel to be trained in the higher and lower categories, I understand the President has some more points to be reconsidered before the decisions could be incorporated in the draft report. These also are to be brought up before the Committee.

Charts showing provincial mortality rates with reference to water borne epidemics for the period 1890 to 1945; details of the existing municipal water-supply and drainage schemes, showing work so far done and work yet to be done with figures of cost, etc.; and a skeleton chart for the Public Health Engineering organization as proposed are now placed before the Committee with a view to help further discussion on the issues still pending.

Finance.—On the question of finance, the following approximate figures may perhaps be assumed for the basis of our 10-year scheme:—

	RS. IN LAKHS.
(a) Total cost of municipal water-supply schemes, improvements as well as new schemes, about	563
(b) Total cost of municipal drainage schemes about	811
(c) Total cost of non-municipal, Urban water-supply and drainage schemes to be provided, about	1,625
Total of urban schemes ..	2,999

say, Rs. 30 crores.

Note.—These figures are based on approximate average rates of Rs. 10 per head for municipal water-supply, Rs. 20 per head for municipal drainage, Rs. 25 per head for urban water-supply and drainage for units above 10,000 population and Rs. 20 for urban water-supply and drainage for units less than 10,000 population. All these are based on pre-war prices for materials and labour and in order to equate them to present day price levels the total cost of Rs. 30 crores must be multiplied by a factor varying from 2 to 2.5. As a broad approximation, however, we may assume the cost of urban schemes ahead at Rs. 60 crores.

It may be possible, however to effect a reduction on these figures if the manufacture of the more important materials of construction is partly or fully nationalized. It is also likely that in the coming 10 years, prices of labour and other normal materials may also come down from the present high levels. If an allowance of Rs. 10 crores were to be made for these factors we may assume the future commitment on urban schemes at about Rs. 50 crores instead of Rs. 60 crores.

(d) As far as rural water-supply schemes are concerned, the figures furnished by the Revenue Board give out a total of Rs. 407 lakhs for the works contemplated in the first 5-year plan. This 5-year plan covers the completion of works relating to the first half of the 10-year plan of 1938 which are yet to be completed. For the balance of work which would come up in the second 5-year plan therefore, we may allow an approximate amount of Rs. 6 crores. It is also presumed that the estimate furnished by the Revenue Board at present is based on present day prices. On such basis, the total cost of rural water-supply schemes which remain to be done, would be of the order of Rs. 10 crores.

On the above broad basis, we have to reckon on a total expenditure of Rs. 60 to Rs. 70 crores if we aim at completing all water-supply and drainage works in the Province within the next ten years. The annual turnover would thus be of the order of Rs. 7 crores. It may possibly be Rs. 6 crores if price levels go down from the present peaks.

It is to meet this future commitments of Rs. 6 crores annually that we shall have to consider the problem of organization and staffing. The expenditure of about a crore of rupees every year on rural water-supply need not, it seems, add to the creation of more divisions and subdivisions than is otherwise necessary inasmuch as the rural water-supply schemes are going to be executed by local agencies with the help of subordinate field staff and maistries. The role of the higher officers in the district will be confined to broad direction and supervision only. The extra staff required in Supervisors, Assistant Engineers and Executive Engineers would therefore be based on the figure of Rs. 5 crores to be expended on urban schemes essentially. The number of existing divisions and subdivisions available in the Public Works Department who could shoulder the additional work in the 10-year plan, and the extra staff to handle the balance of work are to be considered and discussed by the Committee. It may be relevant in this connexion to consider also the allotment on several works actually being spent by the divisions at present as compared with the expenditure programme obtaining in the pre-war years.

S. RAJAGOPALAN,

Secretary.

APPENDIX IV

Abstract of the Proceedings of the Committee

ABSTRACT OF PROCEEDINGS OF THE FIRST MEETING OF
THE WATER-SUPPLY AND DRAINAGE COMMITTEE

DATE OF MEETING 23rd June 1947. TIME ; 10 a.m. to 1 p.m.

(In the Public Works Department Library Hall, Chepauk, Madras.)

PRESENT :

Sri A. Kaleswara Rao, M.L.A.

President.

Sri K. A. Nachiappa Gounder, M.L.A.	Sri N. Ranga Reddi, M.L.C.
Sri A. V. Raman, Editor, "Peoples' Health."	Janab H. S. Hussain Saheb, M.L.A.
The Director of Public Health.	The Chief Engineer, P.W.D. (General and Works).
Sri S. Rajagopalan, Executive Engineer, (Public Health), Southern Circle.	The Sanitary Engineer to Government.

Secretary.

At the request of the President of the Committee, Sri A. B. Shetty, Minister for Public Health, was kind enough to be present on the occasion and inaugurate the proceedings of the Committee. The Minister was welcomed by the President and requested to inaugurate the work of the Committee.

The Minister made a short speech in which he thanked the gentlemen who were good enough to accept the membership of the Committee, a set of people representing the different areas of the Province the Circars, the Southern districts and the West Coast and the officials whose full co-operation was available. The Government can look forward to a valuable report from the Committee giving constructive suggestions on the issues involved. The editor of the "Peoples Health" has been rightly stressing the need for environmental sanitation as the most essential subject to be taken up for the improvement of the peoples' health. Water-supply and drainage schemes have to be given first importance in any programme for the betterment of the Province. Insistent demands are being received from several quarters for instituting water-supply and drainage schemes. The Government have on hand the Postwar Schemes No. 97 for Rural Water Supply and No. 98 for Urban Water-Supply and Drainage.

Due to some reason or other, water-supply and drainage schemes take years for investigation, design, and execution. The position is more difficult now than ever before. It is said that the slow progress in carrying out these schemes is due to three causes: (1) Lack of materials, (2) lack of adequate technical personnel, and (3) inability or the unwillingness of the local bodies to find their share of the capital expenditure. It is necessary to survey the present position and suggest how best these difficulties could be got over. It has been suggested

that the Sanitary Engineering department should be made a separate department, but there is the difficulty of finding adequate technical personnel for the purpose. There is a proposal to include Public Health as a branch of studies in our Engineering colleges.

In regard to rural water-supplies again, difficulties are being met with. The inspection of works is not properly done and the revenue staff do not show sufficient interest. They also complain of difficulty of getting labour. There is difficulty in getting materials, tools, cement, etc., and then there is the inadequate staff for supervision work. In the result, an appreciable portion of the works allotment is allowed to lapse without being utilized on the execution of works as programmed. Collectors of districts have been asked to report their difficulties in the working of the scheme. It is necessary to examine the question and see how best the difficulties could be got over. The Government have also given certain suggestions to the Revenue Board and have asked them to consider these in consultation with the departments concerned and to submit a report. It has been suggested in this connexion that a special course of L.C.E. for securing candidates as Minor Irrigation Overseers should be started; the special staff that is necessary in the district as well as in the centre to select site for wells, to scrutinize the proposals and to supervise the work and so on, has also to be considered. "I am glad to tell you, Gentlemen," the Minister continued, "that the present Prime Minister is very much interested in the rural areas and their developments. He wants to institute a special fund for rural water-supply, like the fund inaugurated in 1937-38. All these matters and many others pertaining to this important subject may be considered by you. I hope your labours become very fruitful and enable us to go forward in the prosecution of water-supply and drainage schemes in urban areas as well as rural."

The Minister then left the meeting and the Committee settled down to a preliminary discussion of the entire subject with a view to framing issues.

A note on the present position in regard to schemes in operation, the magnitude of the work ahead and the probable costs of materials and construction, the question of finance, etc., was read out by the Secretary with a view to giving some facts and figures for the information of the members.

Mr. Raman then initiated the discussion and stated that even in regard to existing schemes in operation which were ostensibly styled as 15 gallon scheme, the actual quantity supplied to the consumers fell far short of this figure, and he knew of instances where people get even less than five gallons per head while their scheme in operation was termed a "15-gallon scheme." He suggested that this information should also be made available to the members, so that they could gain a correct idea of the actual position in regard to existing schemes.

He further added that the actual cost so far incurred in regard to the Madras City Drainage Scheme apart from its water-supply could also be ascertained and reported to the committee for its information.

Mr. Raman further suggested that the Revenue Board might be addressed to get information on the number of wells of several types sunk all over the province since the starting of Rural Water-Supply Fund in 1937-38; how many of them yielded satisfactory water in quality and quantity and how many of these wells are in actual use at present and the total amount spent on these wells.

The Chief Engineer then explained the reason why schemes in operation fell short of the anticipated supply per head of the population. Schemes had been designed to provide for an assumed ultimate population in 1941; but actually the census of 1941 showed that the assumed figure was much smaller than the actual population. In addition, no provision is made to enlarge the water-supply scheme as and when the population expands; the result is that the per capita rate of supply falls below the 15 or 20 gallons per head as assumed in the original design.

The Chief Engineer further explained that a provincial compendium had been drawn up by the post-war committee assigning each municipality and major unit a suitable place in it for introducing water-supply and drainage schemes, giving each one a priority based on public health point of view.

The President desired that the Secretary might prepare a statement showing the municipalities, major and minor panchayats, with details about their water-supply schemes as existing or as proposed or under investigation, along with other relevant particulars, so that the members might know the position at a glance. He also raised the question that schemes had been delayed over a long number of years at some stage or other.

The Chief Engineer explained that the question of finance was the stumbling block at every stage. Schemes were investigated and designed and then hung up for lack of funds.

He further explained that owing to the scarcity of materials at present, schemes could not be pushed through. Cast iron pipes and galvanized iron pipes especially were very difficult to procure. The Bhadravati Iron Works, it would appear, may not be in a position to supply against indents outside the Mysore State for some years to come. The Bengal Iron and Steel Company who are the only alternative suppliers are so heavily booked that they are not prepared to accept any orders for delivery within the next 18 or 24 months. The position was thus very tight as regards materials.

Mr. Raman said that the existing system of controls was really proving to be a handicap. He understood that galvanized pipes of varying sizes were even now available in Madras to the tune of nearly Rs. 89 lakhs; but the system which specified that a permit should be issued by a Controller sitting at Calcutta over each and every application for such pipes made the position more difficult than it really need be.

Mr. Raman continued that it may not be expedient to depend on the Bengal Iron Company solely for all the provincial requirements in cast iron pipes, etc., and it would be worth while to think of placing bulk indents abroad with the United Kingdom or United States if we were to make progress with our schemes. He feared that the United Kingdom may not be in a position to make any large exports of pipes for some time to come and it would be advisable to try and see whether large shipment of pipes could not be got in from the United States for our purpose. He was sure that financial corporations would be willing to undertake such work, negotiating on the basis of rupee exchange even if dollar exchange was not feasible.

The Sanitary Engineer wanted to know whether this procedure would enable the pipes being obtained at reasonable prices. Mr. Raman said that the prices would be reasonable and economical and compare favourably with prevailing rates.

The Chief Engineer agreed that it was worth while to think of importing bulk quantities from overseas. The Committee agreed to the suggestion of Mr. Raman that the Government of India should be approached for help in the import of such pipes with a high priority and the Provincial Government should be advised to press the case accordingly.

The discussion then turned to the question of finance. Mr. Raman suggested that the Committee should declare that the responsibility for providing water-supply and drainage schemes rests with Government solely; the local bodies should be looked upon only as agents for carrying out the Government's policy and instructions in this behalf. All the members were agreed on this proposition.

The Chief Engineer said that the question of finance as a large issue was to be decided by the Government. However the Committee could agree that the matter of water-supply and drainage should no longer be left to be decided by the financial capacity of the particular municipality or panchayat concerned. In his opinion, the Government should take over this work as its primary responsibility. The Government after examining the financial resources of each municipality might decide on what it considered was a reasonable level of taxation which the municipality should levy and collect towards its water-supply and drainage. The Government might also decide as to the rates at which the municipality should supply water through taps and meters and collect all such proceeds from the water-supply as well as drainage schemes as part of its provincial funds. Once the Government decides to make a pool of all municipal water-supply and drainage tax (at rates which the Government will fix for each station) and also the revenues derived from water-supply and drainage schemes after they are installed, it is the duty of the Government to proceed with the provision of water-supply and drainage schemes to all stations on a regulated programme, augmenting the fund from its own provincial revenues to the extent found necessary. Consultation with the local body will not under such a scheme be a means of holding up progress on schemes. The order in which schemes should be taken up should be more rightly based on public health considerations rather than on others.

Mr. Nachiappa Gounder said that there are a number of municipalities and panchayats anxious to have water-supply schemes and have even taxed themselves already but are unable to get the advantage since they have not been given high priority in the Provincial Compendium. He suggested that whichever municipality or panchayat comes forward with appreciable funds and willingness to have a scheme should be given encouragement in preference to others who, though they may be willing to have a scheme, may not be equally ready to tax themselves for the purpose.

The Chief Engineer explained that under his scheme the local level of taxation to be decided by the Government will no doubt take into account all relevant factors so that the tax fixed will be reasonable from the point of view of the municipality and Government alike. He held that municipalities which are affluent should

not stop with providing their own water-supply and drainage schemes but should be made to contribute, as far as their means would permit, to the central pool from which poorer municipalities and panchayats could be given greater help than would be otherwise possible.

Mr. Ranga Reddi observed that for any such scheme to work successfully the co-operation of the municipalities was fundamentally necessary as the municipality will be the agency for the taxation and its collection.

Mr. Raman suggested the raising of municipal debentures under the authority of the Government; there was some discussion about the feasibility of such a step in the light of past experience. The subject, however, was kept over for discussion at a later stage.

Mr. Raman further suggested that insurance companies should be approached by the Government for loans to carry out these public health schemes. He explained that these companies should be only too willing to come forward with their help as the improvement of the public health was in their own interests in the long run. He mentioned that in England the insurance companies financed research, at their own expense, for the advancement of public health. He was hopeful that large sums of money would be forthcoming from insurance companies for the purpose in view if the Government undertook the responsibility of their repayment within a period of, say, 40 or even 60 years at a very reasonable rate of interest. He expected that the rate of interest would be even less than the rate which Government would have to pay if an open loan was raised by them in the market. There was general agreement among the members that this source could be tapped for raising funds by the Government.

Some members suggested that future grants for maintenance and improvements of existing water supplies in some of the bigger municipalities should be stopped leaving it to the municipalities to attend to these works from their own resources. The Chief Engineer explained, however, that this would not make for a uniform policy. He said that if Government collected appropriate rates of water and drainage tax and the water and drainage revenues from such municipalities also into their common pool, they could probably get more from the municipalities than would be required actually to maintain and expand their schemes.

The President suggested that the point as to how far a local body was entitled to further help could be decided on due consideration of all relevant factors. The question of finance was kept over for more detailed discussion at a later stage.

The Committee then dispersed to continue its meeting from 9 a.m. to 12 noon, the next day, 24th June 1947.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

**ABSTRACT OF PROCEEDINGS OF THE SECOND MEETING
OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE.**

DATE OF MEETING : 24th June 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk,
Madras.)

Present :

President and other members.

Mr. Ranga Reddi opened the discussions. He referred to the Committee's decision the previous day to urge that the responsibility for providing water-supply and drainage was the Government's and said that as far as contribution from local bodies was concerned certain points would need to be considered. He claimed that rural water-supply by which he meant the provision of some safe water for consumption by rural folks should be pushed through at a very rapid pace and without insisting on any contribution. He referred to the conditions in Ceded Districts where water scarcity is acute all over. In a particular village, it had cost nearly Rs. 18,000 for a single well. It would be beyond the capacity of the village to contribute anything towards this prohibitive cost. In his own village, they had spent nearly Rs. 3,000 on a power drill in pursuit of water but to no purpose and eventually the district board had to sanction another estimate for a well for Rs. 6,000. His point was that the question of real need should be the criterion in all such cases.

The President intervening asked if in the event of the panchayat system being brought in, would not people be willing to tax themselves for water-supply and drainage.

Mr. Ranga Reddi explained that the communal life of the village has totally disappeared now and the spirit of self-sufficiency, self-help and mutual help has unfortunately died out giving place to extreme selfishness and a non-civic and non-corporate spirit in the villager. If, therefore, any scheme of rural water-supply was to be a success we should not think of taxing these backward tracts. His point was that if the villager were to be helped entirely from provincial funds it would be a good psychological gesture.

The Secretary observed that the rural water-supply fund started by the Government in 1937-38 was intended only for the provision of free water-supply to all such villages which Mr. Reddi had in view, i.e., villages with less than 5,000 population and in the case of panchayats which have an income of less than Rs. 3,000. A large majority of the villages which are backward and are not in a position to make any contribution would be entitled to the free help from the provincial funds under the rural water-supply fund. To the extent to which such free help has not yet been extended to the several deserving villages which have long been suffering under acute water scarcity, it was necessary to augment the special rural water-supply fund and extend its help to all the districts as quickly as possible.

The Director of Public Health pointed out that the number of revenue villages was much less than the actual number of rural units and hamlets as each revenue village was really a cluster of several hamlets put together.

Mr. Reddi suggested that the Government could begin with urban taxation only and allot funds out of this for providing free rural water-supply and after the provision of such amenity in the rural area they could begin taxation in those areas. He said this would have a psychological effect on the rural people who would be opposed to any tax until they had some concrete amenity installed for them by the Government.

It was agreed by the members that the urban population only, i.e., 25 per cent of the province should be taxed for the time being for their water and drainage amenities. Mr. Reddi added that a free drinking water well, a free dispensary and a free elementary school for every village was necessary before we could think of taxing these areas at all.

Mr. Reddi then raised the question whether the floating of a loan by a municipality was going to succeed where the Provincial Government do not float a loan themselves. It might be possible if sufficient safeguards are attached to their powers of borrowing. Even so, could they get loans at cheaper rates than the Provincial Government?

The Chief Engineer said it all depended on the security offered to the investor. The security behind the Government borrowing its own loans was certainly far better than a municipality doing it. Moreover, a provincial loan would perhaps make far better uniformity of development throughout the province.

Mr. Nachiappa Goundar asked if it was not better if a particular municipality was allowed to float a loan if the Government were going to take up particular schemes on local considerations. It might yield successful results.

The Chief Engineer said that payment according to ability should be the basis. The user of a water-supply or drainage should pay for what he gets at the maximum rate he can afford, and it is for the Government to discharge their responsibility in the provision of water-supply and drainage, meeting the question of finance in as best a manner as they deemed fit. The priority to be adopted for schemes should be flexible, no doubt, but it should be based on real needs, primarily.

The President then put the following proposition:—

The State must shoulder the responsibility to provide rural water-supply and sanitation (including drainage), free of cost without expecting any contribution from the villages concerned. This free help should be extended to all villages with a population of less than 5,000 and panchayats with income less than Rs. 3,000. The proposition was agreed to by the members. But Mr. Nachiappa Goundar alone contended that this must be extended to all rural areas (excluding major panchayats, ex-unions and municipalities).

The President then said that there are several places where people are willing to make contribution and where private munificence would be forthcoming for providing rural water-supplies locally. Should we not give them some sort of preference? The Director of Public Health added that if the villagers themselves contributed towards their drinking water-supply schemes they would look upon the scheme as their own property and thus a better maintenance was to be expected. In that way contribution had a salutary effect.

The Chief Engineer: People who want water most are in the uplands and dry tracts. People who are rich and can afford to contribute towards their schemes are in the delta where water-supply is not so much a crying necessity. If, therefore, people who come forward with their contributions are going to be given preference it might simply result in the 'starved', areas continuing to remain without water-supply and delta people getting their water-supply in advance. This difficulty should be met suitably.

President: Any question of priority when we are dealing with providing water-supply to thousands of villages will not be practicable. If the investigation and the execution of these works is decentralized and the direction and control is vested at the district level it would then be possible to pursue a satisfactory method and ensure simultaneous progress in the several districts. Under this scheme, it would be possible for us to take advantage of contributions which may be forthcoming from the richer units without in any way holding up progress of works in areas where water-supply was much needed as in the case of Ceded districts.

Mr. Raman said that in our scheme of things the Ceded districts as well as places which are notoriously epidemic-ridden should be given a larger allotment as well as a high priority so that villages in these difficult areas where nature has been unkind would get their water-supply in any case, irrespective of contributions as may be forthcoming from the more favourable areas.

The Committee agreed to make special mention in favour of Ceded districts and similar difficult areas for special consideration in the matter of allotment of grants and speedy execution of works. The agency therefor was then raised by the President. Mr. Raman explained the anomalies in the present working of the rural water-supply scheme. He said that the Labour Department, the Harijan Uplift Department and the Revenue Department were all of them pursuing parallel activities in the matter of providing water-supply amenities to rural hamlets, Harijan cheris, etc., with a woeful and wasteful lack of co-ordination at any stage. The President added that the subject came under as many as three different Ministers if not more. All this resulted in wastage of labour and money without any check being possible.

Mr. Raman continued that in the interest of the speedy and efficient prosecution of rural water-supply schemes it was essential that there should be only one agency which should be held responsible for administering the rural water-supply scheme. The present lack of co-ordination should be put a stop to. And his suggestion was that at the district level there should be one important central agency which would direct and control all activities in regard to rural water-supply in that district. The present multiplicity of agency which was adding to the confusion and causing a lot of infructuous work should be withdrawn. The Director of Public Health strongly supported the proposal. The President suggested that the Public Health Department (Engineering) would be the proper authority to exercise such central and co-ordinated control.

Mr. Nachiappa Goundar wanted to know whether in a simple matter like the location of a rural water-supply well much of a technical skill was necessary. Mr. Raman said that it was not only necessary but also essential that properly trained and qualified men should

be employed in the location of suitable sites for drinking water wells. It called for a discerning knowledge of the principles of water engineering and a general level of experience and efficiency—beyond the domain of Minor Irrigation Overseers—to decide on appropriate sites for wells. He knew of instances where money had been thrown away on wells undertaken on the incompetent advice of men not qualified for the purpose. It was quite wrong to assume that the important work of selection of site for wells or other types of source for a particular area was an easy matter which any minor engineering subordinate could handle without proper training and experience in the line. He laid great emphasis on this aspect of the question.

The Director of Public Health agreed with Mr. Raman and said that he also knew of instances where rural water-supply wells had miscarried by incompetent men handling them. He instanced the case of a big panchayat in Tinnevely district, Kadayanalloor, where the revenue authorities in charge of rural water-supply schemes had located and sunk a well on the wrong side of a local tank. The tank-bed dipped towards the other side and percolation of the tank water was in the direction away from the well sunk by the authorities. In the result, the well was actually in disuse. Strangely enough, the villagers themselves thereupon had dug up a well on the right side of the tank and were actually using this well with advantage. A proper degree of technical competence and experience is therefore necessary in an important issue like the location of a well for a drinking water-supply, in the different terrains and widely varying areas of the province.

Mr. Raman continued that the selection of a proper site for such wells was a more important and difficult task than, say, the selection of a site for an impounding reservoir. It was this want of proper technical assistance that had resulted in the throwing away of good money after bad wells. He, therefore, urged that the future policy must be decentralized execution under one central co-ordinating agency, a competent officer at the district level being entrusted with the direction and control of all works in the district.

Continuing Mr. Raman said that it was no good saying that the Collectors should get on with the work with the help of Minor Irrigation Overseers. For one thing the Minor Irrigation Overseers were not competent for the job. They have other duties to do and do not take to rural water-supply work kindly. The works are so scattered over the district that it is impossible for the Collector to exercise any control or supervision. Even where type designs were available for adaptation to local conditions, the authorities confessed their inability to carry out such works as they had no competence in the subject.

It is to mend this state of affairs that he suggested that the work of rural water-supply should be taken over from the Collectors and vested with the Public Health Engineering branch who will have an officer at the district level to pursue a policy of decentralized execution. As for the subordinate staff under such officer, he would suggest harnessing the services of the existing technical men irrespective of the department to which they belonged. We have the section officers of the Public Works Department who in the discharge of their duties do a lot of touring work. It should be possible for them to devote some time during their itineraries to the direction and guidance of rural water-supply schemes on proper lines. In addition

we have the Assistant Engineers of the Highways Department who are largely touring officers. Their assistance could also be invoked with the minimum of disturbance to their normal duties. Provided we could utilize such higher technical assistance, the additional staff we may need in the lower categories can be of the order of maistries who can carry out instructions from these higher officers. Such a scheme would be fairly simple to adopt under present conditions and would enable us to make some headway.

The Chief Engineer was glad that Mr. Raman's approach to this problem was one which had also his full support. He informed the committee that some 15 months ago he had put up a proposal before the Government for the amalgamation of all engineering services. Under the existing organization of the Engineering department, it happened that the roads officer, the buildings officer and the irrigation officer were all touring the same territory for directing works in their own branches but each independent of the other. The roads man was inspecting all along the road, while the irrigation man followed up, inspecting the canal all along side the road. This entailed a lot of duplication of staff whereas with a unified service of Engineers, the functions relating to roads, buildings, irrigation and public health could all be entrusted to a single District Engineer or Executive Engineer. The jurisdiction of such District Engineers of course will have to be suitably revised and a larger number of divisions than at present may have to be created. But even so, it was desirable that from the District Engineer downwards with his staff of subdivisional officers and supervisors, it should be possible to have engineering works of the several branches carried out without parallel field staff pertaining to each branch being employed right down to the level of the subordinates.

Specialisation, continued the Chief Engineer, was of course necessary but would be confined to the higher levels. As he envisaged it, the Sanitary Engineer would continue to prepare the designs, plans and estimates for schemes with specialised staff for the purpose. But it was his idea that the officers who prepare the designs should be given a chance subsequently to participate in the execution of these schemes; while correspondingly the officers who had executed schemes would likewise be posted to the design section for training in the design of schemes. In this manner he hoped to build up a self-contained unit of officers conversant with the investigation, design and execution aspects of Public Health Engineering works. The Chief Engineer added that specialisation in the other branches, i.e., buildings and roads, irrigation, etc., could also be planned likewise. But all these branches should have from the district level downwards a common field staff who could be relied upon to carry out works pertaining to the several branches. He explained further that under such a scheme, the execution of a water-supply or drainage scheme of any major magnitude would be undertaken by a special district engineer or similar special staff without indenting on the common field staff contemplated above. Minor schemes will be executed by the amalgamated field staff and the regular district engineer will have the control and direction of the works under him during and after execution as well as on the staff engaged thereon. The Chief Engineer pointed out that although this proposal was put forward before the Government 15 months ago no decision had been arrived at so far.

Similarly, he pointed out that two posts of Assistant Engineers and supervisors for investigation work were asked for several months ago. But no orders had so far been received. The proposal was made with a view to achieve better progress in the investigation of schemes and to train up more investigation supervisors.

The Chief Engineer further added that to secure candidates for supervisors' posts in adequate numbers was proving very difficult at present. As against 570 hands required he was able to secure only 170 supervisors recently, from among those who had just left college including those who had applied from Mysore. While he could fill the posts in the higher category of Executive Engineers and Assistant Engineers by promoting existing men, it was obviously impossible for him to find new hands as supervisors. Any question of reorganization had to take into account this relevant aspect of the question also, i.e., paucity of subordinate staff.

Mr. Raman was happy that the Chief Engineer's proposals were very much on the lines he himself had envisaged. He pointed out that to divorce the investigation and design from the execution of schemes was injurious alike from the point of view of design as well as execution. It was to make this principle accepted that he had long fought a lone battle. He strongly endorsed the proposal to have an amalgamated field staff below the district level, in the early stages of development, confining the specialisation to the higher ranks. He deplored that a separate Highway department should have been formed wholly independent of the sister branches. He had no objection to separation and specialisation at the higher levels. It was but appropriate. But no country in the world can afford to have parallel services at the periphery. Russia's notable example which has yielded demonstrable success was its policy of centralised direction and control and decentralised execution of works. It was very necessary that we too should adopt such a policy.

Mr. Raman further added that to ensure continuity of policy and keep up specialisation and direction at the top at a uniformly efficient level, it was desirable that the deputy to the Chief Engineer should be the prospective Chief Engineer. The present practice of appointing as Deputy an Executive Engineer while the Chief Engineer's post would in due course be occupied by a senior Superintending Engineer would call for a change in procedure.

The President intervened to say that for the committee to go into the question of amalgamation including the Highways Branch and Irrigation Branch, etc., might be outside the scope of their enquiry. He thought that it was necessary and sufficient that the committee should confine its proposals in so far as they related to the Public Health Engineering branch.

Mr. Raman said that the proposals made out by the Chief Engineer were no doubt as they were visualised as an ultimate scheme of things. For the present however we might concern ourselves with the Public Health Engineering branch and the manner and method of its organization. He considered that a Chief Engineer (Public Health) may be assisted by two regional Engineers for the North and south Madras with their own design offices. He advisedly suggested this course in view of the eventual bifurcation of the province which would take place. Officers from the general branch of the Public Works Department could be transferred on to this Public Health

branch. An interchangeability as between the design and execution staff would serve to provide the necessary allround training to the officer. He stressed the need for associating the designer with the execution of the scheme in view of the past experience in the execution of Adoni Scheme, etc.

Mr. Raman then dealt with the technical scrutiny and direction brought to bear on schemes. His experience in respect of Tuticorin Drainage Scheme showed that even in a case where a scheme had been technically sanctioned and the Government had ordered its execution, the need for further revision of the scheme at that advanced stage, when pointed out, was accepted as necessary. There were other schemes which were yet to find fruition, although the local bodies concerned had been willing and ready with funds to have their schemes executed. This brought out clearly the need for a radical change in the present set up of the department. He therefore suggested that the committee should strongly recommend the appointment of a top ranking specialist for the post of Chief Engineer (Public Health), just as Major Howard had been appointed to the Hydro-Electric department. He ascribed the lack of progress so far, to the absence of a high level specialist officer who would build up and expand the usefulness of the department.

The Chief Engineer intervened to say that much of the success of the Hydro-Electric department was due to the fact that those schemes paid out dividends and were therefore readily financed by the Government. Water-supply and drainage schemes pay no visible dividends except in the saving of human lives. The question of finance was therefore the main criterion again, to decide the prosecution of water-supply and drainage schemes at the desired rate of progress.

Mr. Raman said that with his knowledge of the history of the Sanitary Engineering department from 1890 to 1947—which would make lamentable reading—he would recommend, with a full sense of responsibility in so doing, that a personality of the type and standing of Major Howard was necessary to put the department in proper shape. A topping man with fresh ideas and modern knowledge who had done several schemes and who is an authority on the subject was necessary. Large principles have to be decided when schemes are going to be taken up at a rapid pace. A man of vast experience and ability even at a cost of Rs. 5,000 per month should be secured if progress were to be achieved. He would train up our own officers by the time his contract period expired.

The President stated that the committee might agree on the question of the proper organization of the Public Health Engineering Branch, so that the investigation, design and execution of schemes and the direction and control of staff would all vest in a self contained department, and an orderly progress, made possible. In regard to the specialised work with central direction and a common staff at the district level he requested the Secretary to prepare a chart explaining the proposals in a skeleton form for further discussion by the members. The President further suggested that there might be two Sanitary Engineers and four Deputy Sanitary Engineers for the province so that the progress of work could be expedited.

Mr. Raman concurred that it was a sound proposal but the question would have to be decided by the availability of personnel for the time being.

Mr. Raman then raised the question about entrusting the investigation and design of water-supply and drainage schemes to private engineering firms. He explained that recruitment to the Government services was governed by rules and regulations whereas private engineering firms were free to employ professional men in the outside field irrespective of such rules. For instance, firms could entertain retired men with rich experience or professional men in the field from foreign countries too, if they found it paying. He thought it eminently advisable to harness and utilise the services of talents available outside the Government services in order that the progress on investigation, design and execution of schemes could be accelerated to the desired rate. He added that the Public Health Act enacted in 1939 contained provisions—these were then included deliberately—to contract with private firms for the furtherance of such schemes. He therefore urged that the committee should consider the entrusting of design and investigation of schemes, apart from their execution, to Engineering firms.

The Chief Engineer was doubtful whether the entrusting of investigation of water-supply schemes to private firms would be a practical proposition. The basis of fixing up quotations for such investigation work involved several indefinite factors, and until a scheme was actually put into execution the success of the source investigated could not be taken as granted. To pay for an investigation work without being sure of the results was therefore a contingency to be faced in such a case.

Mr. Raman explained as a contrast how a drainage scheme for Trichinopoly could without difficulty be entrusted to a private engineering firm as it was a work which would admit of a firm quotation from private firms. After some discussion the Chief Engineer was of the opinion that the investigation of water-supply schemes by private firms was neither feasible nor desirable whereas the procedure might be adopted in the case of drainage schemes.

The Sanitary Engineer observed that in the matter of investigation of schemes, we were already ahead of programme by about seven years and there would seem to be no need for having investigations entrusted to private firms at this stage.

Mr. Raman said that it would be wrong to assume that the investigations undertaken and completed several years ago could be accepted as they are and adopted straightaway for the design stage. He knew of several instances where the investigation particulars were not faithful to local conditions. This apart, conditions have been changing; and to assume that such of the schemes which had been investigated several years ago or in the recent past are all in a ready shape for taking up further design work would not be correct. He could say without hesitation that most of these schemes would need to be investigated *de novo*.

The Secretary also cited one or two instances where investigated schemes had to be redone completely over again for several reasons. This gave relevancy to Mr. Raman's contention.

Mr. Raman continued that ordinarily it took nearly 20 years for a scheme to fructify from the stage it was initiated. He instanced the case of Vizagapatam water-supply.

The Chief Engineer said that in the case of Vizagapatam water-supply two alternative sources found favour with two opposing parties of the Municipal Council with the result that it dragged on for years and years. The question would not have reached any finality had not the army come in and executed both the schemes as a war measure.

The Chief Engineer also cited the case of Chittivalsa Jute Mills who employed a firm in Calcutta to investigate a source for augmenting their water-supply and had paid out Rs. 20,000 in the bargain without having their problem solved.

Mr. Raman said that when it was proposed to entrust both investigations and designs of schemes to private engineering firms there was always the possibility that the quotations for investigation and or design of schemes would always off set the disadvantages implicit in indefinite investigations. His sole anxiety was that the activities in regard to the vast programme of provincial expansion in water-supply and drainage should not be confined exclusively to the Government department, but that engineering talent available in the outside field should also be tapped with maximum advantage.

The President stated that the proposal of utilizing outside agencies preferably responsible and respectable firms, in the execution of schemes had been wholly accepted; the question was how far such outside agencies should be used in the investigation and design parts of the work. Except in the case of investigation of water-supply schemes as explained by the Chief Engineer, there seemed to be no objection in adopting the proposal.

The question of planning for the rural water-supply schemes—whether a five year plan or a ten year plan—was then discussed. This would have to be decided with reference to the total number of villages to be catered for and the total approximate cost involved. It was suggested that even though these schemes would be taken up simultaneously in the several districts it would be necessary to decide on some sort of relative priority as between the several villages in the same district in order to have a planned progress. The constitution of a District committee to go into the question was considered advisable. It was proposed that the sinking of wells could be entrusted to the villagers themselves; as only local labour would be employed even if an outside contractor was engaged for the job. The directions and technical advice would of course be given by the district field staff envisaged in our scheme. Further discussion on the subject was postponed for the next day's meeting. The committee then rose for the day.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

ABSTRACT OF PROCEEDINGS OF THE THIRD MEETING
OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE.

DATE OF MEETING : 25th June 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and other members.

The Chairman opened the proceedings. He referred to the clause in the Public Health Act which empowers a local body to contract with private firms for the supply of water. Did that cover investigation, design and execution?

The Sanitary Engineer said that the practice in England was to entrust the supply of water as a commercial undertaking to private firms who investigated, designed, executed and maintained their own system and sold water at agreed rates; there was thus no question of division of the work among different agencies.

Mr. Raman : In the early days of advancement in any country private resources, capital and professional talents, are invariably tapped as a first stage of progress. In England several water engineering firms were selling water to specific areas under licence until eventually the Metropolitan Water Board was constituted as a Central authority. These firms were making huge dividends, as much as 18 per cent, and the Government had to intervene to restrict the profits. For the advancement of public utility undertakings we should enlist the help of private agencies as an initial step. Shaw has laid stress on this course. At the time the clause in the Public Health Act was being discussed in the select committee, the matter was discussed at great length. The then Prime Minister attached importance to the matter of enlisting private capital and talents in the furtherance of public utility schemes as a highly expedient initial step. Later on the Government could always acquire any paying scheme on merits. His only plea was that the clause which found a place in the Public Health Act must be implemented, now that there was the opportune time for it. Although the Public Health Board had accepted the need for such a course, no action whatever had been taken during the past three or four years. It was for the committee to press that action should be taken under this empowering clause of Public Health Act at least at this juncture.

Mr. Nachiappa Goundar : If the Government were to take upon themselves all the work involved through their own departments it may of course ensure a uniformity in procedure, but there was the fact that by using private agencies wherever it was possible, works could be largely speeded up.

President : There was a fear that private agencies who work on the profit motive would make enormous profits and would exploit the situation wherever they could without any ethical standards. One had to admit that conditions of business in this country were far below the high standard obtaining in England where the code of business morals was pretty high. His own experience in the case of municipal electrification of Bezwada, Cocanada, Rajahmundry, Guntur, etc., was that private agencies were yet to prove their capacity to deal

with customers on a fair and straight level. People were not therefore satisfied with private companies in such matters. They would prefer to depend on the Governmental agency (who though a slow moving and costly machinery have no ulterior motive and were therefore reliable). Provided therefore we decentralised the Governmental agency and provided a larger number of technical officers and subordinate staff, people would prefer the Government to private agency.

Mr. Hussain said that it was for the Government to take up the investigation and design leaving the execution alone to be carried out by private agencies.

Mr. Ranga Reddi: As he understood it there was paucity of technical men and lack of materials which are now holding up the programme.

Sanitary Engineer: I do not think want of staff was mentioned as a reason for the delay.

Chief Engineer: I should think we want more staff and materials to keep up to the programme.

Sanitary Engineer: Would it mean that if the allotment for works is increased from the present Rs. 50 lakhs to Rs. 85 lakhs we would want extra hands? Has it been mentioned?

Secretary: Proposals for extra staff went along with the programme of Rs. 85 lakhs per year. Extra staff is needed.

The Chief Engineer agreed that it was so.

Mr. Ranga Reddi: Mr. Raman's solution for meeting the difficulty of want of hands is to enlist private agencies. Ever such private agencies would have to employ technical hands. They might perhaps employ a few top people from outside the country but they would also be employing retired people for their lower ranks. Why not we also recommend to Government that retired people could be employed by the Government for a like purpose. If necessary we could also recommend additional remuneration, increased scales of pay, etc. His contention was that as between private and state management it very often happened that private agencies were not subject to public pressure and public opinion and would cause inconvenience to their own customers with impunity. He instanced the case of Cuddapah Electric Supply Corporation, against the shortcomings of which the municipality found itself helpless, and water-supply which depended on the electric supply by the firm, was frequently in jeopardy.

Mr. Reddi continued that if private agencies had to be employed for our purpose, the Government should restrict this to approved and registered firms who could be depended upon to do their work with efficiency and reasonableness. It was for the departmental people to decide whether such firms should be entrusted with the investigation and or design of schemes in addition to their execution.

Chief Engineer: To entrust the investigation of water-supplies to private agencies would be of doubtful utility. Conditions in England were different, where water sources were not so doubtful. Further the responsibility for the design and execution of the scheme should not be divided between two different firms. Such a step would encourage either firm to disown responsibility for the results and would leave the customer in the sorry position of holding the baby.

Mr. Ranga Reddi: Even where private agencies carry out the design and execution they would doubtless all conform to the specifications and instructions issued by the supervising Government authority. Then where was the difficulty?

Chief Engineer: A firm which was executing a scheme designed by a rival firm would always try to maintain that the scheme could have been bettered if their own ideas had also been given effect to. This would complicate the issue as regards final responsibility for the results.

Mr. A. V. Raman: The designs are approved by Government experts on whom therefore the final responsibility rests: similarly the execution is supervised by the Government experts, and therefore the responsibility is again on the Government officers.

Chief Engineer explained that having the plans and designs prepared by his own subordinate officers and accepting responsibility therefor was different from assuming similar responsibility for designs prepared by private agencies. In the former case he could be sure that the design was based on an approved common ground whereas in the latter case every firm might have its own basis of designs. Mr. Raman's solution for speeding up work would result in absolving the designing firms from their rightful responsibility for the designs and transferring such responsibility to the authority who passed the plans. It would place him in a very invidious position indeed.

The Sanitary Engineer observed that designs under execution were sometimes referred back to him for modification on details and asked who should carry out such modification if the design and execution were to be carried out by private agency.

Mr. Raman replied that such alterations should be attended to by the Sanitary Engineer as the designing firm faded out of the picture once their design was approved and paid for.

The Chief Engineer wanted to know whether firms would be prepared to spend thousands of rupees on investigation and design of schemes without the surety of their being eventually entrusted with the contract for the work.

Mr. Nachiappa Gounder said that as in the case of execution of schemes the Government experts would no doubt call for preliminary quotations from firms for taking up an investigation or a design work. And only after such a tender was accepted would the firm proceed to the actual investigation or design work.

The Chief Engineer referred to the practical difficulties one would meet with in the case of investigation by private agencies of ground water sources. If a private firm were to give a design based on its own field investigation and full power tests on a river bed source, how far was the Government officer to rely on the accuracy or the adequacy of the proposals made by the firm against the stipulated requirements of a particular scheme? If in the actual execution of such a design it was found that the infiltration works assumed on the basis of the firm's data required further augmentation, where was the utility in having engaged a private agency to design the scheme? On the other hand if the Government were to investigate and design such schemes as hitherto, they would proceed with the field work step by step with their own field subordinates so that in the final execution the actual extent of the infiltration work would have been based on a correct assessment of the potentialities of the sources as found out from yield tests.

Mr. Raman replied that at every stage the Government officer could exercise a check over the private agencies' work. He could supervise the full power tests with his own field staff and make sure about the results of the test as carried out by the contracting agency.

He continued that in England it was consulting firms and engineering companies that carried out the investigation, design and execution of schemes and not Governmental agencies. Such a procedure had enabled engineering firms of high repute to come into existence and the engineering profession as a whole had made rapid strides in the advancement of knowledge and experience of a variety of engineering works. India was just the contrast. Here the Engineering departments have developed solely as Government departments. It was altogether wrong to shut out private engineering firms from participation in the several aspects of the works in the profession. All engineering talents outside the services should be developed if only in the interests of the advancement of the profession itself. If private engineering firms were not associated with the engineering profession and the design and execution of a variety of works, the Government Engineering service, unhampered by any other parallel professionals in the field, would tend to become almost tyrannical in its functions. It was necessary and desirable that Government departmental designs were exposed to public criticism. At the present time they were immune from it because private agencies were never allowed to grow and expand into a healthy and efficient organization. The Sanitary Engineering Department was taking such a long time to design schemes, about 18 months for a water-supply and more than two years for a drainage scheme. Such a position should not be allowed to continue. We wanted as many agencies as possible; we wanted to augment the Public Works Department by outside talents as far as is practicable. The Public Works Department should not claim to be the quintessence of all engineering knowledge and ban outside agencies from interference at any stage. It was a wrong procedure to follow. The interests of the profession would suffer in the long run.

The Chief Engineer observed that it was no doubt desirable that the assistance of private engineering firms should be enlisted for the advancement of the profession. But at present we had not consulting engineers of the calibre and standing mentioned by Mr. Raman in regard to firms in England. It was not therefore a question of the Government officers shutting out private agencies.

The Public Works Department was certainly not claiming to be the quintessence of all engineering knowledge. On the other hand Mr. Raman's proposals would have the effect of making it so. For, did not Mr. Raman say that it was the Government officers who should shoulder the responsibility at every stage even if private engineering firms were entrusted with the investigation, design and execution of schemes? As for subjecting the designs of Government departments to public scrutiny he was not sure what exactly was meant; all he could say was there was no such outside agency now which could take up such a superior function.

Either the private firms who were entrusted with the design of schemes should be held responsible for their work or the Government officers should do the design and assume the responsibility therefor. We could not have it both ways.

Mr. Raman had suggested that when a firm carried out a full power test as part of their investigation contract the Government subordinate could supervise on the spot and check up the figures. If a subordinate was to supervise and be present over each such work all over the province, was it not far better for the Government department itself to carry out such full power tests as hitherto. What was the saving in staff if supervision was necessary over all aspects of a work?

As for the present staff position, the Chief Engineer informed the committee that the recruitment of Assistant Engineers had been stopped since 1943. Meanwhile the students passing out of Engineering College were going outside the Presidency in view of the better pay and prospects available elsewhere. We had to consider this very relevant point. The fact remained that the building up of a body of private engineers, which was no doubt a desirable step, depended upon the number of students coming out of the Engineering Colleges in the country. The present output from the Provincial Colleges was very limited. Even so some of these were migrating outside the province for better jobs. Until the number of trainees was increased considerably, private engineering bodies and Government services would equally be handicapped for want of hands. So far as the investigation and design of water-supply schemes was concerned he was not therefore in favour of entrusting such works to private firms.

Mr. Raman agreed that the investigation of water-supply schemes with underground sources of a speculative character could be taken up by the Government department themselves and not by private agencies. He suggested however that there should be no objection to private firms investigating water-supply schemes where the source was plentiful and of an assured nature. The Chief Engineer agreed.

Mr. Raman then referred to the point in regard to the absence of criticism on Government departmental designs and said that because there were no competent private firms such a criticism was not possible. It, therefore, really amounted to a question of supply and demand. He expressed concern, however, over the fact that the best talents of the province were slowly being driven outside because of lack of adequate prospects within the province. He would say that unless timely steps were taken to retain such talents the engineering in the province would tend to become bankrupt.

Mr. Raman instanced a case where a highly qualified candidate who was trained abroad under Government scholarship could not gain employment even as a municipal engineer and had to seek an employment in a private agency. This showed that there was no anxiety to retain talent at any cost.

Mr. Ranga Reddi said the question now was want of hands.

The President said Mr. Raman's point was that there was also nepotism in the selection of men, not caring for merit.

The Chief Engineer stated that at present people who were being sent abroad for training at Government expense were required to execute a bond that they would serve the Government on their return for not less than five years. There would, therefore, be no difficulty.

The President then put the proposition that in order to speed up schemes, the investigation and design (except in the case of water-supply schemes where the sources were indefinite, underground or speculative in character), may be entrusted to approved and recognized private engineering firms if the local body so chooses, under

the supervision and control of the Government department officers. The execution of these schemes could also be entrusted to private firms as at present, subject to the direction and control of the Government officers.

The Chief Engineer added that even in the matter of employing private agencies for drainage schemes he was not in favour of encouraging any dual responsibility; the design and execution of such schemes being entrusted to a single agency so that the firm may be charged with an undivided responsibility for the results of the scheme.

The President added that in view of the inadequacy of technical staff in the engineering profession special exemption might be recommended for the reemployment of retired people on the basis of the present rules in force.

Mr. Raman then referred to the question of training of Public Health Engineers. The Bhore Committee with no single engineer member in it had thought it fit to include in their recommendations a detailed syllabus for training public health engineers—prepared by medical men. That committee had also stated that they had had no time to go into the details of environmental sanitation; all the same they were prepared to give out a syllabus for public health engineering. The position was certainly peculiar. The Government of India had gone forward in implementing the Bhore Committee's recommendations in the matter of training of medical men, leaving alone the Public Health Engineering profession. In the ensuing Public Health Conference on the 27th instant, in the Secretariat, this was also going to be discussed. He requested the Committee's permission to say in that conference that in so far as Public Health Engineering branch was concerned our committee would deal with it in all aspects. The President agreed.

Mr. Raman continued that while tendering evidence before the Bhore Committee it had been proposed that every engineer worth the name will have a basic knowledge—imparted over a period of 18 months—and subsequent special training in Public Health Engineering—not unconnected with the civil engineering line—over a further period of 18 months. In the fourth year the trainee would be put on in the actual profession with a stipend on the principle "earn while you learn."

He then referred to the Guindy College and criticized that the teachers who imparted professional knowledge to the students were not themselves professional men but only arm-chair, specialists. It was a serious defect according to him that the officers who had the control and direction of the public works of the province, had no direct voice in the training of students as engineers. The curriculum might be anything but everything depended on the teacher and his professional competence on the subject he handled, based on actual experience. Such a healthy principle was unfortunately absent here. The Education Department was turning out engineer students and the Public Works Department was accepting them without any inter-co-ordination. The system called for improvement and the Chief Engineer as the head of the profession should take over effective control of the training of the future engineers.

Mr. Raman continued that for the training of Public Health Engineers, the Engineering College was one alternative. A second was that the Government might open up a special college for the purpose. A third was technological colleges as sponsored by the Government of India all over the country. A fourth was a technological-social service course under the aegis of private managements. He said that Public Health Engineering Service was a social service and not a ground for mere careerists. His suggestion was that a band of students imbued with an ardour for social service should be selected, given the necessary training and put on the job on moderate salaries. They could be kept above want but there was no room for monetary ambitions in such service. In this way, they could build up an organization.

Chief Engineer: Mr. Raman is being idealistic. I am rather materialistic. The average Indian parent is also materialistic.

Mr. Raman: I claim to know the Indian parent better. We must have some ideal before us.

President: I am also an idealist. But the present conditions are so confused. Prices are at high levels. There is high communal tension everywhere. I agree that a time will come for ideals being put into practice but conditions must first settle down. Revolutions, commotions, and uprisings should all subside. It must take some time. Then and only then under settled and peaceful conditions could we think of pursuing some ideal on practical lines.

Mr. Hussain: Raman's proposal is good as an objective. But we have to think of an immediate procedure which would be practicable.

The Director of Public Health suggested that to encourage people to take to a post-graduate course in public health training a stipend could be given first, taking in return a bond from them for future service under the Government.

Mr. Nachiappa Goundar: We must provide facilities first. At present there are too many applicants for too few seats. If we had a good many seats available and not sufficient applicants forthcoming, we could think of stipends.

The Director of Public Health said that this suggestion of a stipend related to the post-graduate training only for Public Health Engineering to B.E. students.

Mr. Nachiappa Goundar suggested that instead of training all for the engineer grade a good number of men of a lower category could be trained in the college. The course also could be reduced to much less than the five years, and their activities can very well be limited to field work of a specific nature.

The Chief Engineer explained that such different courses had resulted in a lot of heart-burning in the officers in their later years of service; as one year more or less in their college days would have meant all the difference in prospects as between a Superintending Engineer and a supervisor for life. He was against the creation of a lower and higher course for producing two classes of engineers. He explained that the question of reorganization of the engineering courses was now being considered under a Special Committee for Engineering Colleges, and it was likely that they would recommend an engineer course (spread over three years), and the creation of a draughtsman's class as an entirely separate entity.

Mr. Raman said that in the matter of bringing up a class of Public Health Engineers we could not afford to follow the American example where the course extended over a period of seven years. We must give a basic training as an engineer and then specialized training in Public Health. Two classes of people were not desirable. He had in view the Public Health Engineers who would be trained with engineering bias and the sanitarian—analogue to the sanitary inspector. To speed up the training in the early stages of our scheme he suggested that after the initial basic training of eighteen months a further intensive course supplemented by executive instructions would save some six to nine months from the three years course. He suggested that we should copy the Russian example as conditions in India were more akin to those in Russia than elsewhere.

The President agreed that we could with advantage copy the Russian method; they had built up at a very rapid pace. Our main concern was how we could do things cheap and how we could do things quick. But we must produce more and more trained students from Government institutions or private institutions.

Mr. Raman suggested that the Government should open a new training course which could in due course be affiliated to the University.

The Chief Engineer pointed out the difficulties in the matter of securing buildings, equipment, teaching staff, etc.

In the case of private institutions bringing up trained students the Chief Engineer said that they could be accepted as supervisors if the Institution of Engineers, India, gave recognition to their qualifications; the matter may be left to the Institution.

At this stage after some further discussion about the venue of training of the Public Health Engineers the subject was deferred for consideration again in the next day's meeting.

The meeting was adjourned for the next day.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

ABSTRACT OF PROCEEDINGS OF THE FOURTH MEETING OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE.

DATE OF MEETING : 26th June 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and other members.

The President, initiating the discussions, referred to the previous day's talks in regard to the training of Public Health Engineers in the Guindy College. He considered that it would be better from all view points to have such a training included in the Guindy College curriculum itself instead of our having to start an institution outside, for the purpose. He understood that as many as 200 students were being admitted to the engineer class this year. The Chief Engineer had informed the Committee that recommendations would shortly be

made by a separate committee about reducing the course from four to three years. Therefore, when all these 200 students had got their basic engineering training within the first 18 months of the course according to this new scheme, some 50 or 60 of these students could thereafter be branched off to the Public Health Engineering course for specialized instruction. The Government might take some time to consider and pass orders on the proposed reduced course of three years for engineers and the provision of a Public Health Engineering branch as part of the curriculum in the Guindy College. The University Syndicate had also to be consulted in the matter. If we could assume that these revised proposals could be brought into effect from, say, June 1948, we could even then apply these revised rules to the batch of students who are being admitted in June 1947 itself so that we could expect to have the first batch of trained Public Health Engineer students three years from now on. As this solution of the problem was feasible and practicable, he did not consider that the committee need go into the alternative of setting up a new institution by the Government solely for the training of Public Health Engineers. They might leave it to the Government to think of such an alternative if at all necessary.

The Chief Engineer agreed that the proposal for the inclusion of Public Health Engineering course in the Guindy College itself could be put forward to the Government on the lines suggested by the President. He thought there would be no objection to it on the part of the University also and we might hope for the acceptance by the Government and the University.

Mr. Nachiappa Goundar asked if it was not necessary to start a diploma course in case the training of degree-holders in the Guindy College was going to be delayed. We could at least be sure of speeding up of our scheme that way. The President was not in favour of such a diploma course as without the surety of a B.E. degree from the University it might be termed an inferior course and lead to complications later on.

The Chief Engineer too was against any distinction being imported into the training courses as it would lead to an inferiority complex among the personnel in their future service which we should avoid at all costs.

It was then discussed and agreed among the members that until the first batch of trained Public Health Engineers become available after three or four years from now it would be worthwhile to concentrate on the speedy prosecution of rural water-supply schemes as far as was possible with the executive staff now available.

Mr. Raman then raised the point about the training to be given to the engineers already in the field, so that they may gain some proficiency and competence in Public Health Engineering. He referred to the Municipal Engineers in this connexion. The Director of Public Health suggested instituting a post-graduate course in the college itself for Public Health Engineering so that all new graduates could avail of this course to become Public Health Engineers. In addition, a refresher course extending over a few weeks only could be instituted for the training of engineers who are already in the profession so that they may have chances of brushing up their knowledge and getting acquainted with the latest developments and results of research work in Public Health Engineering subjects.

Mr. Raman referred to the recommendations of the Bhole Committee that researches in Public Health Engineering should be initiated in the country and said that every institution which trained men for the profession should also have in its facilities for research work.

It was decided that the Government should be advised to provide for facilities for research, a post-graduate course in the college, and also a refresher course for professional men.

Mr. Nachiappa Goundar also suggested that the Government be advised to increase the number of seats for engineers in all colleges as much as possible.

The President then requested the Secretary to prepare, with instructions from the Chief Engineer, a statement showing (a) the number of competent men already available for forming the proposed Public Health Engineering Department; (b) the number required in addition if we aimed at a 10 or 15-year plan for completing all urban and rural schemes in the Province; (c) the number of men to be trained in the college every year; and (d) how best the District Engineers and field staff required for the execution of rural water-supply could be organized as an immediate measure with existing staff of the Public Works Department who are engaged in the execution of water-supply and drainage schemes.

The President then asked if any list was available showing the municipalities and panchayats which were ready with funds to have their schemes designed and executed and in respect of which progress was held up solely for want of Government technical staff. Mr. Raman observed that he knew of several instances where the Government had to pass orders on the request of local bodies who were ready with funds that the question of their drainage or water-supply scheme would have to wait for 5 or 10 years on the ground that the hands of the Sanitary Engineer were then full with other works. The President suggested that a few such instances could be stated in our report in order to bring out the difficulty that existed in the past.

The question then centred round the constitution of the proposed District Committee for rural water-supply. After some discussion, it was agreed that the Committee might consist of the resident Members of the Legislative Assembly and of the Council in the district, the President, District Board, the District Health Officer and the District Engineer. The Committee should deal with all administrative questions and policies relating to the water-supply schemes for all the rural villages in its jurisdiction and the District Engineer should act as the Secretary and Treasurer, carrying out its policies in addition to the execution and control of the several schemes as the chief technical officer of the district. The District Committee would, no doubt, fix the priority of the rural water-supply schemes in the district on the primary grounds of the real need of each case so that units which were in bad need of a scheme would be provided with a water-supply earlier than others.

The President suggested that the District Engineer might be made the final authority for technically sanctioning the plans and estimates for all rural water-supply works in his district as this alone would facilitate speedy progress of works.

The Chief Engineer pointed out that the technical sanctioning powers of an Executive Engineer in respect of original works were confined to a specified monetary limit under the Public Works Department Code. It should not be that two different sets of rules were followed, one for Public Works Department works and the other for the rural water-supply works. It was for the Government to decide whether the present powers of sanction vested with Executive Engineers could be enlarged with increased money limits in the case of rural water-supply in which case it was not for him to object to such a procedure.

Mr. Raman pointed out that in the case of rural water-supply schemes of the nature we visualized, usually directions of general principles of design of sunk wells or built wells or improvement of tank source and the like were given by the central technical authority. The local engineer's function was restricted to the adaptation of these designs to local conditions and therefore it was correct that the District Engineer should be entrusted with all such works using his discretion in these matters. The protection of public interests by imposing money limits for technical sanction did not arise in the case of rural water-supply schemes as these were not original designs involving that measure of technical skill which was called for in a protected water-supply scheme or similar major Public Works Department works. Moreover, the District Engineers, as a rule, would in future be given considerably more powers than hitherto in our policy of decentralization and therefore the District Engineer should be made the final authority in deciding rural water-supply questions. It should however be open to him to consult his superior in cases of doubt as he was bound to. The President agreed.

Mr. Raman then referred to the question of difficulties in the transport of materials. He said that even if materials were available in the sea ports, very often lack of transport facilities made it difficult to bring the materials to the work site. He suggested that the committee should recommend to Government that next to food, priority should be given for materials required for water-supply and drainage schemes in the matter of railway and road transport. This was agreed to. Mr. Raman then referred to the question of the 15½ per cent centage usually charged to schemes executed by the Public Works Department and said that inasmuch as it was the State which was going to have water-supply and drainage schemes executed all over the Province the question of centage should be done away with.

The Chief Engineer agreed and explained that the question would not arise at all, if the recommendations of this committee were accepted and the State took over the responsibilities for the provision of the several schemes. For, in our plan, the design, execution and maintenance of all schemes would be vested in the Government itself under the control of its own department so that any local body paying a centage on the execution cost of a scheme alone would no longer be the practice. As already explained, the local body's contribution towards the amenities it enjoyed would be a level of taxation, as decided by the Government and the collection of water and drainage revenues from the schemes in operation.

The President then referred to the subject of materials, their availability and their manufacture within the country and to what extent under State management. It was already agreed that in respect of

cast iron pipes, etc., bulk indents from overseas should be thought of to speed up our schemes; in the matter of bricks, cement, etc., what suggestions were to be made. The Secretary suggested that as cement, bricks and stoneware pipes would be used extensively in almost all major schemes and would be required in large quantities, it was essential that the State should have a voice and control in the manufacture of these materials. Mr. Raman said these were matters relating to larger policies on industrial planning and should be left to the Government to decide.

The Secretary and the President however pointed out that it would be quite relevant and necessary for the committee to make a reference to this important subject as it had a direct bearing on the progress and cost of the entire plan we had in view. We could not possibly think of continuing to purchase cement at Rs. 65 per ton from private manufacturers.

It was agreed that this aspect of the question might also be dealt with in the report.

The Chief Engineer intervened to say that it was not for him to go into the question of nationalization of these industries but he would sound a note of caution that in the manufacture of steel particularly, and the other building materials, it was essential that the quality of the manufactured material should conform rigorously to a standard of specification laid down for each case. He would say that Tata steel and almost all the cement manufactured in this country at present were uniformly satisfactory and up to the B.S.S. But the Tatas were also manufacturing a class of steel termed "untested steel." If every manufacturer was going to be allowed to turn out two different categories of his finished material it was going to be the most dangerous thing. The Engineer had to design his structures based on accepted factors of safety and on the use of materials satisfying a standard specification. The Institution of Engineers in India could no doubt adopt or modify the B.S.S. as they deemed fit, for this country; but his sole concern was that whatever material was going to be manufactured by whichever agencies, uniformity in quality and up to a standard specification should be rigorously enforced. The committee appreciated this view and unanimously agreed to it.

Mr. Raman then referred to one other point in regard to rural water-supply, viz., that in the case of rural units which are far away from water-supply sources, the Government should supply them water from a grid system or from a common main of a nearby major scheme. The provisions of the Public Health Act allowed for such a procedure. The prior acceptance of the units to take water from a joint scheme was necessary because among the individual units in such a grid system some might have taxable capacity and others might not.

The President then brought up the question of municipal and urban schemes and summed up the previous decisions that a provincial water and drainage fund would be created in which the water and drainage tax paid by municipality would be pooled. The Government would have to find the rest of the amount for providing water-supply and drainage schemes either by borrowing from insurance companies, floating loans or by allotment from provincial revenues. In effect, the water and drainage tax would be provincialized and the municipal autonomy in respect of water-supply and drainage would be taken over and exercised on their behalf by the Government as

their own primary responsibility. The municipalities could not demur to such loss of their autonomy as they would be the obvious gainers in the bargain.

Mr. Nachiappa Gounder observed that there were several places which had been taxing themselves towards a water-supply and drainage for several years now and if their accumulated funds were going to be taken away into the provincial central pool while their schemes were going to be deferred by low priorities it might cause dissatisfaction.

The subject was discussed and it was proposed that such of the municipalities and panchayats which had already accumulated water and drainage funds need not pay their amounts into the central fund until their water-supply or drainage scheme were actually installed by the Government who would then take over the accumulated amount.

Mr. Raman continued and said that the provincialization of the water and drainage tax and revenues was desirable for many reasons. The tax was going to be decided with reference to local conditions and ability to pay; so there could be no grievance. As for water revenues, i.e., charges for excess water consumption by the house-owners it was well known that at present municipal politics played a large part in the collection of water charges and there was nepotism playing havoc with municipal water revenues. It was, he said, an undisputed fact.

The Chief Engineer said that the supply of water should be through metered connexions so that the house-owner who consumed more than his quota of free allowance could be charged for the excess water used.

Mr. Raman said he had something to tell the committee about metered connexions. The question arose some time in 1924-25. Tirupati Municipality was suffering from water scarcity. It had some 800 house service connexions in its list; the water revenue from these was but Rs. 32. It was obvious that there was something wrong. The Government wanted that the matter should be investigated by Sri N. Gopalaswami Ayyangar, then Inspector of Municipal Councils and Local Boards, and himself. On investigating into the matter they found that the so-called metered connexions were mere delusions. Most of the meters were out of order and imaginary readings were being recorded by the subordinates. If the meters were repaired and put back, they went out of gear. After duly examining the whole question, it was recommended to Government that a flat rate at so much per tap should be levied and collected from the house-owners, the flow through the tap being controlled to an optimum discharge by the provision of screw down ferrules at the point of connexion. There was much opposition to this proposal; but the Government agreed that it was the correct policy to adopt in this country where meters are not manufactured.

The municipality subsequently found, when it had adopted the advice given, that it was after all a profitable one; whereas previously it realized no revenue from its water-supply, in subsequent years it was able to collect a substantial water revenue with which it could undertake the commitments of its drainage scheme also.

The President also referred to his experience while as Chairman, Bezwada Municipality, when he had to suspend a meter reader for concocting meter readings. He had an idea that the option was then

given to house-owners on metered connexions to change over into tap rate connexions, and this policy was gradually encouraged in subsequent years.

The Chief Engineer said that if a tap rate basis and not metered basis was to be adopted it was essential to check misuse and waste of protected water for non-domestic and gardening purposes even. He suggested that the Municipal Engineer or some local authority should be invested with penal powers to deal summarily with cases of misuse of water when detected on the spot during inspection. This was agreed to as necessary.

Mr. Raman then referred to the recommendations of the Bhoré Committee on the formation of Provincial Water and Drainage Boards and observed that while such Boards were necessary in the case of England where a central authority had to deal with contending parties for exploiting joint water sources and the like, conditions in this Province, where no such contingencies would arise, would make such a Board practically a fifth wheel to the coach. The President also agreed that with our scheme of centralized direction and decentralized execution and a provincial fund to be administered by the Government such a Board was not necessary.

The President then required to know on what basis we could spread out our entire scheme of work on urban and rural water-supply and drainage. The Chief Engineer pointed out the details and aspects of full power tests with reference to water-supply schemes and how limitations about suitable seasons and availability of pumping units, etc., would make it difficult for investigating several schemes as speedily as might be desired.

Mr. Raman intervened to say that such difficulty would operate only in the case of water-supply schemes of a special nature— indefinite underground sources and the like—which would have to be investigated by the department solely. Investigations, designs and execution of other schemes, both water-supply and drainage, could be pushed forward at an accelerated pace. In fact, there were so many drainage schemes which have long been pending and which could be taken up straightway if our policy to enlist private agencies was implemented.

In this connexion he observed that the present directions of preparation of schemes were inadequate and unless the central directing staff and investigating staff were adequately increased and expanded progress might be held up. After some discussion the Chairman referred to his earlier requests for information being compiled by the Secretary about staff position for the organization of the public health branch and said that the matter could be discussed when the information was placed before the committee.

A long discussion then took place about the scope of the rural water-supply fund and the position of minor panchayats with reference to that fund. Mr. Nachiappa Gounder pointed out certain difficulties arising out of the definition of non-rural areas. He explained how a so-called panchayat was really a group of villages over an extensive area and how it would be more appropriate to consider the concentration of population in restricted areas than a group of villages comprised in a panchayat, for differentiating between rural and non-rural areas. The other members considered that to extend the scope of rural-water-supply beyond the definition as

conveyed in the Government Orders of 1937-38, when the fund was instituted by the Government, might introduce further complications. The Chairman further observed that once the several villages thought it fit to join into a panchayat so that they could manage their own affairs and gain amenities from the Government, it was but proper that they should tax themselves for water-supply and drainage also. They should not in the same breath claim the advantages pertaining to a panchayat and also the advantages pertaining to a village outside a panchayat.

The President then fixed 8th and 9th July for the next session of the meeting; the Secretary meanwhile would obtain all the information required and keep them in the form of appendices; the members also suggested that a draft report could be got ready based on the conclusions arrived at and circulated to the members for discussion in the next session of the committee. The President then thanked the members for their co-operation and assistance and adjourned the meeting for the 8th and 9th July 1947.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

**ABSTRACT OF PROCEEDINGS OF THE FIFTH MEETING OF
THE WATER-SUPPLY AND DRAINAGE COMMITTEE.**

DATE OF MEETING : 8th July 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and other members.

The Chairman initiated the proceedings saying that in the course of drafting the report based on the conclusions already arrived at it was found by himself and the Secretary that certain further issues had to be discussed and doubts in regard to issues already settled had to be cleared, before the report in an official shape could be circulated to the members for consideration. A Note prepared by the Secretary explaining the points which required elucidation was also placed before the members.

The Chairman then referred to the earlier decisions in regard to the constitution of district water and drainage committees and raised the question whether the formation of a Provincial Water and Drainage Board was not desirable to administer the Central Water and Drainage Fund proposed in our schemes.

A discussion followed among the members. Mr. Raman explained that there was already the Board of Public Health in the Province which was an advisory body. He was against the formation of any provincial committee again as it would impede progress, acting like a fifth wheel to the coach. When the district committees were going

to be entrusted with the administrative functions relating to all non-municipal water-supply and drainage schemes, the Government themselves could deal directly with and decide on all municipal water-supply and drainage schemes without need for a central committee. The Director of Public Health raised the question whether such a committee should be executive or purely advisory in its character. Mr. Ranga Reddi was not in favour of clothing any such committee with over-riding powers as the ultimate decision in regard to all such matters much rest on the Government.

The analogy of the Revenue Board being placed in charge of administering the rural water-supply allotments was then put forward by the Sanitary Engineer who said that on a similar basis some committee to administer the allotments made from the central fund towards water-supply and drainage may be desirable. Mr. Raman pointed out however that the rural water-supply fund being entirely a contribution from Government revenue was a different question from the expenditure to be incurred on municipal schemes where the local body which was going to contribute towards the cost thereof, was entitled to a large say in matters of policy and administration relating to the municipal schemes. For this reason he was against the creation of any intermediate committee again between the municipalities and the Government. After some discussion it was agreed that the question of a central committee to administer the water and drainage fund in regard to municipalities need not be pursued; that the Government departments themselves could advise the Government on the question of schemes pertaining to municipalities; that in respect of non-municipal schemes the district committees would deal with the administrative aspects and advise the Government on all schemes falling within their jurisdiction.

The issue of finance was then taken up for discussion. The main proposition that the Government should assume the sole responsibility for providing water and drainage and that all urban units, municipal and non-municipal, should pay according to their ability by way of water and drainage tax and water and drainage revenues from completed schemes, was accepted unanimously by the committee; but in regard to the manner in which the Government should proceed to raise funds for the prosecution of the province-wide schemes, Mr. Raman was of the view that the Government should be allowed the discretion to do this in a number of ways, i.e., they might negotiate with business houses and insurance companies directly for bulk borrowing on terms mutually favourable and credit this loan to the central fund. Again, the Government might allow some of the major municipalities to float loans on the strength of the local anxiety and enthusiasm for water-supply and drainage schemes and thus tap all available sources. He was of the view that places like Trichinopoly and Coimbatore would easily be able to raise loans or debentures and proceed with their own schemes straightway independent of the aid from the Government.

Mr. Nachiappa Gounder said that if Mr. Raman's ideas are to be accepted he would suggest a modified form, viz., that instead of the municipality being allowed to raise a loan with the backing of the Government, the Government themselves might start a loan in local areas where enthusiasm for civic amenities would stimulate large subscriptions to such loans. He proceeded to say that all these local loans

raised on the strength of local enthusiasm should be ear-marked for the particular municipality concern and to that extent the Government might themselves be relieved of having to raise provincial loans to cover such areas.

Mr. Ranga Reddi and Mr. Hussain Sahib did not however favour this proposal. They said that once the Government had decided to shoulder the sole responsibility for water-supply and drainage schemes, urban and rural, the raising of any local loan in a favourably placed municipality and ear-marking that fund for the exclusive purpose of providing amenities locally would defeat the main purpose.

The Chief Engineer too agreed that this would offend the principle of each unit paying according to its ability because municipalities in affluent circumstances should not only be made to contribute to their own schemes but surplus revenues from such places should go into the central fund for financing all other municipalities which may not be so favourably placed. If local enthusiasm was stimulated and exploited only to the extent of tapping funds to serve local schemes it would mean that the richer municipalities might secure their schemes quickly and easily; while the poorer municipalities would remain as they were and would be an undue burden on the Government without the Government being able to avail of the maximum amount of relief and assistance possible from the richer municipalities. Moreover, if a local municipal loan were to be floated the Government would have to keep a separate account for that municipality in respect of all income and expenditure and this would only complicate matters. The very idea of the central pool for the common good would be violated to that extent.

Mr. Raman said this would infringe the existing legal provision in the Madras District Municipalities Act under which no municipality could divert the water and drainage tax collected by it to purposes other than the execution of its own water-supply or drainage schemes. After some discussion it was agreed that inasmuch as the State has to assume the full responsibility in regard to water-supply and drainage it would be necessary to amend the Madras District Municipalities Act suitably so that the pooling of a central fund would be made possible by the levy and collection of water and drainage taxes and revenues from the several municipalities and non-municipal urban units.

The question of priority was then broadly discussed. As already agreed it was decided that priority for each place should be decided solely on the real need for the water-supply or drainage depending on local public health considerations and once such a priority was decided upon it should be adhered to without any modifications born of extraneous factors.

The question of a water-supply or drainage scheme for any place where large donations were forthcoming for the purpose was then discussed. It was concluded that while such donations were always welcome they should not have the effect of advancing the priority of a particular place over that of a more needy locality simply because a richer place had been able to get a donation for its own scheme. The committee was of the view, however, that where local donations were of a magnitude to meet the entire costs of a water-supply or drainage scheme without any aid being found necessary from the Government funds, such donations could be accepted and the particular scheme allowed to go forward as a special case.

Mr. Raman stated that in regard to the tapping of local finance by raising municipal loans or debentures, he had to differ from the majority view of the committee and that he would deal with this issue himself separately in a minute.

The President then requested the Chief Engineer to furnish the Committee with approximate costs and commitments involved by a 10-year plan, the necessary staff for it, etc., so that the Committee might discuss the question the next day.

Mr. Raman then raised the question in regard to the rate of supply of water to be adopted for the urban schemes. He was of the view that when the demand of the urban population at present was for the bare minimum necessities in regard to water-supply and drainage, a 15-gallon scheme would be more than ample especially when the State has to assume enormous financial commitments to discharge its responsibility in this direction all over the province. He, therefore, urged that whatever might be the arbitrary recommendations of the Bhoré Committee in regard to what they considered was an optimum rate of supply for urban schemes—he maintained that the rate of 25 to 30 gallons suggested by that committee was more arbitrary than based on any scientific data—the State cannot afford to provide water-supply schemes under present conditions for anything more than a 15-gallon supply.

The Secretary, thereupon, pointed out that in most of the existing water-supply schemes which had been designed on a 15-gallon basis, the actual supply was very much less than that figure, because the requirements had far outgrown the capacity of the schemes as originally installed. He also pointed out that the approximate rate of Rs. 10 to 15 per head of population assumed towards the cost of urban water-supply schemes related to the average cost derived from existing 15-gallon schemes. Even on this basis, the annual turnover would be of the order of Rs. 6 crores. If the Bhoré Committee's recommendations that 25 to 30 gallons per head of population should be the figure adopted for our urban water-supply schemes, it would increase the cost very substantially, perhaps to double the amount now assumed for a 15-gallon scheme. This point would have to be duly considered by the Committee.

The Chief Engineer explained to the Committee that the quantity of supply per head of population must depend entirely on the availability of sufficient quantity of water at the source of supply. Where underground sources or limited storage reservoirs were the only sources from which a town had to be given its water-supply scheme, it might not be possible to give an unlimited supply of water for a prospective population at the rate of 25 to 30 gallons per head. In such cases the utmost we could aim at was to give a 15-gallon scheme and the municipality would have to be satisfied with that much amenity. But in cases where the source was plentiful and beyond doubt as regards quantity, it would be false economy to design a scheme on a 15-gallon basis, while a larger supply would help in the provision of underground sewerage scheme, fire-fighting facilities, etc., and make for a fuller growth of the city than would be possible with a 15-gallon scheme. In any case, he would deprecate the provision of any underground drainage scheme to a town unless it had a copious water-supply of the order of 25 to 30 gallons and not a 15-gallon scheme.

Mr. Raman said that an underground drainage scheme was a luxury which many of the towns could not afford at present and the majority of schemes could be dealt with by the provision of open drains *cum* intercepting sewers. What they required was immediate facilities for removal of sullage water from the habitations and provision of surface drainage to prevent water-logging.

The Bhoré Committee's recommendations in regard to provision of underground sewerage schemes for all urban units with a population of 50,000 and over was then referred to and it was eventually decided that wherever feasible, water-supply schemes to major towns with 50,000 population and over (prospective population), might be based on 25 to 30 gallons per head, so that underground drainage schemes could be provided side by side. In respect of other towns the limitations of the source should largely decide the question of the per capita supply, a rate of 15 gallons per head being normally held sufficient; but if any local source could give a larger supply without substantially adding to the cost, a higher rate of supply could be adopted as also an underground drainage scheme.

Mr. Raman then raised the question that granting that money and materials would be made available, the programme of plans and estimates being prepared for the schemes to suit a 10-year plan would have to be settled, and that the Chief Engineer might assist the Committee with his suggestions in the matter.

The Chief Engineer replied that in regard to investigations we could only make a start with the existing staff as the nucleus; that new men would have to be trained for investigation under the existing staff; and the investigation work expanded gradually as and when new hands became available. He referred to the committee on Engineering Colleges which had been separately constituted by the Government and the possibility of a Public Health Engineering course being started in the Engineering College if the recommendations of that committee went through.

The President intervened to ask what immediate plans could be drawn up until the first batch of Public Health Engineers came out, say, three or four years hence. The Chief Engineer suggested that until the staff could be sufficiently expanded to meet urban schemes we could proceed with the prosecution of rural water-supply schemes vigorously.

The Secretary pointed out that in regard to the taking over of the rural water-supply schemes from the Revenue Board the Committee's proposals were based on the assumption that the amalgamated engineering staff at the district periphery would come into being, who would take over the initiation and direction of all rural water-supply schemes within the district. Until and unless this amalgamated field staff came into being therefore, the position even in regard to rural water-supply would be difficult and indefinite. The Committee agreed that an emphatic recommendation should be made that in view of the existing conditions the amalgamation proposed at the periphery was the only feasible solution and there was no alternative possible; that the Committee should recommend to Government that specialization at the higher levels and decentralization at the district level should be implemented as an immediate measure if progress was to be achieved in any direction.

The employment of retired people, especially in the technical line, was then reiterated by the Committee and it was concluded that a recommendation should be made to the Government that in view of the dearth of technical hands at present the re-employment of retired men physically fit for service should be permitted until such time that new hands became available and were trained for the work ahead.

Mr. Raman then raised the question in regard to the employment of Army Units, Technical and Labour Corps, in the carrying out of water-supply and drainage schemes. He explained how the army when nationalized and stationed in different centres could be usefully employed in peace time, in the field execution of water-supply and drainage schemes, the designs for which would, of course, be prepared by the Chief Engineer and their execution also being under his direction and control. Such a course he suggested, would be economical to the State inasmuch as they had to maintain the army and keep it idle, and to the extent to which they were employed on public works undertaken by the State to that extent it was a saving to the State in preference to employing other agencies and paying for their work.

Some members expressed the view that employing the army agency would be much more costly than employing private agency and if the army were to carry out the work the Army Department would, in any event, insist on crediting the army funds with the cost of the Army Units actually employed on such works. Mr. Raman explained that it would be only a transfer entry in the State's ledger books, and so long as the debit and credit was only a paper transfer and the State did not incur any extraneous expenditure it was a profitable bargain. His main point was that in any case the Army Units which would remain idle had to be maintained by the State at its expense. If they could be usefully employed on a State work, irrespective of the credit and debit of the funds, the State was eventually the gainer in the bargain. The Committee agreed that this course may also be recommended to Government.

The Chairman then requested the official members of the Committee to go into the question of priority for municipal schemes and assist the Committee with their suggestions in the next day's meeting.

The meeting was then adjourned for the next day.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

**ABSTRACT OF PROCEEDINGS OF THE SIXTH MEETING OF
THE WATER-SUPPLY AND DRAINAGE COMMITTEE.**

DATE OF MEETING : 9th July 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and other members.

The Committee took up for consideration the question of priority for municipal water-supply and drainage schemes. The Director of Public Health explained to the Committee the basis on which the existing priority for the schemes in the compendium had been arrived at, how the vital statistics for each place figured therein with reference to water-borne epidemics, endemic diseases, partial and total scarcity, the importance of a place as a pilgrim or trading centre, etc., and the incidence of malaria, filariasis, mosquito nuisance, etc., in the case of drainage. The need for a water-supply or a drainage scheme for a particular place was assessed with reference to these several factors and relative to other places before a priority was assigned in the list for the particular scheme.

The Committee discussed the subject at some length and decided that a revised priority list for municipal schemes could be drawn up having regard to all the relevant factors; and proceeded to draw up a priority list for municipal water-supply schemes on the following broad lines:—

Firstly, schemes under execution at present would be allowed to proceed without interruption.

Secondly, schemes which are in operation but which stand in need of improvements, should be listed under one group while schemes which are to be newly provided in stations for the first time are to be listed in a separate group.

Thirdly, to facilitate quick and simultaneous progress the priority lists should be drawn up separately for the municipalities in the Northern Circle as against those in the Southern Circle.

The priority list of water-supply schemes as drawn up by the Committee on the above basis was then accepted for inclusion in the report to be submitted to Government. The priority list for municipal drainage schemes was kept over for decision the next day.

In the matter of allotment of funds for schemes, the Committee after some discussion decided that allotment could be made on a 50-50 basis between improvements to schemes and provision of new schemes in municipalities. This was considered desirable because of the fact that the existing schemes in many of the major municipalities have long been in need of improvements and their importance was as urgent as the provision of new schemes to other municipalities.

The Chairman then brought up the question regarding staff and mentioned that in the matter of the prosecution of rural water-supplies an organization was immediately necessary in order to take over these schemes from the purview of the Revenue Board.

Mr. Nachiappa Goundar intervened to say that the District Engineer, it had already been decided, should be entrusted with the execution of the rural water-supply schemes and therefore these schemes could be pushed forward immediately.

The Chief Engineer explained that the first thing to do would be for the Government to form the district water and drainage committees who would fix the priority for the several rural schemes in the districts. The District Engineer would then proceed to carry out these works with the existing staff.

The Director of Public Health explained that from the particulars furnished by the Revenue Board it was seen that the Collectors had employed special technical staff of overseers and maistris for the execution of rural water-supply works; that this special staff could be taken over by the Public Health Engineering branch for distribution under the District Engineers so that they could be employed on rural water-supply works, in addition to the staff available already with the District Engineer.

Mr. Nachiappa Goundar referred to the major panchayat schemes and asked if it was not necessary for the Sanitary Engineer to provide himself with additional staff so that he could take up these works expeditiously. He further added that until the Public Health Engineering branch spreads out, these special technical staff may be put under the Divisional Engineers of the Highways Department who are to attend to the rural water-supply for the time being.

The Secretary explained that in the amalgamation as contemplated the investigation, design and drawing up of these schemes would be confined to the central specialized staff and the District Engineer would only have to carry out the execution of works based on proper plans and specifications furnished by the higher authority. The efficiency of execution of works under such conditions would not suffer as the District Engineer would be an officer with necessary basic qualifications and experience in the field. It would be unnecessary at present to run parallel departments down to the lowest subordinate cadre as specialization was not called for in these lower cadres since the entire field staff below the district level would be employed mainly in the execution of works under central direction and control, the plans and estimates being prepared by the specialized staff at the centre. There should, therefore, be no difficulty in the amalgamation for the purpose in view.

The Sanitary Engineer also explained that such a procedure should be feasible of working as even now the Executive Engineer of the Public Works Department, with his field staff was entrusted with the execution of schemes for which plans and estimates were initiated and drawn up by the Sanitary Engineer with his specialized staff.

Mr. Raman intervened to say that he would not wholly endorse the view that the execution by the Public Works Department of all special works, water-supply and drainage schemes, was as satisfactory as it should be. He knew of instances where the officers, by lack of knowledge on essential public health aspects, had omitted to observe essential precautions necessary in the execution of certain components of these schemes. He instanced the case of pumping mains of Cuddapah water-supply and Srirangam water-supply where such defects in execution had led to a lot of difficulty in having the mains properly sterilized subsequently. His point was that the authority in charge of execution should also have had an opportunity to acquire a basic idea of the subject in respect of which he was to handle execution programmes in the field.

The Chief Engineer remarked that in respect of any major water-supply or drainage works there was no doubt that an engineer with experience in Public Health Engineering alone or who had carried out similar works before, would be posted, and it was not likely that any road engineer or irrigation engineer would be posted for a division charged with the execution of major water-supply schemes.

The President then recapitulated the earlier decision of the Committee that specialization at the higher level and amalgamation at the district level would have to be strongly recommended in view of the dearth of engineers and in order to fully utilize the existing engineers under the several departments of the Government. Until such amalgamation at the district level was given effect to, the execution of rural water-supply schemes proposed under the District Engineer would, he understood, have to be carried out by the present Public Works Department staff under the Chief Engineer in charge of water-supply and drainage with the assistance, however, of the entire field staff of all the branches of the Public Works Department. He then proceeded to the question of urban water-supply and drainage schemes and called for a discussion in regard to the staff required for the purpose.

The Secretary explained that during an informal discussion the previous day with the Sanitary Engineer and the Chief Engineer on this subject the question was gone into as to what would be the immediate nucleus of staff with which a start could be made in the investigation and design of water-supply and drainage schemes. The Secretary and the Sanitary Engineer had proposed that in view of the Committee's recommendations it might be assumed that private agencies could be entrusted with about 30 per cent of work on investigation of schemes and about 50 per cent of the work on the design of schemes in the initial stages. On this basis they had proposed that for the purpose of departmental investigation work one supervisor at least for each district should be employed so that with 24 such supervisors about 50 schemes in the year could be investigated, the quantum of work being increased as and when more supervisors became available. Their work would be directed and supervised by three Assistant Engineers and one Executive Engineer for each of the North and South circles of the province. Similarly in regard to design of schemes, it was considered that in addition to the existing technical sections of the Sanitary Engineer and the Chief Engineer, it would be necessary to provide for one Executive Engineer, two Assistant Engineers and twelve supervisors for each of the two circles, in order that the volume of design work (including scrutiny of designs prepared by outside agencies) could cope with the actual intensity of the programme in view. It was expected that the nucleus of staff as proposed above could handle a volume of work to the tune of about Rs. 3 crores in the year. The building up of the investigation and design staff would, therefore, have to be proceeded with on these lines as an immediate measure.

The Chief Engineer, however, said that while he agreed that the proposals as suggested were desirable, they were not possible at this stage because of the acute shortage of technical staff; that even if the Government were to sanction so many additional posts it would be impossible for him to find the men to fill these posts, that the

only practicable method he could suggest was to begin with one Assistant Engineer for each circle who would train up three supervisors on investigation, who, in their turn, would train up more supervisors in due course; that in so far as design work was concerned, the staff could be expanded only when more hands became available.

Mr. Raman: "At this rate we cannot hope to make any progress. I am afraid that the immensity of the problem before us is not being properly appreciated. I am constrained to remark that every time the question of expansion of the Sanitary Engineering Department came up, difficulties were being put forth. The history of this department would reveal how it had been prevented at every stage to develop into its fullest stature of usefulness. It is an eloquent commentary on the situation that after 57 years of existence the Sanitary Engineering branch has not a single permanent officer in it. I would like to review the situation briefly so that the Committee might take advantage of the mistakes committed in the past.

"In 1890, you created a Sanitary Engineer. You kept him under the Chief Secretary direct. Mr. J. A. Jones, father of the Sanitary Engineering Department, was first appointed as the Sanitary Engineer. He developed schemes much more rapidly than we are doing at present. In 1895, he felt the need for a single additional Assistant Engineer to cope with the large volume of work then in hand. The then Chief Engineer negatived the proposal and refused to loan an officer. In 1899, Mr. Jones thought he would be unable to discharge his duties without strengthening his staff. At this stage, the Chief Engineer, Public Works Department, took away the execution of works from the Sanitary Engineer altogether, and clipped off his wings, as it were. In 1904, Mr. Jones left this country. From 1904 to 1947, we have not had a permanent Sanitary Engineer excepting for a short period when one officer was there. Several attempts were made, when most brilliant men occupied the chair, to get the department separated from the Public Works Department so that the department might rise to its own position and power; but the Public Works Department prevented the department from rising to its fullest stature.

"Then proposals were made in 1920 to have the department organized as a specialist department. The Public Works Department Reorganization Committee went into the question. Under compulsion by the Government of India in 1921, a specialist service was organized in the Province, the Sanitary Engineering Department being the one and the Electricity Department being the other. In course of time, this so-called specialist service was sabotaged and the Sanitary Engineering Department languished in continued neglect. The result to-day is that in spite of 57 years of history, the Sanitary Engineering Department is nothing. On the contrary, the Electricity Department affords a refreshing contrast. That department too was organized with three officers only in the first instance. But no impediments were placed on its path towards progress. Time and again the Sanitary Engineering Department was used as the venue for giving advance promotions to Public Works Department officers, without any idea of building up this department. Officers were posted and after they had acquired some special knowledge of the work in this branch, they were transferred to the Irrigation or other branches

of the Public Works Department. There was no continuity of work or knowledge allowed to develop in this department. So much so, we find that at the present day, the department is reduced to a nullity, and we have to start all over from the very beginning. My proposal is that if the Chief Engineer, Public Works Department, can give only that measure of assistance which he thinks he could give, then this department should be organized by other means. Import men if you like. Let the Chief Engineer give us back those officers who had the benefit of training in the Sanitary Engineering Department, instead of saying that he cannot spare their services. Having had the control of the department from 1900 to 1947 and having reduced it to its present position, the head of the department cannot reasonably or justly say that he cannot spare the officers for building up the department. All the officers who have already worked in this branch should be released for building up the new organization. What I say is not impossible. It should be possible for the Chief Engineer to spare some of the officers back to this branch and promote other men to their posts in the Public Works Department. The Public Works Department should be able to do without the few officers whom we require for this branch. I want the Chief Engineer to be good enough to consider this practical proposition. I want to enlist his co-operation in the early stages of development of this department so that it may be made to stand on its own legs."

The Chairman intervened to say that it was as much the concern of the Chief Engineer himself to organize this branch in an efficient manner; as it was he who would be doing the functions of the Chief Engineer (Public Health) at this stage. He should endeavour to do his best and build up this new department.

Mr. Raman: Until he is relieved by a new Chief Engineer (Public Health) he will have to function as the Chief Engineer (Public Health) first and thereafter as Chief Engineer (Buildings and Defence). So it is as much his concern as ours. Again, the supervising staff over the design section in the Sanitary Engineer's office is practically nil at present. The post of Personal Assistant was being filled by officers from the Public Works Department who got back to their own department after some time. The design staff and the design section should be properly organized. The Chief Engineer should amalgamate with the present Sanitary Engineer's technical section the draughtsman whom he engages on Sanitary Engineering work in his own technical section. By having one composite technical section we could ensure better progress of work and employ the available men to better advantage. Immediately we must see that this department is furnished with men who have had experience in the working of this branch and in the execution of water-supply and drainage works. Otherwise there is no salvation.

The Chief Engineer replied that he had not been unaware of animosities that existed in the past between the Sanitary Engineering Department and the Public Works Department and that he was trying to do all he could to put an end to this evil spirit. As for the staff, he said, we had to face facts. For instance, the Chief Engineer for Electricity, who had two big schemes on hand had been indenting on the Chief Engineer for 80 supervisors long since. But it was physically impossible to find these supervisors, as we had no men in the field. He could only place the facts before the Government in respect of the indent for supervisors from his co-Chief Engineers. The Government, on some arbitrary basis decided on the

number of supervisors from out of the available men that each Chief Engineer should employ. It was in that connexion that he had asked for eight supervisors for this branch. As regards the Personal Assistant to the Sanitary Engineer the Public Services Commission had recently appointed a war service candidate to this post. In regard to the scrutiny of schemes, proposals in pencil stage were submitted by the Sanitary Engineer for scrutiny by the Chief Engineer who sent them back with his remarks for the Sanitary Engineer to finalize the proposals and send them again to the Chief Engineer for sanction.

Mr. Raman: I initiated that procedure; but most often it takes the character of a quarrel between the draughtsmen of one office and the draughtsmen of the other. We want scrutiny by the Chief Engineer and not his draughtsmen. There is always a feeling that in the matter of the scrutiny in Chief Engineer's office, the notes of the technical section should be such as to increase the volume of work and increase the number of points, influenced perhaps by a subconscious feeling that the Sanitary Engineer is not an expert but the Chief Engineer's expert scrutiny should be the final say. That has been the mentality which has reduced this department to nullity at present. But even so, what has been the benefit resulting out of this expert scrutiny by the Chief Engineer? For the Salem water-supply a scheme had been approved by the Chief Engineer whereby water from the tail race of the turbines in the Mettur Dam would have been used for the water-supply scheme, a water which would have been thoroughly unsuitable for the purpose. I had to intervene at the eleventh hour and propose an alternative to draw water from out of a valve tower and near the surface level of the lake. Even then I had to prove to the then Chief Engineer that the construction of such a valve tower was feasible as an engineering proposition before he would accept the alternative proposal. I had to produce before the Chief Engineer a written undertaking from an engineering firm of repute saying that they were prepared to execute the work, before the Chief Engineer would agree that the construction of a valve tower as proposed by me was not only suitable but also possible.

The Chief Engineer intervened to say that there was no point in quoting past history when instances could be advanced from both sides, and no useful purpose would be served thereby.

Mr. Raman: My point is that the scrutiny by the Chief Engineer should be on a far higher level than is the case at present. The Chief Engineer ought to visualize the schemes and check them on fundamental broad points with a view to see whether any improvements in technique, etc., were possible. Hence it is that I make this proposal. For the preparation of plans and estimates in detail the existing personnel available in the office of the Sanitary Engineer is very inadequate. The present procedure is for the Sanitary Engineer to send up his scheme in pencil stage for the approval of the Chief Engineer. This involves the office of the Chief Engineer preparing technical notes on the scheme for the information of the Chief Engineer. This is a clear and wasteful duplication of work. My suggestion is that the technical staff of the two offices may be amalgamated and on a single technical note the officers concerned at the top level should offer suggestions for the completion of the scheme. This would save not only time and labour but would also help to utilize the existing men in the two offices to the best advantage. Such an amalgamation would also be helpful for the future Chief Engineer (Public Health) taking over if and when he comes.

The Secretary endorsed this suggestion of Mr. Raman. He said that from his personal experience in the department during the past few years, he was convinced that an amalgamation of the two technical sections was a very desirable step, the officers dealing with a single technical note right up to the Chief Engineer to discuss and decide on the issues bearing on a scheme. He would also make bold to say that such an amalgamation was essential in order to remove the present inter-office feelings and complexes which were indirectly affecting the morale of the subordinate staff. He would say, however, that the Chief Engineer was genuinely concerned to build up better relationship between the two offices; but if only the two technical sections could be cemented into one as proposed it would make a good beginning in the direction we wanted. Above all we had to utilize the existing men to the maximum advantage and the proposal would make for better progress, efficiency and expedition on schemes.

The Chairman: Now we are organizing something big and large and it is necessary that we should make a good start and on a proper foundation. The Chief Engineer must help us to build up the organization for such a purpose. Two scrutinies with different notes do not appear necessary. The committee shall put it in the form of a proposal. The Chief Engineer and the Sanitary Engineer will no doubt settle it among themselves.

The Chief Engineer replied that it was a technical matter for the Sanitary Engineer and himself to decide. Whatever could be done would be done.

The Sanitary Engineer then raised the point that at the present stage we still had to face the question that no extra staff was available. The Chief Engineer pointed out that as and when the staff could be increased, more and more amount in the coming years could be spent on urban water-supply and drainage schemes. Mountain rural water-supply could be expedited as much as possible. His point was that while we could aim at a 10-year plan the expenditure could be made progressive with the advancing years when we could hope to have an increase of staff, of materials and of finance too. If we divided the total expenditure by 10 years and sought to proceed with the scheme even in the first year up to this average level of expenditure, it would be difficult. His solution for a graded and progressive rate of expenditure would meet the situation.

Mr. Raman intervened to say that in regard to the rural water-supply, if the capacity for execution could be expanded to the desired extent, the Government would be prepared to provide even more funds than one crore of rupees on rural water-supplies alone. Everybody was feeling that the tiller of the soil had been long neglected and the urban folks had been able to press their grievances for what they were worth all these years. So to the extent to which rural water-supply could be pushed through in an intensive form, to that extent the Government also might be willing to provide funds.

A discussion followed whether the committee should go into the question of the amount of taxation and water and drainage revenues which might be available from urban areas as their contribution to the central water and drainage fund. The Secretary was requested to go into these figures as well as the details of cost of the ten-year plan for the Committee to discuss the next day.

The Chairman at this stage referred to certain aspects in the Bhole Committee's Report. He quoted figures for India as well as for other countries which showed that the expenditure on Public Health in India per head of population compared to the average income was much too low and was several times lower than the corresponding figures in other countries. The Committee agreed that these aspects might be brought into the report. Mr. Raman added that there was a snooker in the figures furnished by the Bhole Committee regarding expenditure on Public Health in the several provinces in India. The six annas per head of population supposed to be spent on Public Health in Madras included the services provided for medical, curative, hospital, etc., but if we took the amount of money spent on environment it would be practically negligible. That point ought also to be brought out.

The Chairman then referred to the question of forming two circles in the Province, one for the north and the other for the south, each circle being in charge of a Sanitary Engineer to be styled Deputy Chief Engineers (Public Health). He asked whether this could not be arranged for as an immediate measure. The Chief Engineer said that the circles, north and south, would be in the charge of two Deputy Sanitary Engineers as at present. The Chairman however said that this was not what he meant but that the two circles should immediately be provided with an officer of the Sanitary Engineer's rank and that there should be no difficulty in making such an arrangement.

At this stage the committee adjourned for meeting again the next day.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

**ABSTRACT OF PROCEEDINGS OF THE SEVENTH MEETING
OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE.**

DATE OF MEETING : 10th July 1947. TIME : 9 a.m. to 12 noon.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and other members.

The committee first proceeded to draw up a list of priority for all municipal drainage schemes in the Province, grouping them into two separate lists, one for the north and the other for the south circle.

The question of the rough cost of the work ahead, on urban as well as rural schemes, was then taken up for discussion. A statement showing the rough cost of schemes ahead prepared by the Secretary was discussed. It was agreed that with the data available before the committee only a very rough approximation based on a cost per head of population for urban and rural schemes, could be assumed. A variety of indefinite factors attendant on water-supply and drainage schemes between place and place would make it impossible to arrive at any definite figures of cost in regard to the schemes which have to be executed. In order however to gain some idea about the commitments involved, the committee went into the details and decided to assume the total cost of schemes ahead at Rs. 101 crores based on present day prices. It was also decided to indicate the annual recurring expenditure on the schemes at so much per head of population, based on present schemes in operation.

In regard to the incidence of taxation on urban units to be decided according to the ability of each unit, the committee was of the view that a maximum rate up to 20 per cent of property tax could be suggested in respect of municipalities and up to a maximum of 10 per cent in the case of other urban towns, the Government deciding the actual rate of taxation applicable to each place dependent on local conditions.

The question of Municipal Engineers and Municipal Subordinate technical staff was then referred to and it was decided that all such technical staff would form part of the Public Health Engineering Branch and would be utilized to the best advantage in the execution and maintenance of water-supply and drainage schemes. If any of these officers stationed in a municipality or an urban town were to be utilized in execution of local municipal schemes they could undertake such works also, holding themselves responsible to the municipality concerned in regard to budgetary matters and allotments.

Mr. Raman then brought up the question in regard to transport of materials to the work-site and said that rural areas in the Province were many of them inaccessible in an emergency as the conditions of village roads and unfordable streams made several of these villages so many remote islands. He suggested that in order to expedite the programme in respect of water-supply and drainage schemes the committee should press on the Government their view that in the programme of village reconstruction improvements to village roads should be given high preference.

Similarly, Mr. Raman added, the electricity programme of the Government should be expanded side by side with water-supply and drainage so that electrical energy was made available to as many rural units as possible. This would facilitate pumping plants with electrical motors being installed without difficulty, avoiding costly and complicated diesel engines and steam units. The expansion of electricity to rural areas he added, would incidentally improve well irrigation also and aid the grow more food campaign.

Mr. Ranga Reddi agreed that there would be no difficulty about the electricity programme in the manner envisaged but in regard to village roads he was afraid that enough co-operation and co-ordination might not be possible, if matters should continue as at present.

The Chief Engineer intervened to say that when the District Committee of our plan were charged with the prosecution of an intensive programme of water-supply and drainage they should be able to smoothen out difficulties in the way and get things done to the common advantage.

The Secretary then raised the question that in the matter of investigation of water-supply sources existing riparian interests should not be allowed to impede progress and that some legislation to this purpose should be recommended to Government. The issue was explained in some detail by the Chief Engineer and Mr. Raman and it was decided that drinking water being nature's gift should be given priority over riparian interests and that measures of legislation to the effect should be recommended by the committee.

Mr. Raman also said that the existing practice of sale of raw water from irrigation sources, etc., at Re. 1 per 1,000 cubic yards should also be discontinued, as the spirit behind Government selling drinking water to the public, albeit at low rate, was not correct.

Mr. Nachiappa Gounder then referred to the long delays which occurred at present in the acquisition of lands for water-supply and drainage schemes as the procedure to be adopted under the Land Acquisition Act held up matters at different stages and it usually took 1½ to 2 years before acquisition proceedings could be completed. He suggested that in view of the urgency of the plan ahead, it would be advisable to recommend that provision for acquiring lands on the lines of the Defence of India Act should be made in respect of water-supply and drainage schemes. The committee accepted the view.

After some informal discussion the chairman announced that the Secretary could now proceed with his draft report, after which he would himself go through it with the assistance of Sri A. V. Raman and the final draft when ready, would be circulated to all the members for their consideration. He fixed August 11th, 1947, for the next meeting of the committee when they could discuss and adopt the final report to be submitted to Government.

The meeting was then adjourned.

S. RAJAGOPALAN,

Secretary.

A. KALESWARA RAO,

President.

**ABSTRACT OF PROCEEDINGS OF THE FINAL MEETING
OF THE WATER-SUPPLY AND DRAINAGE COMMITTEE.**

DATE OF MEETING : 28th August 1947.

(In the Public Works Department Library Hall, Chepauk, Madras.)

Present :

President and all other members.

The Water-Supply and Drainage Committee sat from 9 a.m. to 12 noon and again from 3 p.m. to 6-30 p.m. and considered in detail the draft report prepared by the President and the Secretary and circulated to the members previously. The report was adopted unanimously with a few important amendments and was signed by all the members without any dissenting minutes.

The Chairman thanked all the members for their hearty co-operation and for their unanimity in decision.

With a vote of thanks proposed by Sri A. V. Raman to the Chair, the meeting terminated.

S. RAJAGOPALAN,
Secretary.

A. KALESWARA RAO,
President.

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