PROJECTS IN PROGRESS

Irrigation and ELECTRICITY SCHEMES OF MADRAS STATE

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NEW IRRIGATION POLICY

The Honourable Sri M. Bhakthavatsalam, Minister for Public Works, briefly explained the progress made so far towards the development of Irrigation and Electricity facilities, in his speech on the floor of the Legislative Assembly in March, 1950

The Machkund Project

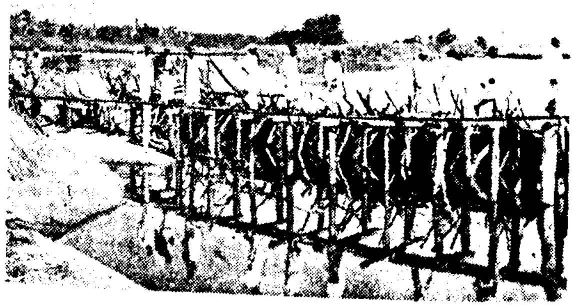
Text of the Hon'ble Minister's Speech

The effective total expenditure on irrigation for 1950-51 under all the relevant demands, is about Rs. 712 lakhs.

Our Irrigation expenditure had been steadily increasing after the present Government assumed office in 1946. It was Rs. 97 lakhs for 1945-46, Rs. 155 lakhs for 1946-47, Rs. 254 lakhs for 1947-48, Rs. 396 lakhs for 1948-49, Rs. 597 lakhs for the current year and is estimated to be Rs. 712 lakhs for the ensuing year. Even after making due allowance for the depreciation of the Rupee, one cannot fail to notice that tempo of work in the Department has increased three or four fold during the last three years.

Short-term Programme

Our programme of irrigation development, may be broadly divided into three parts. The first part, which is the least ambitious of the three, is a short-term programme to execute about 300 small irrigation schemes, at an aggregate cost of about Rs. 6 to 7 crores, in about five years. This Five-Year Plan was inaugurated in 1947-48 and therefore we are now in its third year. We have upto this date, sanctioned 181 schemes from this programme, at an estimated cost of Rs. 250 lakhs and they are expected to benefit about 1½ lakhs of acres. In selecting Schemes under this programme, it has been our endeavour to spread the benefit out to dry tracts, as far as practicable. Twenty-four of the sanctioned schemes costing Rs. 50 lakhs are in Rayalaseema, Eighty-seven schemes, costing Rs. 90 lakhs in Circars, where special attention has been paid to the uplands of Guntur and Nellore; sixty-four schemes costing Rs. 90 lakhs in Tamil Districts with weightage to the dry-districts of South Arcot, Salem, Chingleput and Tiruchi; four schemes costing



A bed regulator across the River Cauvery at Jeddarpalayam in Salem Dist.

Rs. 12 lakhs in Malabar and five schemes costing Rs. 8 lakhs in South Kanara. The Tigaleru, Kollimagulavagu and Rayalacheruvu Schemes in Kurnool, the Kanchalamma Tank in Cuddapah, the Pennar-Kumudavathi in Anantapur, the Madrikatta Tank in Bellary, the Yerricalva in Chittoor, the Ramanaidupalli, Upputeru and Karedu Schemes in Nellore, the Peddakandleru, Peddapalli and Bhrugubanda Schemes in Guntur, the Ponniar and Kaliveli Swamp Schemes in South Arcot, the Badathalav and Jeddarpalayam Schemes for Salem, the Sivalaperri Tank for Tirunelveli, the Cheyyar anicut and Nemam Tank for Chingleput, the Gayathripuzha and Vandithode Anicut for Malabar and the Shiriyar Anicut for South Kanara are just a few of the Schemes already sanctioned. All the sanctioned schemes are now under execution, a few of which have been completed and an amount of Rs. 70 lakhs has already been spent on them. Adequate provision has been made in the Budget, for completing these works in quick time. Investigation is now progressing briskly on another 200 such small schemes.

Three Lakhs of Acres to be Benefited

Additions and alterations are being made to the list of schemes, as the field staff conducts investigations and brings to notice new Schemes. The Superintending Engineer of Vizagapatnam brought to the notice of the Govt. recently about 20 small schemes for that District and obtained the preliminary approval for proceeding with them. A special division has since been organised to push through these works. Friends from Chittoor District recently brought to my notice, the possibility of

taking off a channel from an anicut across the Swarnamukhi, for the benefit of lands in the Kalahasti zamin and plans and estimates for this work, are now being finalised. We are sanctioning these new Schemes at the rate of about ten per month and at the present rate of progress, it looks quite possible to reach the target of 300 schemes in five years, and make good the assurance which I had given to the House while launching the Programme three years ago.

When these 300 schemes are completed, we would have brought under irrigation about 300,000 acres of waste land, which is not altogether an insignificant contribution to the Grow More Food drive.

Departing from the Orthodox Theory

Nobody need apprehend that we intend stopping this popular programme, after the target is reached. Expenditure on this kind of work is only a small portion of our irrigation outlay. No doubt, many of these Scheme are unremunerative, *i.e.*, they do not promise a direct return, equivalent to the interest on the outlay; but in respect of this Programme, the present Government have departed from the orthodox theory of productivity, which had held sway in the past. A good portion of this outlay, especially those on the smaller Schemes, is being met from current revenues and therefore, we do not pass down to our children a heavy load of debts on this Programme. Besides we are getting a subsidy from the Government of India on these works and therefore we may hope to continue this useful programme beyond the five-year period.

If Schemes are found worthwhile investigation, they can still be included in the Programme, for being taken

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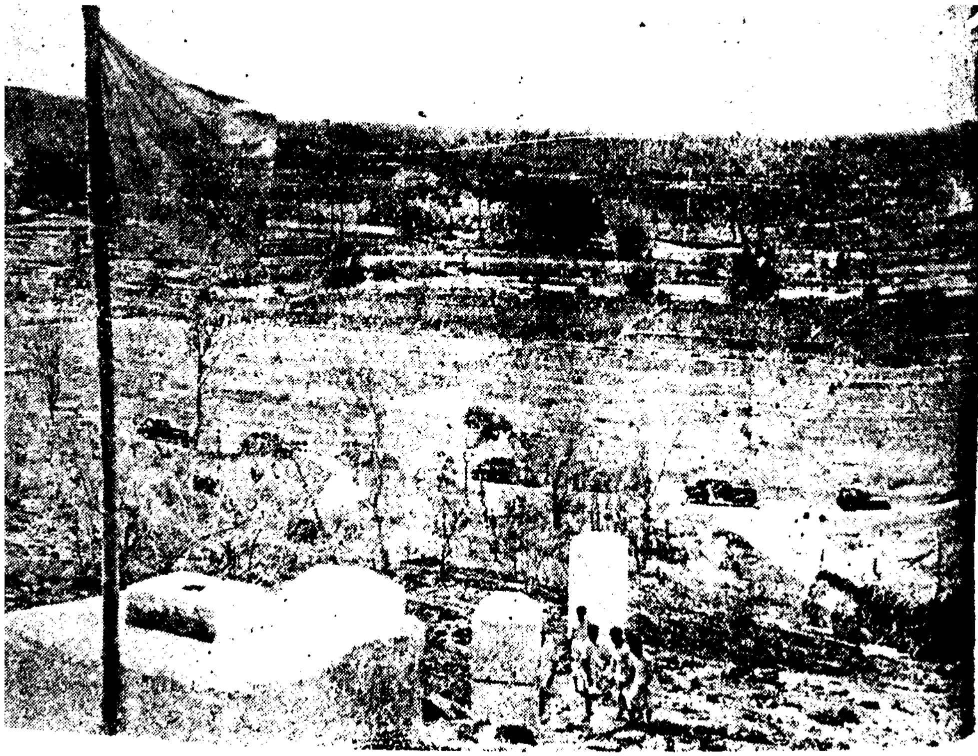
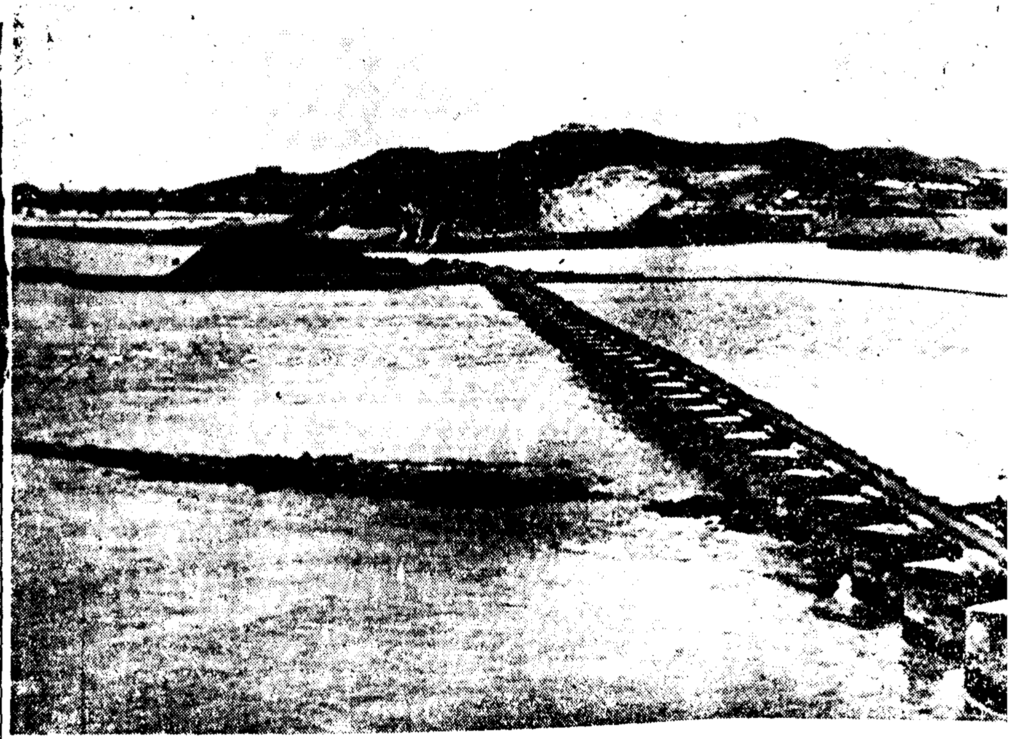
harnessing a river (Lower Bhavani)



Malampuzha Project will Irrigate nearly forty thousand acres in Malabar District.

up in due course. But in certain areas like North Arcot and Madhurai, the scope for this kind of work is limited, because our ancestors had done their job so thoroughly, that there is not much surplus water left behind. Nothing is gained by impounding in a new reservoir, waters that would otherwise have flown into an old one. Investigation in North Arcot has revealed, that the water resources of that District in a normal year, can hardly sustain the existing irrigation. All that we can do for areas like that, is to effect improvements to existing works, so that they can serve their present ayacuts better. This is what is contemplated under the Tank Improvement Scheme.

The small works covered by this Programme, do bring in some satisfaction to our rural folk who have, for several decades, agitated for them; but for a badly deficit State like ours, a programme of this limited magnitude, cannot by itself, bring in substantial relief. If we must



The Tungabhadra Project will bring prosperity to the dry areas of Rayalaseema.

attain self-sufficiency in our times, we must put to productive use, the large volumes of water, which are running to waste in our river systems and this takes me to the second part of our irrigation programme.

Minor River Valley Schemes.

Our Engineers are now investigating our minor river valleys and they have found that reservoirs capable of irrigating several thousands of acres can be constructed on most of them. A list of about 25 medium sized projects has been drawn up, including important drainage schemes for our deltas and detailed investigations are now proceeding on a good many of them. We have already sanctioned six of these projects at an estimated cost of Rs. 17 crores and works are now well in progress on them. The Lower Bhavani Project in Coimbatore District estimated to cost Rs. 879 lakhs, is the most important of them. An amount of Rs. 82 lakhs has been

Sri A. R. Venkata Charya, Chief Engineer for Irrigation

estimated to be spent on it this year and a provision of Rs. 103 lakhs, is now being made for expenditure next year. Considering that this Project was sanctioned only towards the end of 1947, the progress so far made is heartening and we may reasonably hope that it will be completed by the end of 1952, as scheduled, to bring under irrigation about 200,000 acres of land in Gobi, Bhavani, Erode and Dharapuram taluks of Coimbatore District. The Malampuzha Project for Malabar sanctioned in 1949, at an estimated cost of Rs. 380 lakhs, is designed to benefit about 40,000 acres of land in Palghat taluk. Preliminary works such as, land acquisition, construction of camp buildings, and collection of materials are making rapid progress and the work on the Dam has commenced. An expenditure of Rs. 14 lakhs has been incurred this year and an amount of Rs. 26 lakhs has been provided for the coming year. Work has also commenced on the Mettur Canals Scheme, sanctioned in 1949 at an estimated cost of Rs. 245 lakhs, for the benefit of 45,000 acres in Salem and Coimbatore Districts. An amount of Rs. 40 lakhs has been set apart for this work in the Budget. The Rallapad reservoir scheme in Nellore, sanctioned in 1948 at an estimated cost of Rs. 53 lakhs, has also been started and an expenditure of about Rs. 6 lakhs incurred The works will be continued, for which a provsion of Rs. 6.72 lakhs is made in the Budget. In order to improve the out-turn in the Krishna and Cauvery Deltas, we have sanctioned two major drainage schemes, the one for Krishna, costing Rs. 116 lakhs and the other for Cauvery costing Rs. 30 lakhs. We have spent Rs. 23 lakhs this year and provided Rs. 25 lakhs for next year on the Krishna

drainage scheme. Similarly we have spent Rs. 12 lakhs this year and provided for Rs. 10 lakhs for next year, on the Cauvery drainage scheme.

Priority for Dry Areas

Of the other Schemes in this mid-term programme, we have already laid the foundation of the Upper Pennar Project in Anantapur District, estimated at Rs. 89 lakhs. This reservoir will submerge a small area in Mysore for which the formal concurrence of that Government is necessary and we are hoping to obtain it without delay. This project is expected to benefit about 8000 acres of land in the famine-stricken areas of Anantapur District and we shall start work immediately. Bhairavanitippa Project for Bellary, estimated to cost Rs. 82 lakhs is also in the last stages of scrutiny. On this scheme also, an agreement with Mysore is necessary, because the Hagari is a common stream and we have already settled the main points of dispute with Mysore. This Project, expected to benefit about 8000 acres of land in a backward area, will also come up for sanction shortly. Plans and estimates are ready for the Kattalai and Pullambadi Canal Schemes of Tiruchi, at estimated costs of Rs. 111 and 84 lakhs respectively and the question of sanctioning these schemes is now engaging the attention of the Government. The Coringa Island Scheme costing Rs. 21 lakhs for Godavari, the Arniar Project costing Rs. 110 lakhs for Chengleput and the Atleru Project costing Rs. 35 lakhs for Nellore are also getting ready and can be sanctioned during the year. Investigation is nearing completion on the Vaigai Scheme for Madhurai costing Rs. 250 lakhs, the Manimuthar scheme for Tirunelveli costing Rs. 200, lakhs, the Sathanur Scheme for North and South Arcots costing Rs. 200 lakhs and the Kannikarapuzha and Walayar Schemes for Malabar costing R.s 260 and 99 lakhs respectively. Detailed investigation has been ordered for the Vamsadhara Project for Visaka-Patnam and the Amaravathi Project for Coimbatore and special staff is being deputed for that purpose. The Projects, yet to be sanctioned from out of this mid-term programme, may cost about Rs. 30 crores: but since this expendi-

Sri M. S. Thirumale Ayyangar, Chief Engineer, Tungabhadra Project

ture must necessarily be spread over a few years, owing to inevitable delays in execution, the successful completion of this programme will be well within our means.

Tungabhadra Project

The Third and most ambitious part of our irrigation programme comprises of the multi-purpose projects for the development of the Godavari, Krishna and Tungabhadra river valleys. The cost of this programme will easily run into two or three hundred crores of rupees. We cannot meet this enormous outlay, without the active assistance of the Union Government and therefore, we do not control the destiny of these projects as much as we should desire. Even so, we have not been merely marking time, awaiting the bounty of the Central Government, because, the Tungabhadra Project, no doubt the smallest of the three, is already well within our grip. This is a joint endeavour with Hyderabad and is expected to bring under irrigation, in its first stage, about 300,000 acres of land in Bellary and Kurnool Districts and also to develop about 35,000 K. Ws. of power. Our share of the cost is about Rs. 17 crores on the irrigation side and about Rs. 8 cerors on the electricity side, making up a total of Rs. 25 crores. We had very many difficulties with Hyderabad at the initial stages; but they have all been resolved in Conferences at the highest level and the work is now progressing rapidly. An expenditure of Rs. 234 lakhs is being incurred this year, taking the total investment to about Rs. 600 lakhs. A provision of Rs. 287 lakhs is being made for expenditure next year and at the present rate of progress, we may hope that the reservoir and the bulk of the canal works, will be completed by the end of 1952, as originally scheduled. The

waters of the Tungabhadra will not be exhausted by the Low Level Canal Scheme, now under execution. Extra capacity is being provided in the reservoir even now for taking out a High Level Canal at a later stage, for the development of more areas in the Ceded Districts. This Project is the biggest one undertaken by this State in recent times and the country to be served by the Project, is the one which deserved that assistance most.

Krishna-Pennar Project

The investigation for the development of the Krishna and the Pennar valleys, is progressing satisfactorily. In broad outlines, the Krishna-Pennar Project consists of a reservoir of the size of Mettur on the Krishna, at Siddeswaram, below Kurnool, from which a canal will be taken to the Pennar through a cutting in the intervening low range of hills. A reservoir with a capacity of about three or four times that of Mettur, will be put up on the Pennar at Someswaram. From this reservoir, two canals will be taken off, one to the north through the uplands of Nellore to the Gundlakamma in Guntur District. Another canal will be taken southwards through Chingleput to the Vellar in South Arcot. From the Krishna Reservoir, yet another canal will be taken towards the south, to augment the supplies of the Gandikottah reservoir, for use in Cuddappah District. When the project is completed, it will irrigate about three million acres in the Districts of Cuddapah, Kurnool, Nellore, Chingleput, South Arcot, Chittoor and Guntur. A second crop can be raised on the existing Krishna and Nellore Deltas. Large blocks of power will be generated from the discharges from the two reservoirs The City of Madras will be commanded by the South Main Canal and therefore, the water problems of the City will be solved for ever. The cost of the project has not been computed: but it may be of the order of Rs. 100 crores, which, is very much beyond our present means. Even though the problems, facing us on this Project are many and difficult, there are a few relieving features about the project on which we may speculate.

Apart from the fact that the Project is a very big one and therefore correspondingly expensive, it does not present many difficult technical problems. It is

The Krishna-Pennar Project, on completion, will solve the water problems of Madras City

The Krishna gorge at Siddeswaram. Dam across the gorge will be 1,600 feet long and 150 feet high

within the competence of Madras Engineers, who had built the Mettur Dam twenty years ago and who are building the Thungabhadra Dam now, to tackle the river beds of the Krishna and the Pennar, because they do not involve complicated problems of foundation-excavation of river-diversion. The bulk of the expenditure will be on the excavation of canals, but our Engineers have already acquired considerable experience on this kind of work on other Projects. The project is capable of being taken up and executed in easy stages, each stage bringing in some return on the outlay. For example, as soon as the Krishna Reservoir is completed a second crop can be raised over a million acres in the Krishna Delta. Similarly when the canal from the Krishna Reservoir to the Pennar is completed, it will irrigate three lakhs of acres in the Nellore Delta. There are seven main canals in all, two taking off from the Krishna Reservoir, two from the Gandikotta Reservoir and three from the Pennar Reservoir. There is no imperative need to dig all the seven canals at one stretch, but they may be taken up one after another. Even if a portion only of a canal is excavated, irrigation can develop on that portion and begin to yield a return on the capital invested thus far. We need not therefore keep in store all the materials and money required for the whole project, before we launch it. It may not be impossible to start the project and do as much work as we can in our times, trusting our successors to complete the noble endeavour, in their times. It must be stressed once again that we have many a hurdle to cross on this Project and therefore, nobody should accuse the Government of having raised false hopes, if in spite of their best endeavours, they are unable to launch the Project in the immediate future. We have to reach an agreement with Hyderabad on the sharing of the Krishna waters and on the submersion of their territory. We must secure the fullest cooperation of the Government of India in raising loans and securing priorities on materials in short supply. These negotiations will take considerable time and all that I can now say is, that the Department and myself will endeavour to do our best.

Provision for new Schemes

People might be anxious to know whether adequate provision has been made in the Budget for new Schemes, which are now getting ready and which can be sanctioned during the course of the year. A good many schemes in our short-term and mid-term programmes will come up for sanction, during the course of the year. It is difficult to compute, even approximately, what the actual outlay on these new projects will be, in the coming year. We have, therefore, provided a lump-sum of Rs. 60 lakhs in

The Hon'ble Ministers and officials of the Public Works Departments of Madras and Orissa visit the project sites and review the progress made

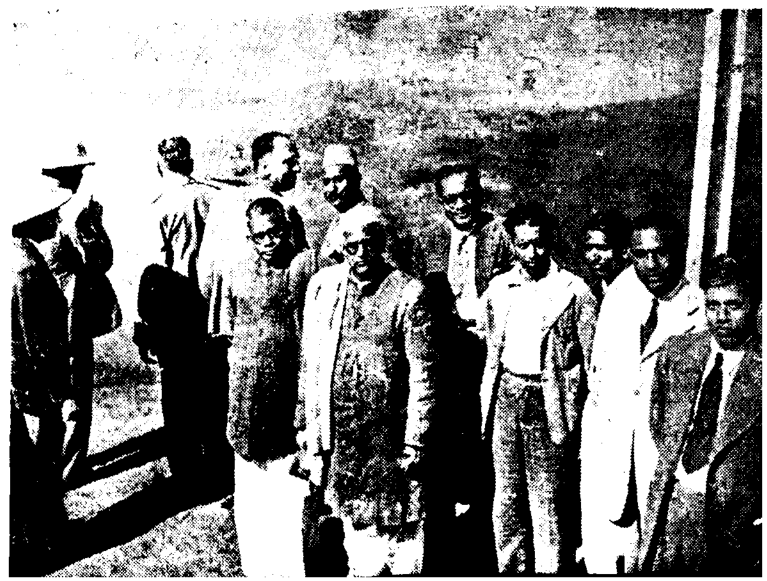
the Budget to cover this expenditure. The actual expenditure on a new scheme, in the year of sanction, cannot be considerable, because the initial work such as clearing the ground, acquiring land and laying out roads and camps, will not cost much money. Therefore, the amount of Rs. 60 lakhs, now provided for, will be ample to meet the unbudgetted needs of next year. Such a provision had been made in the last Budget also and the expenditure of about Rs. 42 lakhs, on new schemes sanctioned during the current year, was met out of that grant. At the time of reappropriation of grants, it is possible to estimate the actual expenditure incurred in the year on each new scheme and this expenditure is then shown under the new head, opened in the accounts for that Scheme. The balance, if any, in the lump sum provision is then merged with the general grant to the extent of the deficit under the general grant.

Tanks Restoration Scheme

There is one other aspect of irrigation policy, which has to be explained, though it is connected with the Revenue Department. The decision taken by the Government of India recently, to stop imports of food grains from 1952, has given a new urgency to our short term programme of food production. We have inherited from our ancestors about 35,000 irrigation tanks, which constitute a fair portion of our real wealth. By gradual silting through the ages, and long neglect, very many of them are unable to sustain the ayacuts registered under them. Even in a year of normal rainfall, there is a scramble for water, because the tanks have lost much of their orginal capacity and flood waters, which should have been conserved in them, drain off to the sea. Therefore, the quickest way of growing more food, is to renovate these tanks and restore to them their lost capacities.

This is particularly so in respect of the large numbers of zamindari tanks, which are now being taken over by the Government. A scheme has been drawn up in rough detail for this purpose and a start has already been made in a few districts. The object of this Scheme, is not to bring new lands under irrigation, but merely to ensure adequate supply to lands already growing wet crops. The scheme, which is estimated to cost about Rs. 10 crores, will be spread over five or more years and is expected to relieve our rice deficit to the extent of at least $1\frac{1}{2}$ lakhs of tons. A large staff, comprising of seven P.W.D. Divisions under a Superintending Engineer, is being

The Hon'ble Sri N. V. Gadgil, Minister for Works, Mines and Power, Government of India, visited the Tungabhadra Project site with the Hon'ble Sri M. Bhaktavatsalam.



These have to be renovated—We have inherited from our ancestors about 35,000 of such irrigation tanks...

organised and this staff will be directed by the Commissioner of Food Production. Five out of seven divisions have been formed and they have started operations in different districts. One Division attends to the work in the zamin areas of Nellore and Chittore Districts. Sixty-two tanks were breached in Podili and Darsi taluks during the last cyclone and they are being closed at an estimated cost of Rs. 2 lakhs. 325 tanks and 75 supply channels were investigated by this division in other parts and works amounting to Rs. 13 lakhs have been started on 186 tanks and 15 supply channels and these works will be completed before the next rains, giving full protection to an area of 15,000 acres. Another division operating in Madhurai and Tirunelveli Districts has investigated 126 works and sanctioned improvements to 110 works at a cost of about Rs. 4 lakhs, to be completed by June. A third division is working exclusi.ely in the Ramanathapuram and the Sivaganga Estates, where works are now in progress on 184 tanks at a cost of Rs. 6 lakhs giving protection to about 16,000 acres before the next monsoon. The fourth division has just begun to operate in the Central Districts of Chingleput, North Arcot and South Arcot. 125 sources have already been investigated and 52 works costing Rs. 2½ lakhs have been started. The fifth division has been doing flood damage work in the uplands of East Godavari mostly in the Pitapuram Estate,

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can be found, of which one will be stationed at Eluru to take up works in the two Godavaries, releasing the Division now operating in the Pithapuram area, for work in Visakhapatnam District. The location of the second new division has not been fixed, but it is likely to go to Rayalaseema.

Special attention on Zamin Areas

The main emphasis of this programme will be on zamin areas in the initial stages, till these long neglected irrigation sources are restored to fair efficiency; but ayan areas in the neighbourhood will also be attended to. Even though the work is only just gathering momentum, an expenditure of Rs. 25 lakhs, is anticipated during this year and provision of Rs. 85 lakhs is being made for the next year. A start has thus been made and present indications are encouraging, but it is obviously too soon to assess results. It seems to me, however, that the success of the Scheme will depend to a very large extent, on the response it receives from the

The Hon'ble Sri Jairamdas Daulatram, Minister for Food and Agriculture, Government of India, studied the conditions of our tanks with a view to make the best use of them.

Man power to harness Nature: Work proceeding ahead at the Tungabhadra Project

people. What the programme contemplates, is to take up these tanks, not at the rate of one here and one there, as we were accustomed hitherto, but in hundreds at a time. If the Engineer has to prepare his estimate in advance for each petty tank, call for tenders, execute an agreement and measure the work before every payment, much of the funds we are now providing in the budget, might lapse. If the Scheme should succeed, villagers must render every possible assistance to the Engineer and agree to execute works, without looking out for profits. It should become possible for the Engineer to give out items of works, not involving technical skill, on lumpsum contracts, with the confidence, that the actual work turned out, will not measure less than what was intended. Only if this kind of atmosphere is created the Scheme can be operated on a large scale and completed with the limited staff now available. It is very desirable that the elected representatives of the people should visit areas where these operations have commenced and create the necessary enthusiasm amongst the people for this Scheme. Without the fullest cooperation of the villagers to be benefited, all the departmental regulations prescribed in the P. W. D. Code, for the safety of Public Funds, will have to be enforeced and it may then take

many years before appreciable results can be achieved by the very limited staff, which we are able to spare for this work.

Bottlenecks

In the development of irrigation, the expectations of the people are many, but, by the arduous nature of the work and by the severe handicaps under which we are now labouring, fulfilments can only be few and slow. Before an irrigation reservoir can be sanctioned, a good deal of laborious investigation must be got through. The water which a lay man observes, flowing across his fields, may not all be surplus, but will find its way into an existing irrigation source. People watching the mighty Cauvery, rolling across the planes of Coimbatore and Salem, cannot visualise that it is almost fully tapped, lower down, in the Tanjore Delta. New Reservoirs on the Amaravathi or the Bhavani will have served no purpose, in a year like this, because the Cauvery, of which they are the tributaries, did not reach the sea this year. Engineers have to satisfy themselves, that there is water available in a normal year, before designing a new reservoir. Gaugings of rainfall and river flows, have to be taken for a number of years, before the specifications of the new reservoir can be fixed. If there is delay in the sanction of the Gandikotta Project, it is merely because, the available data of flows in the Pennar, are not reliable and further observations have to be recorded, before the normal dependable flow can be fixed. Instead of finding fault with Engineers for this delay, we must appreciate their firmness, in not taking the line of least resistance, and designing a reservoir in haste on speculative figures and thereby causing wastage of public funds.

Yet another bottleneck in the speedy execution of irrigation projects, is the acute scarcity of technical men. After the Mettur Project was completed in 1932, we had not taken up any major irrigation work. The capacity of our Engineering Colleges, was designed to meet the ordinary replacements of our normal maintenance staff. Therefore, the first thing to be done in launching an ambitious irrigation programme, is to increase the capacity of Engineering

Minor Irrigation Schemes are encouraged on a large scale for augmenting food production.

colleges. We have already done this by starting new Colleges but the students, now being trained in these Institutions, have not yet begun to come out in numbers. Till these young men gain practical experience on the field, we must be content to carry on with the normal maintenance staff, scraping out a few extras from wherever possible.

Changes for the better

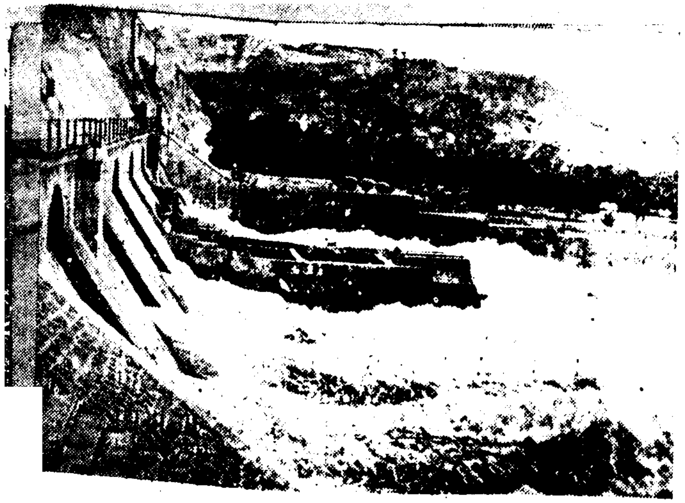
If people feel sore, that a particular work is being neglected, it is not because of any want of will on the part of the Minister in charge or on the part of the Department, but it is because we do not have the men to be put on the job. Even so, on the facts and figures which have been already indicated, the public must concede in fairness to the Department, that we have not been just marking time, awaiting a fresh crop of Engineers. In April, 1946, we had for the regular P.W.D. three Chief Engineers one for Irrigation, one for Buildings and one for Special Projects; nine Superintending Engineers, 53 Executive Engineers; 227 Assistant Engineers and 465 Supervisors. Since then we have abolished one post of Chief Engineer and compared with 1946, we have this day only two chief Engineers as against three before, ten Superintending Engineers as against nine, 75 Executive Engineers as against 53, 304 Assistant Engineers as against 227 and 909 Supervisors as against 465. It may therefore be noted that there is no great expansion in the staff employed by the Department except for some little increase at the Supervisors' level. And please compare the sum of Rs. 97 lakhs which we spent on irrigation in 1946-47 to the sum of Rs. 597 lakhs, being spent in the current year, and to the sum of Rs. 712 lakhs, proposed to be spent in the next year. The out-turn had increased

several fold, but not so the staff engaged in producing that out-turn.

The vast additional expenditure which we are now incurring, is on new constructions and investigations and these call for initiative and drive at every stage. The number of normal maintenance sections in the Department is 368. In 1946, all these Sections were manned by Supervisors, but today we have only 274 men to fill the 368 posts, the abler men amongst them having been drawn away into projects and special investigations. In the sanctioned estimate of the Lower Bhavani Project, there is provision for the post of one Superintending Engineer and four Executive Engineers. The works have reached an advanced stage, when the full complement of staff should have been appointed, the expenditure for the year being about the order of one crore. And yet, we are carrying out this arduous job with two Executive Engineers, one of whom has just been promoted to that rank. It will be proper if the chosen representatives and other critics can find time to go round the various works, now in progress and judge for themselves whether there can be any justification for the criticism that the P.W.D. is slow or has not changed heart. There may be a black sheep in every flock, but the large majority of these men are imbued with a high sense of duty, discharging their heavy responsibilities with diligence and enthusiasm. At no time in the recent past, did we have on hand an irrigation programme of this magnitude and while we have to appeal to them to make up for the shortage in their numbers by further exertions on their part, we have, on the whole, reason to feel that they have responded well to the urge of our newly awakened masses.

Looking ahead

There is one other point which has been deliberately reserved to the last, because the popular representatives have to consider it carefully and help the Government to find a solution. Irrigation projects cost a good deal of money. We have started and are about to start a good many big projects. Inspite of the refusal of the Government of India to grant us a loan, the Finance Minister

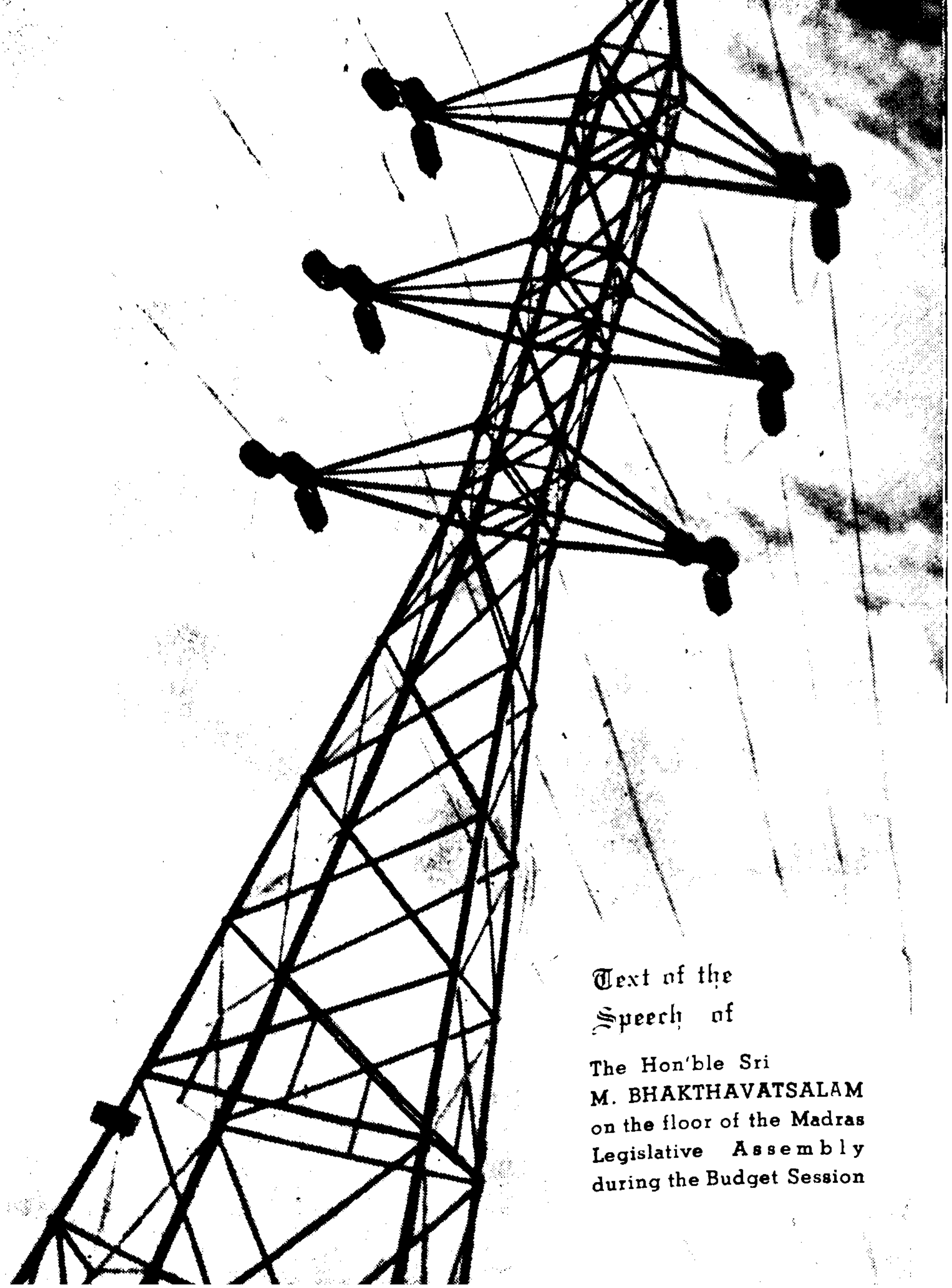


Mettur Dam

has managed our affairs for the year to our satisfaction. But this cannot go on for long, because our reserves are not inexhaustible. Irrigation and Electricity projects yield us some return on the Capital and therefore, we can finance them with borrowed money. Even without the Krishna. Pennar Project, we will be investing about Rs. 15 crores a year for the next few years on the development of irrigation and elecricity. Hon'ble Members seem to be anxious that we should not slacken, but unless we can find the means to go ahead with a programme of at least this magnitude, we shall inevitably have to reduce ourselves to the level of a Police State. In order to find the necessary funds, it is possible to collect a betterment levy from the people to be benefited by these projects. The water rates now being charged on lands enjoying irrigation may be enhanced, so that the extra proceeds may be utilised for conferring similar benefits on other areas. A suggestion was also put out some time ago, that agriculturists could be induced to advance loans to the Government; but since then, seasonal conditions became very adverse. Constructive suggestions, which the Government may endeavour to implement, are solicited in this regard.

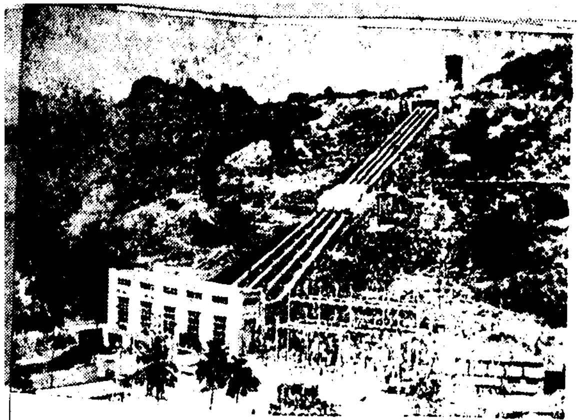
[Speech of the Hon. Minister for Public Works in the Legislative Assembly, moving the demand under Irrigation on 21st March, 1950.]

Power Projects



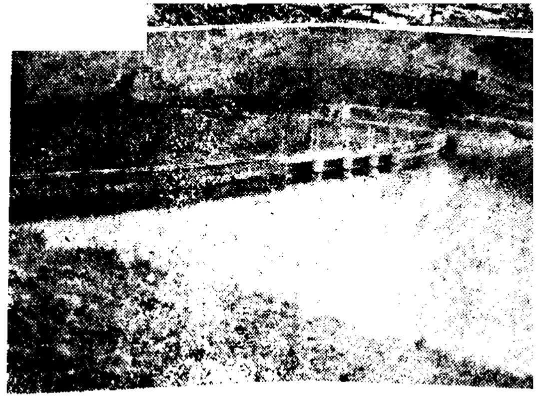
Text of the Speech of

The Hon'ble Sri
M. BHAKTHAVATSALAM
on the floor of the Madras Legislative Assembly during the Budget Session



Papanasam hydro electric Works

Pykara Scheme—Mukurti Dam



Expansion of Power Projects

The operating costs of the electricity enterprises which have come into productive use, consisting of the three hydro-electric systems of Pykara, Mettur and Papanasam, the huge thermal plant of Madras City and the Andhra system consisting of the thermal plants at Visakhapatnam, Kakinada, Vijayawada, Kurnool, Cuddapah and other places, amount to Rs. 2,01,07400. The Gross Revenue from these systems far exceeds the operating expenses covered by the Demand, bringing us a net profit. This net profit has been steadily increasing during the last few years and it now forms an important addition to our general revenues. For 1946-47, the net revenue was Rs. 52 lakhs, for 1947-48, Rs. 62 lakhs, for 1948-49, Rs. 85 lakhs, for the year just closing Rs. 121 lakhs and for the coming year it is estimated to be Rs. 158 lakhs. For the current year, this revenue would have been appreciably greater, but for the fact that our hydro-electric reservoirs were practically empty for many months owing to the repeated failure of monsoons and therefore drastic cuts had to be made in the consumption of power. Even so, the revenue from this source has trebled itself during the last three years giving us a little over 8% on the Capital invested on Electricity.

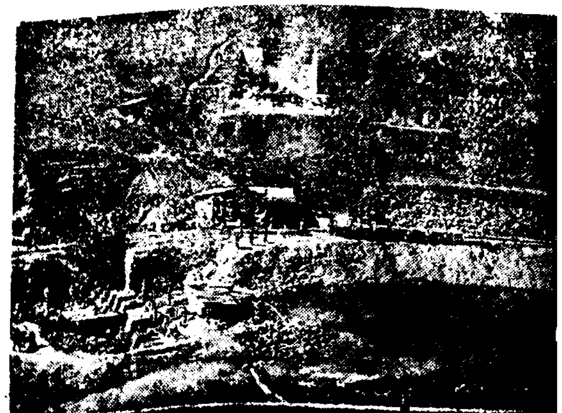
There is another important Demand connected with Electricity, for Rs. 5,63,10,600, for Capital Outlay on Electricity Schemes.

Electricity projects when completed, will bring us a fair return on the capital and therefore the large amount covered by this Demand need not be met from taxation, but can be financed from loan funds. In the Budget for the year 1949-50, we had provided for an expenditure of about Rs. 6 crores under this head and we will actually be spending a little more.

That was the reason why the Hon'ble Finance Minister was very worried when the Government of India refused to grant him the loan of Rs. 6 crores which they had originally promised him. However, he has managed to make full

Papanasam Extensions—Down stream view

Pykara Extension scheme



Sri G. Sundaram, Chief Engineer for Electricity

provision for this expenditure in the revised Budget without imposing substantial cuts.

Progressive Policy

When the Congress took over the administration of this State in 1946, the total installed capacity of all generating stations was 120,000 K. Ws. Since then, we acquired the big thermal plant of Madras City and a few other small stations raising our total installed capacity to 160,000 K. Ws.

Almost the first thing we did after taking over the administration was to sanction a five-year plan of power development. This programme consists of the Machkund Project estimated for Rs. 1283 lakhs, Moyar Project for Rs. 361 lakhs, Pykara Extensions for 326 lakhs, Papanasam Extensions including Madhurai Thermal plant for Rs. 288 lakhs, Madras Plant Extensions for Rs. 265 lakhs, Ceded Districts Distribution Scheme for Rs. 76 lakhs, the Nellore Thermal Scheme for Rs. 60 lakhs, the expansion of the Visakhapatnam, Vijayawada and Kakinada Thermal Stations for about Rs. 220 lakhs and the construction of certain main transmission lines in different places in order to transmit the additional power to various consuming centres. The total cost of this five-year programme is about Rs. 30 crores and when completed, it will double up the power generation in the State.

Work is in full swing on all items of this programme and inspite of unavoidable delays caused by foreign firms in the delivery of plant, this programme is expected to be completed by about 1952. We have spent on this programme about Rs. 2·7 crores in 1947-48, Rs. 4·5 crores in 1948-49 and Rs. 6 crores in 1949-50. The amount of Rs. 5.6 crores covered by Demand XXXVIII in the Budget for 1950-51 is largely towards this programme. It will therefore be seen that this five-year plan is not a mere paper plan, but we are already halfway through, in its execution. It is no doubt true that additional power has not yet begun to come in; but electricity projects take a good deal of time in these days of acute shortages and the progress we have made in execution, certainly compares very favourably with what other States have been able to accomplish elsewhere. Certain items of this programme have already matured, as for example the Ceded Districts Distribution Scheme, which was recently switched on in Bellary District, and the Nellore Thermal Plant which will be ready for operation by next June.

Concession to Agriculturists

The Electricity Department is organised on commercial lines, i.e., the Department maintains separate Capital and Revenue Accounts and when it supplies power to a consumer, the revenue derived from the consumer

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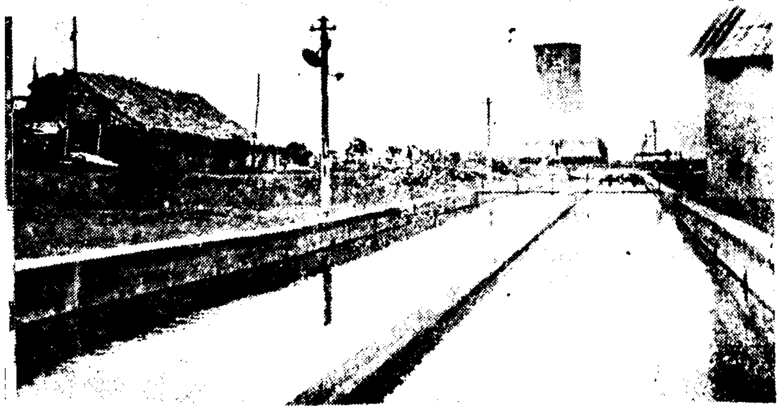
Sri S. R. Krishnamurthi, Chief Construction Engineer for Electricity



The cooling tower of the Madras Electricity System at Basin Bridge

should meet the interest on Capital, the depreciation on the installation, the operating expenses and should also produce a profit. Supposing the Capital cost of an extension to a consumer is Rs. 100, the Department must derive sufficient Revenue from him to cover Rs. 3½ towards interest, Rs. 2½ towards depreciation, Rs. 3 towards operating expenses, and something more towards the cost of the power generated at the power station. Till 1947, the Department was insisting on a minimum annual revenue of Rs. 12½ on a Capital investment of Rs. 100, which meant that after allowing for interest, depreciation and operating expenses, there was a sum of Rs. 3½ per year towards the cost of power. On this formula, industrial loads consuming large blocks of power for long hours were at an advantage. Applicants for agricultural loads which consumed power in small quantities were unable to guarantee this 12½ percent revenue and were being rejected, as unremunerative. In order to assist agriculturists, we have reduced the minimum guarantee from 12½% to 10% in hydro-electric areas and from 15% to 10% in Thermal areas. This reduction leaves just a small margin only towards the cost of power in Hydro-electric areas and no margin at all in Thermal areas. In other words, we have begun in a small way to subsidise rural electrification and the Department is gradually losing its commercial character.

Rural Electrification

The new emphasis which we are now laying on rural electrification, has begun to produce some results. Electricity reached 101 new villages in 1946-47, 146 villages in 1947-48, 194 villages in 1948-49 and about 250 villages in 1949-50. 1223 pump sets were newly connected up in 1946-47, 1793 in 1947-48, 2288 in 1948-49 and about 2500 in 1949-1950. Electricity is now available in 1700 villages to operate about 15,000 pumpsets and we are at present endeavouring to see that about 3000 pumpsets are newly installed in each year. This is not altogether a mean achievement especially when we find that nothing comparable has been done for rural electrification in any other part of India including Mysore, which had a lead of several years over us. We have made adequate provision under Demand XXXVIII for continuing this good work to the limit of the capacity of the Department in materials and technical man-power.

Nationalisation

The Government enacted legislation for the speedy nationalisation of the few private and Local Board electricity enterprises of this State. Every body knows that our rural folk have become electricity-minded. Licensees who are answerable to share-holders for an adequate return on capital, are not the proper agency to

A significant event...

nearly two years ago, the Madras electricity undertaking was acquired by the Govt. from a British firm distribute this vital amenity in villages, where the law of diminishing returns operated steeply. And so, for the proper development of licensees areas, the Government have decided to take over their concerns and operate them as part of the Government's business. The legislation in this regard has become Law and the time has come to implement it. The licensees are now conscious that their undertakings will soon be taken over and are therefore in a state of unhealthy suspense. It would be desirable if we could have taken over all these concerns forthwith, but this would place a very heavy strain on our limited resources. Our main emphasis should be on the five-year plan for the generation of additional power and therefore the acquisition of existing concerns could only take a lower order of priority. Besides, we should space out the acquisition in such a way, as to cause the minimum dislocation to the smooth administration of the Department. We have now drawn up a programme of acquisition arranging the concerns in five batches to be taken up one after another, the less efficient ones taking precedence.

The following is the programme :

First Batch

(i) Udipi ;
(ii) Rajahmundry ;
(iii) Ongole ;
(iv) Proddatur ;
(v) Narasaraopet ;
(vi) Salur-Parvatipur ;
(vii) Chicacole ;
(viii) East coast ;
(ix) Tirumalai Tirupati ;
(x) Kasaragod ;
(xi) Union Cochin ;
(xii) Thirty-three Local Board Concerns.
(xiii) West Ramnathapuram ;
(xiv) Vellore ; and
(xv) Ambur-Vaniyambadi

Second Batch

(i) Adoni ;
(ii) Bobbili ;
(iii) Gudivada ;
(iv) Anakapalli ;
(v) Mangalore ;
(vi) Tirunelvely-Tuticorin and
(vii) Salem-Erode

Third Batch

(i) Palghat ;
(ii) Cannanore-Tellicherry ;
(iii) Devakottah ;
(iv) Nattarasankottai ;
(v) Karaikudi ;
(vi) Chingleput ;
(vii) Kanadukathan ;
(viii) Chittoor ;
(ix) Visakhapatnam ;
(x) Calicut ;
(xi) Ellore ; and
(xii) Nellore.

Fourth Batch

(i) Nagapattinam ;
(ii) Kumbakonam ;
(iii) Guntur ; and
(iv) South Arcot.

Fifth Batch

(i) South Madras Four undertakings - East Tanjore, East Ramnad, Tiruchi-Srirangam and Pudukkottai State Co.)
(ii) Ponnamaravati (Pudukottai).
(iii) Brahmavidyambal (do.)
(iv) Pudukkottai Corp (do.)

Even though this programme, has been announced, it is made clear that a batch will not necessarily be taken over fully in one financial year. A five-year period for taking over all the concerns seems at present to be the minimum, consistent with efficiency and the availability of funds; but this period can be lengthened out or shortened according to administrative and financial convenience. The Government must reserve to themselves the right to deviate from this programme for good reasons. Licensees may, however, note, that as far as it can be foreseen at present, this is the programme which the Govt. wish to adhere to. Licensees whose concerns cannot be acquired immediately, may legitimately complain that they cannot find funds for further development, because nobody will lend them for

Outdoor Substation

a short duration. In order to assist such licensees, the Government are willing to grant them loans at about 4% for specified rural extensions.

About three years ago, our post-war planners were enthusiastic about the speedy nationalisation of key industries and public utilities. Since then, there has been a change of opinion and there may be some who doubt the necessity of nationalising private electricity enterprises. They may well ask why the Government should not confine their activities to the creation of new wealth instead of acquiring existing wealth.

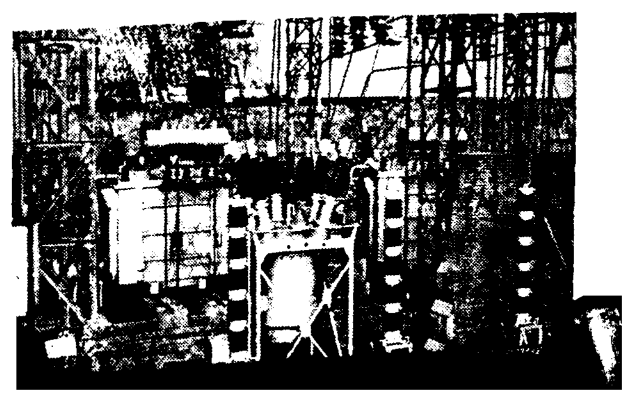
A brief account of what the Govt. have already done in the way of nationalising this industry may be given here.

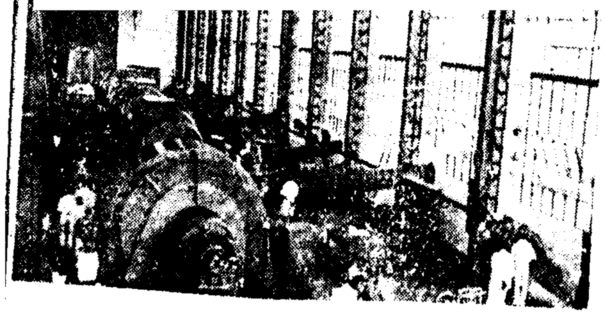
Additional Facilities Assured

In August, 1947, the Govt. acquired the City electricity undertaking, from the British firm which has operated it for over forty years. Conditions of generation and distribution were not too satisfactory when we took over the undertaking. Development was practically at a stand-still and it was almost impossible to get a new service connection. The generating plant was very old and the D. C. system of distribution was out of date. There were few days when the current had not failed in one sector or the other in the City. For the immediate reliefs of the City, two 2500 K.W. transportable sets were installed by us in quick time at a cost of Rs. 32 lakhs. Twenty-

seven distribution transformer stations were added on to the 54 taken over from the Company. Thirty-three miles of high tension and 56 miles of low tension lines were newly laid. The peak load of the power house was raised from 19,600 to 25,400 K.Ws. registering an increase of 30%. Service connections increased from 21,526 to 27,691 or by 28%. Rural service in the neighbourhood of the City was taken up for the first time and 63 agricultural pumps aggregating to 300 H.P. have been connected up. The number of units consumed in the City rose from 68 millions per year to about 90 millions. The outmoded D. C. equipment, is gradually being replaced by modern A.C. equipment; about 400 services have already been changed over. Works are well in progress for the installation of new plant for 15,000 K.Ws. at Basin Bridge at an estimated ultimate cost of Rs. 6 crores which will come into operation in 1952 and solve the power problems of Madras for a decade or more.

Complaints have been made in certain quarters that the Govt. have been increasing the staff of the system indiscriminately. It is no doubt true that the Govt. have employed additional staff, but this addition was necessary for the expansion of the power plant and new services. The critics do not seem to realise that the European Officers who were running the concern, had left and their places had to be filled by new men. A good deal of consulting and purchase work was being done for the Company in London by their head-quarters staff and that work too is now being done locally. The main consideration in judging





Generators: Inside view of t Singara Power House (Pykara

the Govt. on this question, should be, whether they have been able to run the concern during the last two years as a successful commercial proposition.

The Govt. are securing a reasonable return on their Capital, after providing for depreciation at rates ranging as high as 8 1/3% which was considered necessary, in view of the dilapidated conditions of much of the plant which will have to be replaced quick. A large part of our effort, as for example, the plant extensions, have not yet begun to bear fruit, but by 1952 we hope to present a tidy picture. In the meanwhile, we have just completed the work of interconnecting the Mettur Hydro-Electric Power House with Madras through a 110 K. V. Transmission line and about 4000 K. Ws. of power which is surplus in Madras during the early hours of the morning will be transmitted to Mettur to augment the resources of that system, sadly depleted by the failure of the monsoon. In future, it may be possible to save coal in the City plant, by tapping the surplus power available in the Mettur System during certain irrigation seasons.

Things to Come

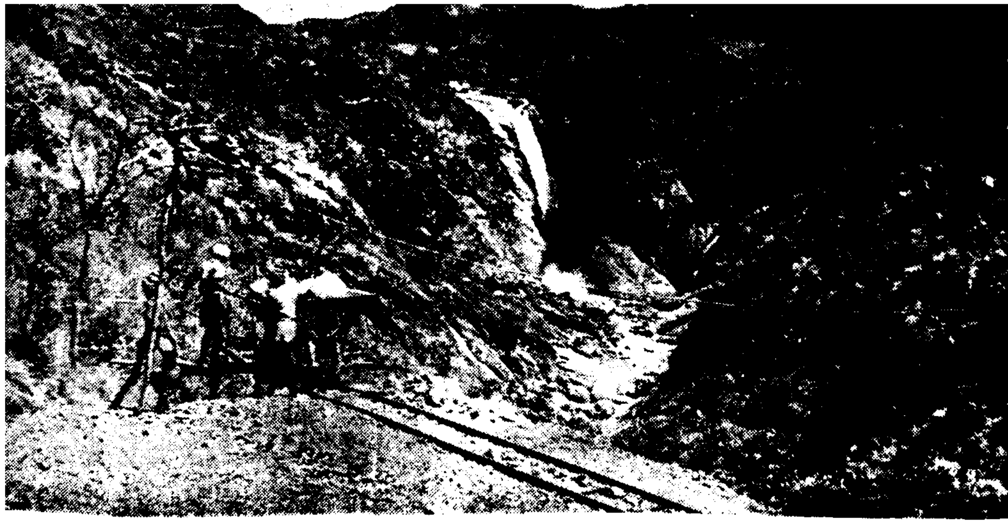
The development of Electricity has to be planned on a long-range basis. Under our existing shortages of money, materials and man-power, an electricity project will take at least five years to mature from the date of inception.

Investigation is now proceeding and is about to be finalised on a scheme in the Kundah Valley on the Nilgiri

Plateau which is capable of generating 1,00,000 K. Ws The Govt. have conducted negotiations with the Cochin Travancore Union for the development of power from the Periyar waters in Madhurai District and an agreement is in sight whereby they hope to develop about 40,000 K. Ws. of power. The Tungabadhra Project now under execution will give us an equal quantity of power for use in the Ceded Districts. Plans and estimates for the Hydro-Electric portion of this Project has just been received by the Government and are now under consideration. The Govt. have also negotiated an agreement with Mysore on the Mekadatu falls on th Cauvery, whereby Mysore will release to us about 20,00 K. Ws. of power for use in South Kanara and the Salem country. The Govt. have already prospected a good site on the Sileru below the Machkund river in Visakhapatnam District from which a substantial block of power can be generated to supplement the Machkund system in the final stages of development. Plans are thus getting ready for the development of another 200,000 K. Ws. of power, for rural electrification in the quinquennium to follow the present five-year plan.

Speedy execution

The Machkund project which the Govt. sanctioned in 1946, is by far the biggest hydro-electric project which they have so far launched and it is exclusively for the benefit of the Circars. The Project site is situated in the dense malaria-infected jungles of the Agency, 125 miles from the nearest railhead. Plainsmen had seldom traversed that trackless country and our Engineers who investigated it, had to reach the place mounted on elephants, a journey of two days from Jaipur. To-day, a pretty little town has sprung up at that place and about 5000 workmen are employed on the Project. All important contracts connected with the supply of turbines, switchgear and line materials have been placed and during this year the Govt. have incurred an expenditure of Rs. 99 lakhs on this Project. For the coming year, a provision of Rs. 161 lakhs has been made.



The Doduma Falls, whose waters are to be harnessed at Machkund River in the dense, malaria-infected jungles of Visakhapatnam District

An idea of the progress made in the execution of electricity projects in the Andhra area may be gathered from the following facts. The Nellore Thermal Scheme which was sanctioned by the Govt. in 1948, is almost completed and will be switched on by next June. The Ceded Districts Distribution Scheme by which the Govt. took 4000 K. Ws. of power from Mysore for use in Bellary District, has already been switched on and this power will be available in the towns of Bellary and Adoni during this month. The Kakinada Power House has already been augmented by the addition of new diesel sets. No doubt there has been some delay in the completion of the Visakhapatnam Plant extensions; but that is caused by foreign firms not delivering in time the materials ordered of them. Even so, an amount of Rs. 23 lakhs, was spent on that scheme this year and a provision of Rs. 16 lakhs has been made for the next year. We have taken over the Kurnool and Cuddapah Thermal Stations and made appreciable improvements to them. We have also augmented the supply to Rajahmundry. Work has

A diversion dam in progress in the Machkund Project

just commenced on the two new thermal stations, one at Nandyal and another at Tadpatri. It is no doubt desirable that we should have done more, but what has been accomplished so far, did call for considerable effort and if the Department had failed to do more, it was for reasons beyond the control of ordinary mortals.

Conserving Power

Another criticism though not so grave as the one before, is about the drastic cuts in the consumption of power which the Govt. were constrained to impose in our Hydro-electric areas. This was due to the failure of the monsoons; but in protesting against these cuts, people do not seem to appreciate that the Papanasam Department had no choice in the matter. The Papanasam reservoir is not an irrigation reservoir. Waters stored in that reservoir are normally those which would have flown into the Sea, if the reservoir had not been there. Agriculturists in the Tambaraparni Delta can lay no claim to that water, because it is intended solely for power develop-

Inter-Governmental Conferences of Ministers and Chief Engineers of Madras and Orissa, facilitate the speedy execution of projects

SRI T. A. VARGHESE, I.C.S.,
Secretary to Government, Public Works Department.
(From 13-8-47 to 12-4-50)

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ment. And yet, when crops begin to fail for inadequate flows in the river, the affected persons, quite naturally, raise a cry for the release of the electricity storage. This is what has been happening for a number of years and this is just what has happened this year too. We had to empty out the precious electricity storeages in Papanasam and Mettur Reservoirs to save crops in Deltas. Fortunately for us, the Pykara Reservoir has no irrigation under it and all the three hydro electric stations are inter-connected. We are thus able to tide over the crisis, but not without imposing drastic cuts on all the three Systems. There is no use blaming the Department or the Government for these cuts which are unavoidable. Even so, we have not imposed a cut on the quantum of power used by agriculturists. I can only assure the House that we will do our best to mitigate the rigour of the cuts which have become inevitable for reasons beyond our control.

[*Speech of the Hon'ble Minister for Public works in the Legislative Assembly, moving the demand under Electricity on 11th March 1950.*]

The Machkund Project on the northern borders of the State, the biggest Hydro-Electric Project sanctioned so far and now under execution, is a joint undertaking of Madras and Orissa Governments

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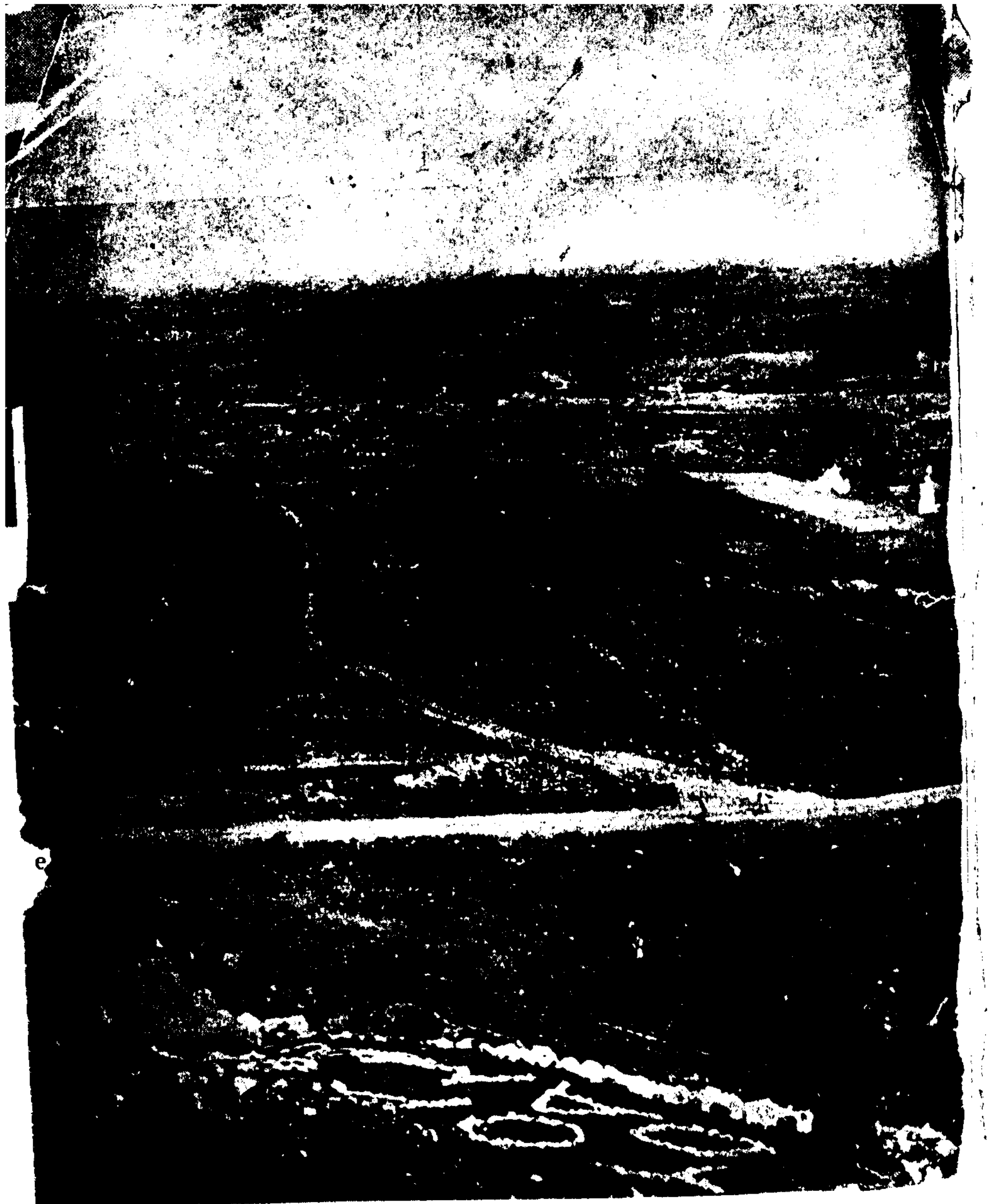

LOWER BHAVANI PROJECT which would irrigate nearly two lakhs of acres in Coimbatore Dist. is one of the largest earth Dams in Madras State. This consists of a Dam of 5½ miles across the River Bhavani, below the junction of Moyar and Bhavani Rivers in Coimbatore Dist. and is estimated to cost nearly 8 crores of Rupees.