

# Tamil Arasu

**June 1983 75p**

**Thiruvalluvar Year - 2014**

**Vaikasi - Aani**

**Rudhrothkaari**





Thiru V. R. Nedunchezhiyan, Minister for Finance, who attended a meeting held by the Advisory Council of the Public Distribution System at New Delhi on 19-5-1983, met Thiru Bhagawat Jha Azad, Union Minister for Food.

Thiru V.R. Nedunchezhiyan, Minister for Finance presided over the 50th meeting of the Soldiers' Sailors' and Airmen Board.

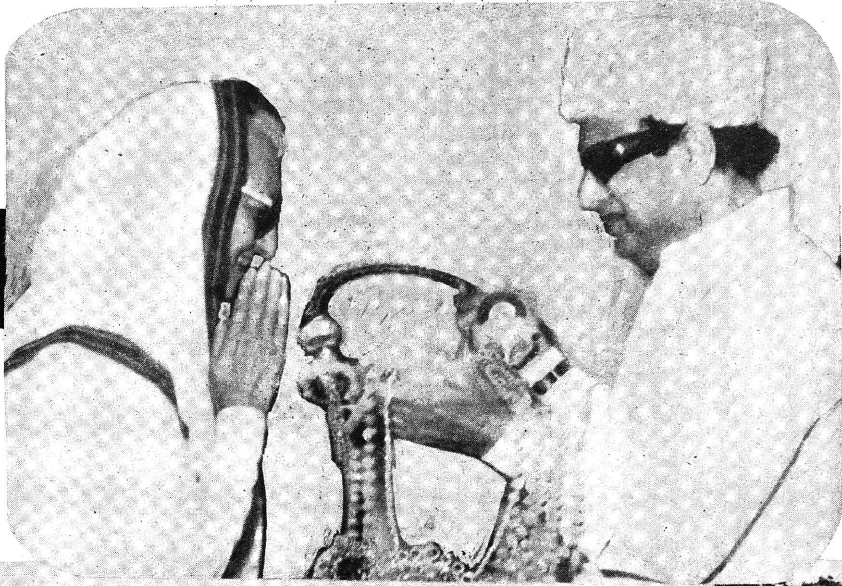


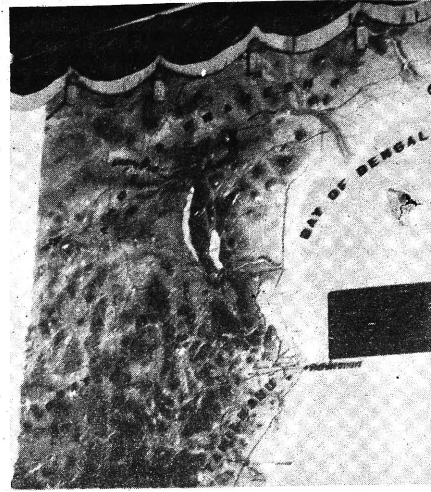
# Tamil Arasu

VOL : XIII

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# SYMBOL OF NATIONAL UNITY

## PRIME MINISTER Tmt. **INDIRA GANDHI**

It has long been a dream of mine that the rivers of India should be joined together, joining the different peoples, the different cultures together.

Bringing water to parched lands and also enabling opening out new ways of transport.

So it is a special pleasure and privilege to be ~~here on~~ this occasion.

I congratulate the Chief Ministers of Andhra Pradesh and Tamil Nadu for coming to this agreement and taking this scheme which I had announced many years ago to a new beginning. I hope that this cooperation between them will extend the cooperation, and bring comforts and prosperity to all these regions.

Even more important than food is water. It is true that inspite of having a programme to supply drinking water to all our villages, we have not been able to reach large parts of the country.

When it is a year of good rainfall, people do not feel this so much. But last year it had been a year of severe drought; here in Tamil Nadu, in Andhra Pradesh, parts of Karnataka, Maharashtra Rajasthan and Gujarat; in fact in more than three fourths of our country. In fact, tomorrow from here I am going to visit the drought affected areas of Gujarat.

The problem in all these areas has been not only to save human lives to provide drinking water

and this we have been able to do to some extent. But large numbers of cattle and animals have perished.

Our policy has been one of self reliance. And we have made progress in agriculture, in irrigation but we still remain very dependent on the rainfall.

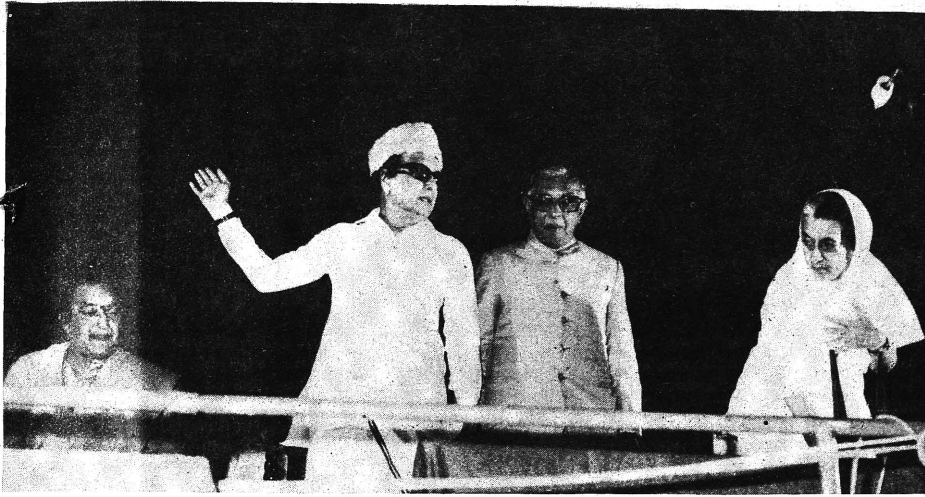
And one of the achievements of the outcome which we hope will come out of satellites like Rohini, is that they will give us quicker and more complete information about the monsoons and other aspects of the weather which will be of tremendous help to our planners and to our farmers.

Even though some of our programmes seem a little removed from the common man and woman, they are really all meant in our efforts to serve the common man.

I entirely agree with the Chief Minister of Andhra Pradesh when he said that we must be with the people. Infact, there is no point in being in Government unless we can serve the people and meet their needs.

In a country of India's size, vast population and great density all our programmes are dependent on cooperation between the States and between the States and the Centre.

The Centre has no territory of its own. The territory and the power of implementation of programmes belongs entirely to the States. They are indeed our limbs and our tools. That is why we are interested in each State being strong and self-reliant.



But no State can be fully self-sufficient. Every State is dependent for something or the other on other States. That is why we need a spirit of good will and cooperation and understanding.

Our tradition has been one of tolerance. This is natural and essential where there are so many religions, so many languages, different customs of food, clothes and different culture.

We do not believe in uniformity. We believe that this diversity adds, enriches the Indian spirit and the Indian personality. That is why we believe that every State should develop in its own way.

At the same time it should be imbued with the spirit of unity and we should all regard ourselves not merely as citizens of Tamil Nadu or Andhra Pradesh or Maharashtra or Karnataka or any where else but as citizens of India bound together in a common goal of making our country self-reliant, strong, united and great.

We want strength, not to dominate over anybody, any other country, any other people. But to be able to protect ourselves and to solve our multifarious problems.

If India is strong, every State and all communities will be strong. If India is weakened, then no

matter how much effort a State makes or the Centre makes, we shall all be weakened.

Because of drought and various international, economic and other factors, this year and last year has been specially difficult for us financially. Nevertheless, we try our best to meet the demands of all the States.

We must also look after the weaker areas and weaker sections of the people as well as of regions in our country. But if we meet these challenges in a spirit of cooperation with unity, I have no doubt that we shall overcome our difficulties and emerge much stronger.

I hope this scheme will be implemented expeditiously and that it is to each of you here and many others who are not present here it will mean a new life.

I thank the Chief Minister of Tamil Nadu for asking me to share with you, your joy in this venture. To him and to all the other Chief Ministers here, I give my good wishes to the future and to all of you also.

ரொம்ப சந்தோஷம்,  
வணக்கம்.





The launching of the scheme to convey Krishna waters to Madras is a significant step forward in inter-State Co-operation and we in Tamil Nadu are happy that this event has come almost on the heels of the birth centenary celebration of the poet Subramaniya Bharati who sang of the life enhancing and integrative role of the great Indian rivers.

The concept of augmenting water supply to this Metropolis, I am told, is over a century old. The Chief Engineer of the Madras Presidency had one hundred and two years back suggested linking the Krishna with Pennar. From time to time, fully investigated Project reports were prepared and deliberated upon.

These were at best maintained in a state of static equilibrium. The real move forward took place on the initiative of the Prime Minister when during her visit to Madras on 15th February, 1976, she announced that the States of Maharashtra, Karnataka and Andhra Pradesh had agreed to spare 5 tmc. each from their share of Krishna water to meet the requirements of Madras water supply.

But for initiative taken by the Prime Minister and the national angle from which the issue

was viewed by her and the spirit of accommodation and understanding exhibited by the Hon'ble Chief Ministers of Andhra Pradesh and Tamil Nadu, in decisively resolving it, the scheme would have continued to remain on paper only.

The agreement provides for the implementation of the Project within three to six years and it has been enjoined upon the two State Governments to take all possible measures for early completion. The handing over of the cheque of Rs.30 crores as the first instalment of Tamil Nadu's share of the cost of the Project to the Hon'ble Chief Minister of Andhra Pradesh is one major step in this direction and it will be followed by similar half - yearly payments in advance during the second half of 1983-'84, 1984-'85 and 1985-'86. Arrangements have also been envisaged for the monitoring of the implementation of the scheme and ensuring effective co-ordination between the two Governments in its operation.

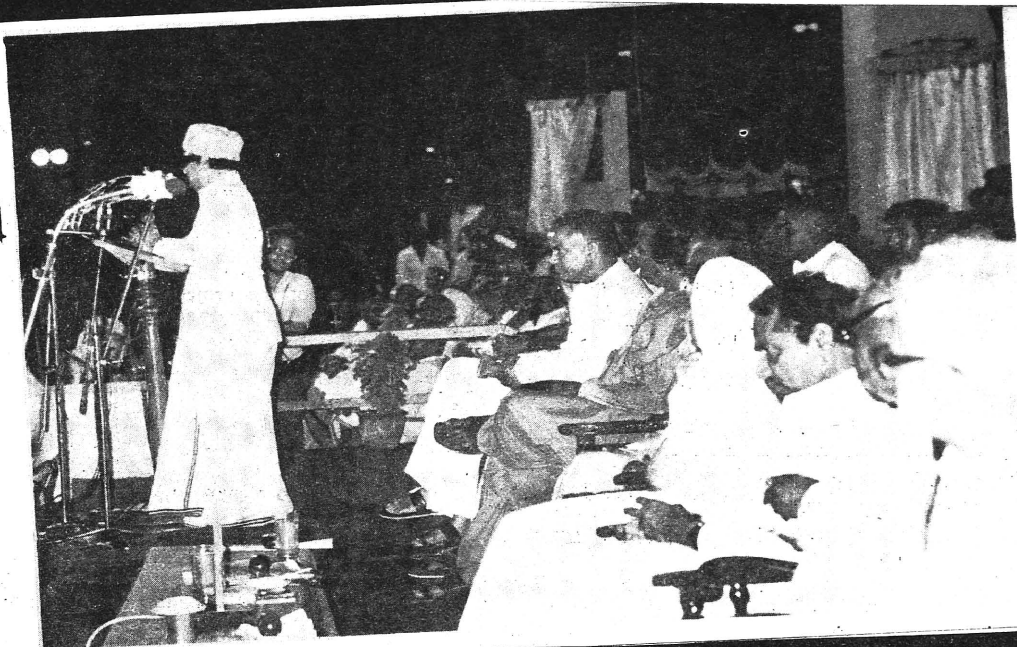
It has often happened that the projects - whatever the measure of urgency - are not usually completed according to schedule. Many factors such as delay in the acquisition of land, escalation of costs leading to inadequacy of funds or non-availability or in-sufficient supply of certain essential items can stand in the way of timely completion. I trust that this Project will prove to be an exception and that it will be viewed as the joint responsibility of the Centre and the concerned State Governments to remove all the bottle-necks which might at times crop up during its implementation. The periodical review of the progress at the level of Chief Ministers will go a long way in ensuring it.

We hope that this accord between the two States will be a precursor of many others to follow. What immediately comes to my mind is the inter-State problem relating to the river Cauvery. The Hon'ble Chief Minister of Karnataka who happens to be in our midst this evening is known for his depth of vision, far-sightedness and broad outlook. He is also appreciative of others' viewpoints. I firmly believe that the problem will be resolved by the Hon'ble Chief Ministers of Karnataka and Tamil Nadu in a similar spirit of Co-operation, accommodation and understanding as has characterised the agreement on the river Krishna.

# Significant step in Inter State Co-operation

**GOVERNOR OF TAMIL NADU**





# AN UNFORGETTABLE EVENT

## CHIEF MINISTER OF TAMIL NADU

While addressing the gathering, the Chief Minister of Tamil Nadu in his speech said:

This occasion is an unforgettable event in my life.

I would like to point out that I am witnessing an event of historic importance.

Here I would like to recall that in 1976 at a public meeting in Madras, the Prime Minister made an announcement of the Krishna Water accord. Though some persons may cause delay implementing her good ideas, I think that her good schemes will certainly take shape.

Madras, one of the districts of the State, has a population of 35 to 40 lakhs of people. We are all aware of the enormity of the problem of the supply of drinking water.

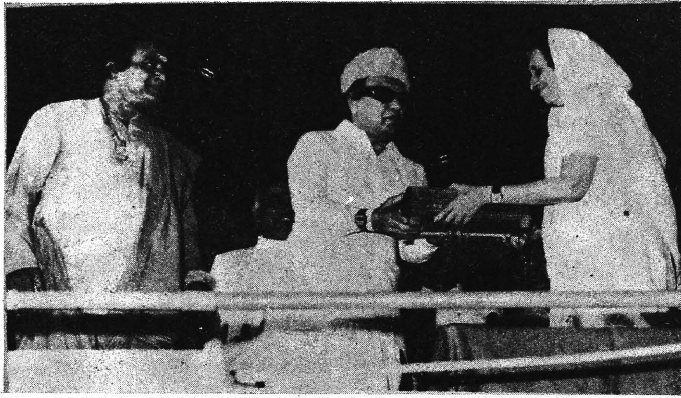
You are all aware that I always speak of national integration. If there should be integration in the country, I always say that it should come from within the heart.

What are the parties to which the Chief Ministers seated on the dais belong? What is the party to which I belong or the Karnataka Chief Minister belong? The presence of four Chief Ministers belonging to four different parties shows that our heartfelt intention is necessary to realize the great idea of national integration.

If we set our minds to it, we could achieve national integration. You cannot separate the spirit of national integration in India. Here integration does not pose a problem.

We are not unaware of the difficulties that we have to undergo in implementing this scheme. The Karnataka Chief Minister in his speech said that by holding frank and free talks on the Cauvery issue, it could be solved easily. I am grateful to the Karnataka Chief Minister for this.

However hard we work, we need the support and encouragement of the Central Government if this scheme is to succeed. This scheme is not meant for any particular individual—a few complain that money has been squandered on it. It is but



the frustration of those who have faced disappointment in life.

When the Maharashtra Chief Minister spoke he said that supposing he is in difficulties he said that people cannot ignore other people's difficulties and sufferings.

He said that others must be aided first. This is what we also say and this is what Anna and Gandhi have also said.

Love others and they will love you, said Vivekananda.

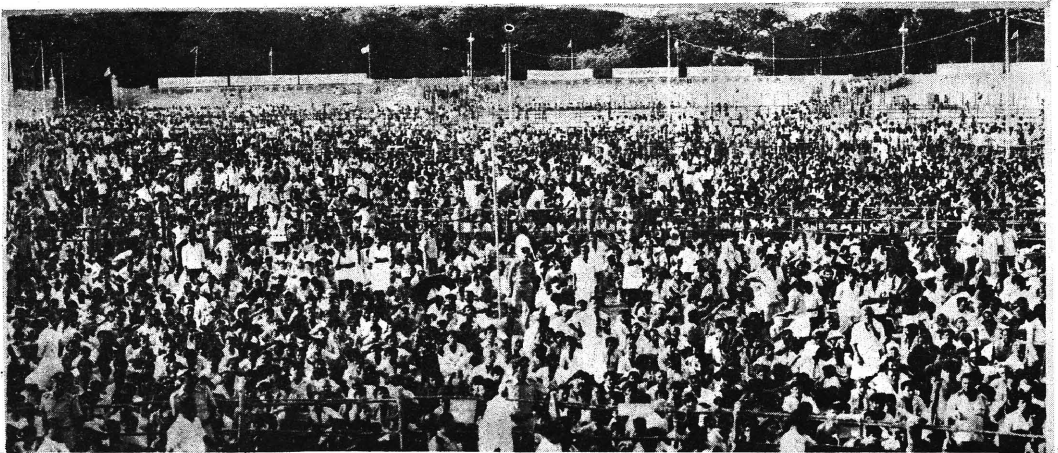
The Honourable Chief Minister and younger brother N.T.R. gave a long speech. I wonder whether I should reply now. With the welfare of the country at heart, he has a few desires and the Prime Minister is aware of it. The twenty point programme signifies her awareness and concern for the welfare of the country.

The 20 point programme is meant to fulfil the aspirations of the common man. In 1976, when we were in the opposition party, we campaigned for the implementation of this programme, then a few persons ridiculed us. Today this gathering laughs at them. This function is not got up for any particular individual or party or caste. It is a people's function got up for the people.

There was a lamp, oil and wick even earlier but no one to light the lamp. Today, the Prime Minister is lighting the lamp. The Prime Minister should light several similar lamps throughout the country.

We understand how much goodwill and sympathy the Prime Minister has for the Tamil people.

May you live long! and do good to the country!





# RIVERS

# THE NATION'S

# WEALTH

## CHIEF MINISTER OF ANDHRA

Harnessing natural resources has been mankind's singular adventure and prosperity of nations has been measured by the degree of achievement in this regard. In its wake has come progress, understanding and all the good in thought, feeling and action that together make up culture. India is acclaimed world leader in culture. Its life is derived from its rivers, its culture has flown down through ages like the rivers.

Ganga conjures a picture of an historic and noble heritage - its holy waters flow in our veins. So, the adage 'GANGA THIRTHAM JANMA PAVANAM'. And perhaps soon the dreams of bringing Ganga into the peninsula will become a reality. In a way the function of today marks a bright leap forward in our country's imagination, determination and capability. The awe inspiring Krishna will find soon, for part of its waters, a new course winding up at the threshold of this city by the Sea. Our coming together here itself makes it appear as though we have already achieved it.

In the tingling atmosphere of such great anticipation, with a mixture of pride and humility, I feel privileged to represent the people of my State and this function. The enthusiastic response of all my brothers from other States, and the presence of the Prime Minister of India among us confirms if confirmation is needed at all, that we are truly discharging the responsibilities and obligations arising out of the trust and confidence placed in us by our respective people.

For long it was my good fortune to receive the hospitality of this historic city and enjoy the affection and love of my Tamil brethren. I always cherish these happy memories with pleasure and feeling.

Like all great cities, Madras has come to be what it is, as a result of the collective effort of many who lived as brothers over centuries. It has a charm and fascination of its own to many all

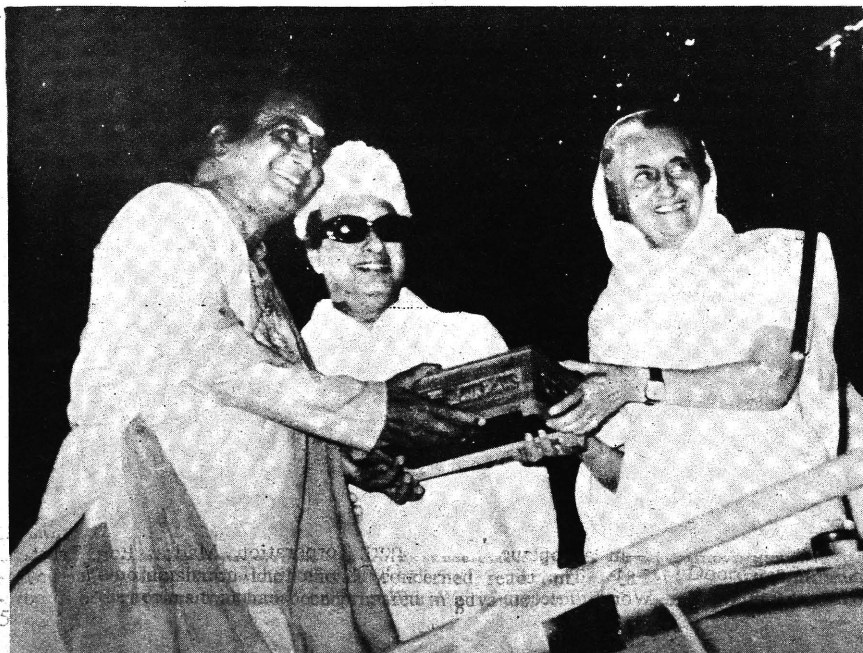
over the country. For the Telugu - speaking people it is a particularly endearing place. The city has historical association for us. It offered its hospitable hand and even nursed, reared and brought up many a Telugu personality like Gajula Lakshmi Narasimha Setty, Kandukuri Veeresalingam, Tanguturi Prakasam, Kasinadhuni Nageswara Rao, Sarvepalli Radhakrishnan, Alladi Krishnaswami and many others.

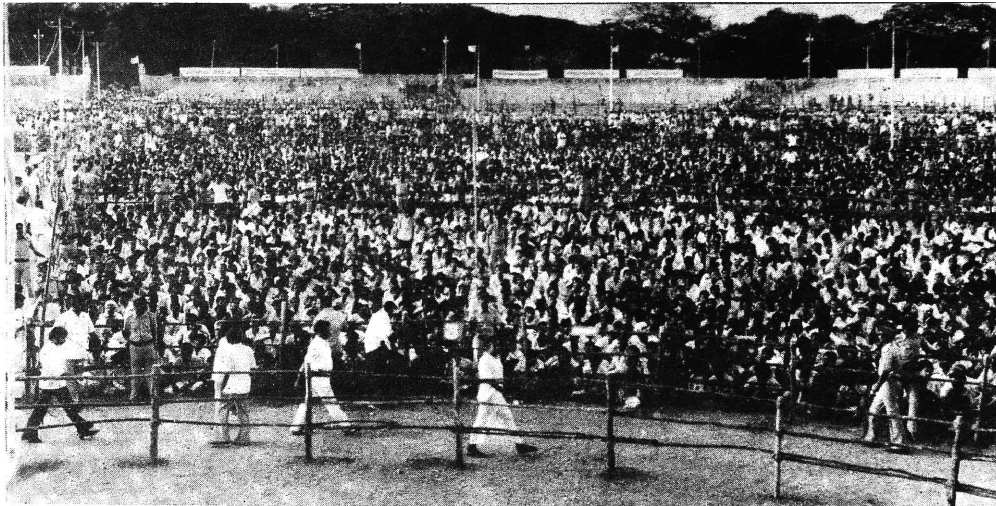
Srisailem to Chenna Patnam - it is, indeed, a long trek for the Krishna waters! Fresh, cool and crystal water of the sacred Krishnaveni will soon rush to the city as a 'Dakshina Triveni' - containing the respective shares of the three States of Maharashtra, Karnataka and Andhra Pradesh. In its course, it will transform the parched expanses of Rayalaseema into lush green tracts resplendent with prosperity and reward the people of that area for their patience and fortitude. Though we have set a maximum period of six years for the completion of the project, I have every faith that our people would endeavour to finish it within the minimum time possible for the simple reason that it can wait no longer. Not only figuratively speaking but even as a fact much water has flown down the river Krishna literally into the deep blue saltish seas, while we busy ourselves with calculations and measurements about how much water who should take and how much expenditure who should bear. Time flies by, while our programmes or efforts to relieve our toiling masses of hunger and thirst, try desperately to keep pace with it. Nature has gifted us with abundant resources. If we fail to take advantage of the availability of this God-given gift it is our fault and we pay for it dearly with poverty and thirst. We should be wise and go about briskly with the business of harnessing the rivers for common good. It is in this context that I hope that the

agreement we signed on this project will remain as a shining example of interstate cooperation based on the lofty principles of human brotherhood, mutual help and understanding.

I must recall Madam Prime Minister, Tmt. Indira Gandhi Garu your initial mootng of the concept of supply of 5 TMC each by the three States from their respective shares in the Krishna waters to Madras. The great Telugu poet Potana said that Mahabagavata was bequeathed to him to translate by eminent poets preceding him. I thank my illustrious predecessors in office who have done me a good turn by keeping this treaty for me to sign and to share my happiness and privilege of doing so with my brother, Sri M.G. Ramachandran. Enormous effort has gone into finalising the terms of the agreement on this project. Engineers, administrators, officers and staff of both Andhra Pradesh and Tamilnadu have performed this tremendous task by exemplary hard work and diligence. People's representatives have offered valuable opinions and represented apprehensions and aspirations of the people. Into the agreement have been written down efficient use of waters together with concepts of social justice. My elder brother Sri Ramachandran and I do not indulge in the luxuries of procrastination and infructuous argument. The agreement entered into between us on behalf of the people of our States was the result of a positive and practical approach and respect for each others points of view and requirements.

I mentioned Smt. Indira Gandhi Garu, how your suggestion grew and assumed form. We are confident that you will give to this unique project a special consideration. Some may wonder that we are attempting a reach beyond our grasp. This is but human effort. And here lies Madam





Prime Minister that possibility of achieving it with the Centre adding its shoulder to the wheel.

If we cannot provide the minimum needs and requirements of drinking water to the common man in whatever State, how can we justify our very existence and rule, and our occupying the cushioned seats of power in cool comfort? It has been said that a hungry people listens not to reason nor cares for justice nor is bent by any prayers. It is equally true of thirsty people. With such laudable achievements in the field of high technology, when Rohini is revolving round the earth in the blue skies, when our teams are surveying in the strange continent of Antarctica - is it too much for the poor to hope for a potful of potable water? Over years, Madras City has experienced difficult water supply situation. Our people have responded immediately to share nature's endowments with their Tamil brethren. Our countrymen believe river waters to be sacred and consider them as natural wealth belonging to all Indians. The Ganga is a holy Goddess to all Indians and not just any river that flows in one part of the country and of relevance locally. Godavari, Krishna and Cauvery are similarly sacred rivers held in reverence by all. These rivers contributed our epics and sprinkled sacred places along their banks nursing our eternal religion of Dharma. Reaching their waters elsewhere not only meets a need but distinguishes itself as an act of piety; an act of service to God, through service to humanity. The melodious trill of the rivers has inspired our poets and saints.

As great men like Thyagaraja and Subrahmanya Bharathi belonged to the entire nation, so do our sacred rivers and other natural resources - wherever they may happen to be.

In this Project we have acted in the light of larger vision. This noble endeavour and collective effort, I am sure, would be followed elsewhere in resolving common problems with understand-

ing and mutual cooperation and in a spirit of goodwill and accommodation.

I need not remind you, ladies and gentlemen, that in the very federal structure of our Indian polity, there is provision for the full flowering of different languages and cultures and for the development and growth of all our States. Where would India be without the States? When the States are strong the Centre will be strong too. The body will be strong only when its limbs are strong. Our Constitution disciplines all of us - the Centre and the States, to work in unison and for the ultimate good of the Indian Union and the common man that lives on its benign soil. In this true spirit of democracy, unity and national integration, we are extending our hand of co-operation to the Centre and we are confident that it will be accepted. I am also hopeful that as a concrete illustration of such an atmosphere of goodwill and mutual co-operation between the Centre and the States, appropriate measures will follow to ensure more equitable and rational allocation of resources between the Centre and the States to achieve our common subjective of welfare of the common citizen.

The Telugu Ganga Project is not merely a programme involving the Telugus and the Tamils or the two Chief Ministers but represents a national effort to provide adequate relief and basic needs to several crores of Indians.

We believe that the Centre, in the perspective of national level solutions, will make this massive effort possible, so that the multipurpose Telugu Ganga contributes its benefits quickly.

I assure you all that with the firmest resolve, and religious Zeal and with all the dedication and devotion I can command, my entire Governmental machinery will work day and night to make this glorious dream come true in the shortest possible time.

# Cauvery Issue too could be solved

## CHIEF MINISTER OF KARNATAKA

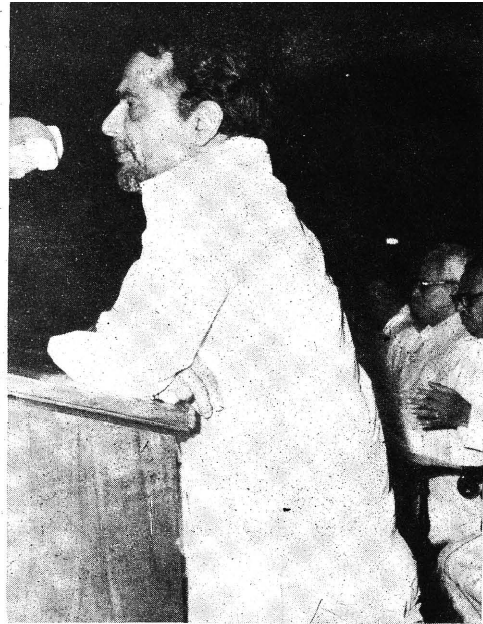
On this happy and memorable occasion, may I, at the outset extend my heartiest congratulations to my brother Chief Ministers, Chief Minister of Andhra Pradesh and Tamil Nadu, for having signed this historic agreement on the supply of the Krishna waters to Madras. They have set a shining example on the mutual co-operation between the States. They have shown that with a little understanding several problems that exist can be solved.

The Governor of Tamil Nadu mentioned in his speech about the Cauvery Water dispute and I am confident that on the basis of equity and justice and in the mutual interest of the people of Karnataka and Tamil Nadu even this problem can be solved.

We must remember all of us that we belong to the same country and we are all brothers and sisters whether they speak Tamil or Kannada or Telugu or Malayalam or any other Indian language.

There has been a tendency that whenever there appears to be a problem, instead of trying for a mutual understanding and mutual effort to refer this matter to the Union Government, of course we need their good Offices, we need their help. But we should not forget that the Prime Minister has numerous problems to solve. Only when we fail to solve our problems on a mutual basis, then we can always go to the Government of India and the Prime Minister for helping us in solving the problems.

On this occasion, I would like to mention about the increasing scarcity of drinking water all over. Our Prime Minister is here, and I would like to make a special request to her that unless we solve the drinking water problems the meaning of independence is reduced to nothing.



There are lakhs of villages still in our country where during atleast during three or four months of summer there is absolutely no drinking water. In my own State in Karnataka, there are still about 14 to 15,000 villages, where there is acute scarcity of drinking water. During the last 20 to 25 years there has been excessive urbanization. There is practically unabated inflow of people into big cities.

Take for example, Madras. Madras has grown perhaps beyond proportion, beyond manageable limits, as seen in the case of Bangalore.

We are also facing drinking water problem in Bangalore and we also have undertaken the II stage of Cauvery Water Project.

The total project would cost more than Rs.200 Crores and perhaps, with even 25% of the total cost we could provide good drinking water to all our towns and villages. And, therefore, I would like to request the Prime Minister to ask the planning Commission to examine this question. And excessive urbanization will not only create problems such as scarcity of water and housing and so on but also create tensions in Society.

A special study has to be made. It has to stop the growth of big cities and try to develop the rural areas and small urban towns.

May I, extend again my congratulation and best wishes to the Chief Ministers of Tamil Nadu and Andhra Pradesh for having brought this agreement and I hope and trust that the execution of this project will be also done expeditiously.

I am grateful particularly to Chief Minister of Tamil Nadu for having given me this opportunity.



# Out come of goodwill

**UNION MINISTER OF  
STATE FOR  
IRRIGATION**

We are gathered here to participate in a very happy and auspicious event, when the long standing and long awaited schemes to bring waters to the City of Madras is being started. The quest to bring drinking water to Madras City started about a hundred years back, somethings having been done in between but the total comprehensive scheme of nature, we are launching upon now has been possible only last month as a result of the agreement of the Chief Ministers of TamilNadu and Andhra Pradesh.

This has a long history but coming down to

recent years the Tribunal was appointed to go into the question of sharing the waters of river Krishna between the basin States. It started its work in 1969 and gave its report in 1973. Tamil Nadu was kept out of the Tribunal because it was not regarded as a basin State.

So when the decision of the Tribunal came there was division of water between the three basin States of Maharashtra, Andhra and Karnataka and there was no mention even about the drinking water supply to Madras City. The Chief Minister of Tamil Nadu made several representations to the fellow Chief Ministers but that was also



of no avail. It is only from the Krishna River system or the Cauvery that Madras can get its water supply. And when the Krishna Tribunal and the Chief Ministers did not co-operate at that moment it was really a matter of very serious concern for Tamil Nadu. They started preparation for making available waters from other schemes from the Cauvery and near about rivers, but they also ran into great difficulties. Some beginnings were made but not much could be done. So a stage was reached when the whole thing really looked very weak. But at that point there was a ray of hope of silver lining so to say from the dark clouds and that was the decision of the Prime Minister Tmt. Indira Gandhi that the three states of Maharashtra, Andhra Pradesh and Karnataka have decided to contribute 5 M TMC of water, from their respective shares of Krishna to be made available for the needs of the Madras City. From then onwards a number of schemes were prepared, a number of projects were made but the whole thing was clinched only last month, when the Chief Ministers of Andhra Pradesh and Tamil Nadu finally reached an agreement for the scheme which is being inaugurated now. As has very rightly been said by the Honourable Governor, Government of Tamil Nadu, there are still some disputes as regards water distribution in this region as well as in the whole country.

This scheme which is a result of co-operation between the two neighbourly State Governments is a very good example of co-operation and goodwill that has made possible this long awaited

scheme. Such accommodation and good will is necessary to solve other problems of river water distribution not only in this region, but in other parts of the world. And we do hope that the same spirit of accommodation will prevail while questions of solving those problems come up.

It is not through a legalistic approach or religious stances that these problems can be solved. But in a spirit of give and take and mutual co-operation of which this basin scheme is a very happy example.

We are very gratified that the Hon'ble Prime Minister Tmt. Indira Gandhi is with us here today, because it was through her initiative that the deadlock was broken and 15 T M C of water was made available for water supply to Madras City.

And I am sure her presence here is a very good augury for the scheme and I hope the scheme will go on with her blessings and that of the Government of India.

We are gathered here again on a very happy and historic occasion and I share the joy that the scheme would bring or hopes to bring to the people of Tamil Nadu as well as irrigate large areas that lie in Andhra Pradesh. I am very thankful to the Government of Tamil Nadu particularly the Chief Minister, for asking me to be present here and to share in your happiness and I send the most heartiest greetings, and good wishes on behalf of the Government of India. Thank you.

## *Unity will solve various problems*

### **CHIEF MINISTER OF MAHARASHTRA**

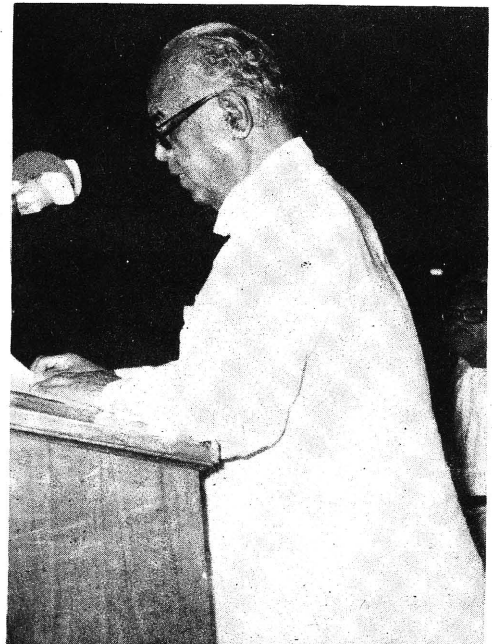
Thiru. Vasant Dada Patil in his Speech said:

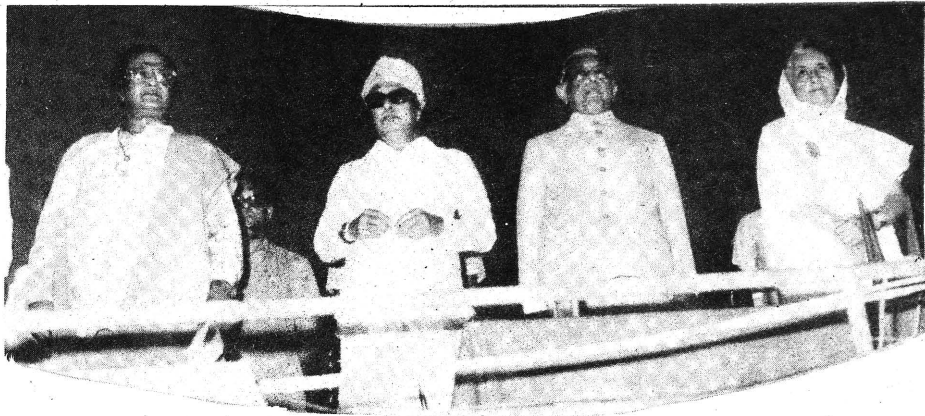
We are all the Children of Bharat Mata. We should treat the sufferings of others as our own. It was with this feeling that we extended our hand of co-operation to remove the shortage of drinking water to the citizens of Madras City. This has occasioned this function.

Water has the greatest priority in the life of man. Our religious beliefs tell us this. We cannot live without water. Our ancestors have likened water to nectar.

Drinking water depends mainly on monsoons. But monsoons are undependable. Failure of monsoons cause drought leading to untold sufferings by the people. There is water shortage this year in Maharashtra also. Despite it, we have come forward to help our brethren in distress. I am happy to note that all the States have come together in goodwill and amity in removing the shortage in drinking water and thereby creating new precedents.

I hope the same spirit of co-operation and understanding will prevail among the states in solving various inter-state problems.





## Krishna Water Project

As the day dawned on 25th May '83 the City of Madras wore a gay, festive, atmosphere. Flags and festoons adorned the 15 KM. route from Meenambakkam airport to Nehru stadium, the venue of the inaugural function of the epoch making Krishna Waters Project. All along the route, arches welcoming the dignitaries were put up. The 102 arches were in commemoration of the idea conceived by Col. Ellis in 1881, now taking practical shape.

The Nehru stadium was decorated with bunnings. The entrance was bedecked with pots of ferns and green plants adding greenery to the scene which provided a cool atmosphere in the sweltering heat.

A special rostrum was put up on the terrace with a huge backdrop of blue cloth. The height of the dais enabled the dignitaries to have a good view of the crowds.

The stadium was filled to capacity. Wherever one turned, his eye met with people speaking Tamil, Telugu and Hindi. One would not have seen people speaking so many languages congregating in one place except perhaps on the Republic Day.

This function was not the usual function where the speakers having had their say, leave the dais. This was a function where the speakers were also active participants. Participants in initiating the scheme and signing the agreement for bringing the much needed drinking water to thirsty citizens of Madras. Therefore, it was a people's function got up for the people.

The function started with an invocation song. It was followed by a song on national integration of Poet Bharati's, sung by the grand daughter and great grandson of the Poet.

The Chief Minister of Tamilnadu garlanded the Prime Minister, the Chief Ministers of Andhra Pradesh, Karnataka Maharashtra and the Minister of State for Irrigation, Government of India, and the Governor. The Chief Secretary in-charge Thiru Chokalingam garlanded our Chief Minister. The Minister for Irrigation, Government of Andhra Pradesh garlanded the VIPs on behalf of the Government of Andhra Pradesh.

The Finance Minister, Thiru V.R.Nedunchezhiyan welcomed the gathering.

The Governor of Tamil Nadu, Thiru S.L. Khurana presided over the function.





The Minister of State for Irrigation, Government of India was the first speaker followed by the Chief Ministers of Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu.

The Prime Minister, Tmt. Indira Gandhi inaugurated the work on the Krishna Water supply project for Madras City. She unveiled a tablet and an illuminated geographical model of the Telugu Ganga Project. When the Prime Minister unveiled the tablet, water sprang through spouts arranged at the entrance of the venue, which drew large numbers of people. The Prime Minister handed over to the Andhra Pradesh Chief Minister, a cheque for Rs.30 Crores, representing the

first instalment of Tamil Nadu's share of the project cost.

The Chief Minister of Tamil Nadu gave away mementoes to the Prime Minister, Governor, Chief Ministers of Andhra Pradesh, Karnataka, Maharashtra and Minister of State for Irrigation, Government of India.

The Prime Minister and Chief Ministers who participated in the function hailed the project as a symbol of mutual understanding and co-operation between the two States and hoped that this spirit would help solve other inter-State problems, including the Cauvery waters issue.

Thiru S. Ramachandran, Minister for Electricity proposed the vote of thanks.



# UNIVERSITY OF MADRAS

## POST-CENTENARY SILVER JUBILEE PERSPECTIVE PLAN

The Celebration of the Post-Centenary Silver Jubilee of the University of Madras marks a significant event and gives us a golden opportunity for projecting a synoptic view of the progress of the University and its rich contribution to the development of higher education in our country. We recall with pride its glorious past and look forward with great hope for a bright future.

Besides the Universities of Calcutta and Bombay, the University of Madras is one of the oldest in India. Founded in 1857 on the model of the London University, it functioned as a mere Examining University and very soon earned a reputation for high standards of knowledge required of its members. By the *Madras University Act of 1923*, it was constituted a 'Teaching and residential University' with power to establish and conduct Institutes of Research. It started with the four faculties — Arts, Law, Medicine and Engineering.

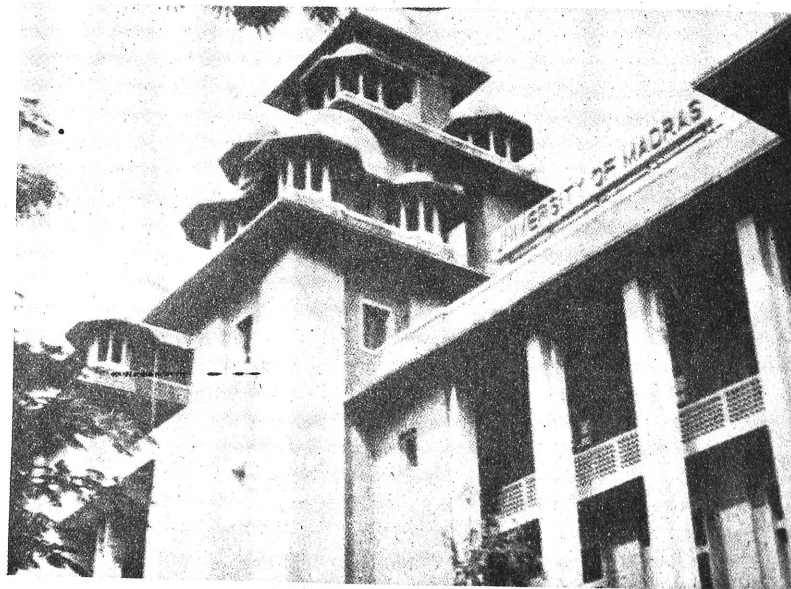
From modest beginnings, the University grew steadily in strength and influence, adding teaching and research to the growing needs and continues to give to the country a succession of statesmen, administrators, lawyers, jurists, diplomats, educationalists, engineers, doctors, technocrats, industrialists, philosophers and men of letters who have filled with rare distinction some of the exalted positions in public life and have contributed significantly to the progress of our country.

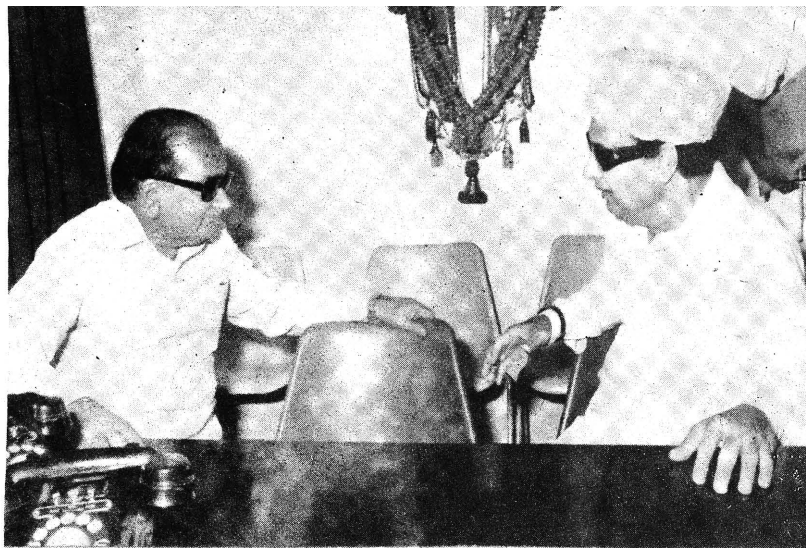
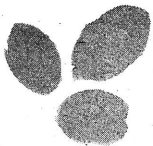
During the last sixty-six years, the University of Madras has the parental privilege of sponsoring the Mysore (1916), Osmania (1918), Andhra (1926), Annamalai (1929), Kerala (1937), Sri Venkateswara (1954), Madurai-Kamaraj University (1966), Tamil Nadu Agricultural University (1971), and in very recent times, Anna University (1978), Tamil University (1981), Bharathidasan University (1982) and Bharathiyar University (1982), and has in due measure fostered the growth and development of these daughter Universities.

The culmination of a century of meritorious academic progress is but the commencement of another century, to be marked

by even greater effort and to be crowned by even nobler achievement. Nothing succeeds like success.

While safeguarding the continuity of its rich tradition nurtured by its eminent sons and daughters, the University has also been highly sensitive to the currents of modern thought and has tried out experiments in the new sphere of education, *viz.*, Defence Studies, Computer Science and Technology, Space Science, Management Studies, Adult and Continuing Education, Mass Communications, Library Science and several other disciplines in Earth Sciences, Physical Sciences and Humanities.

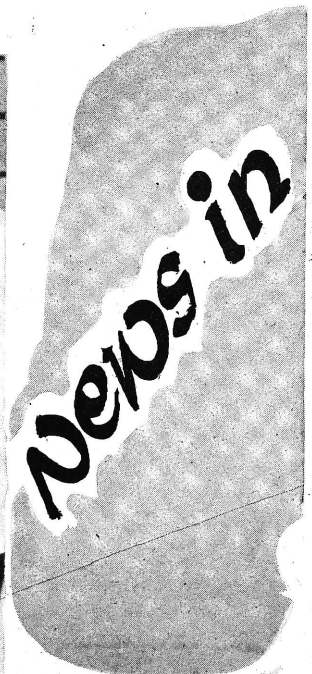




Th Union Minister of State for Information and Broadcasting, Thiru H.K.L. Bhagat called on Thiru M.G.R., Chief Minister of Tamil Nadu at his residence on 1.6.'83.



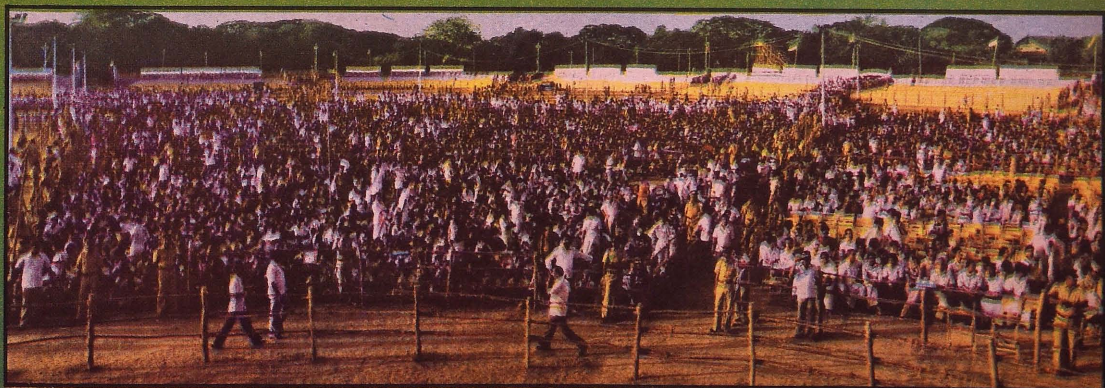
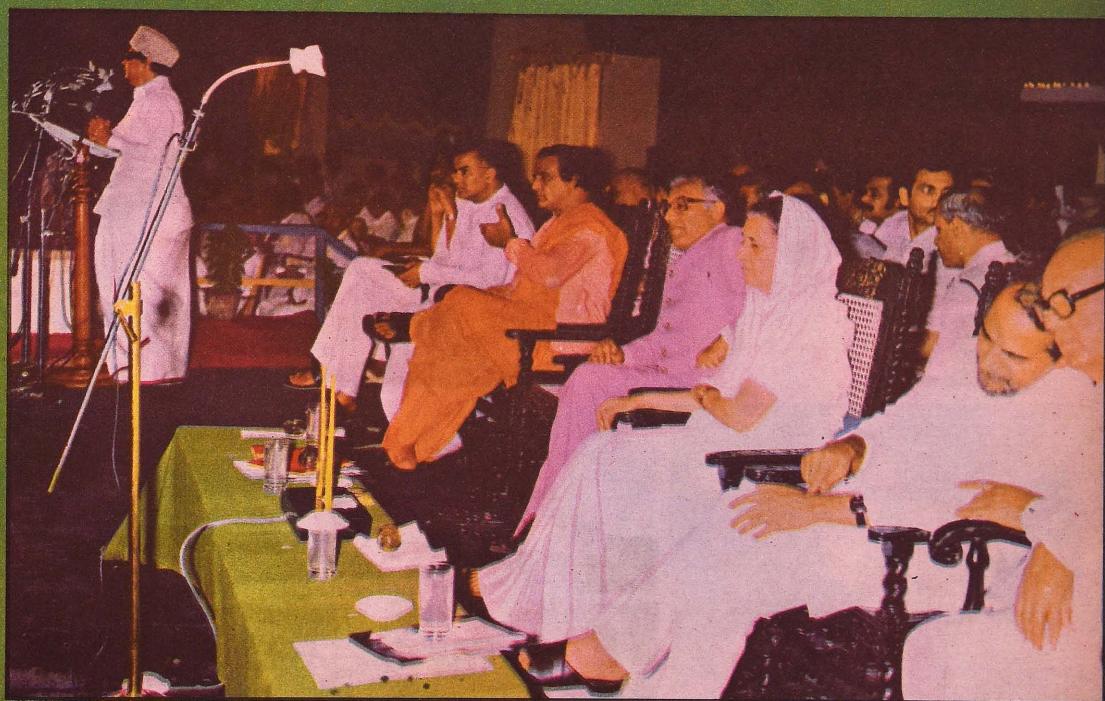
Tamil Nadu Forest Department Staff Co-operative, Thrift and Credit Society was opened by Thiru R.M. Veerappan Minister for Information and Religious Endowments on 13.5.'83.



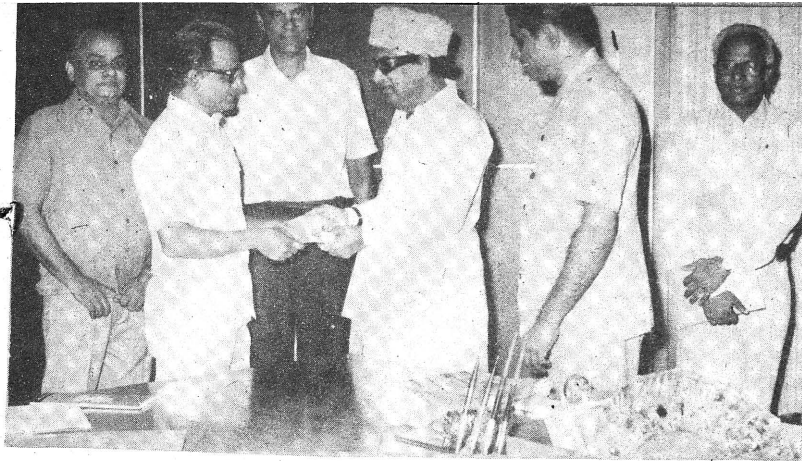
ASSOCIATE EDITORS FOR SPECIAL PHOTOGRAPHY FUNCTION









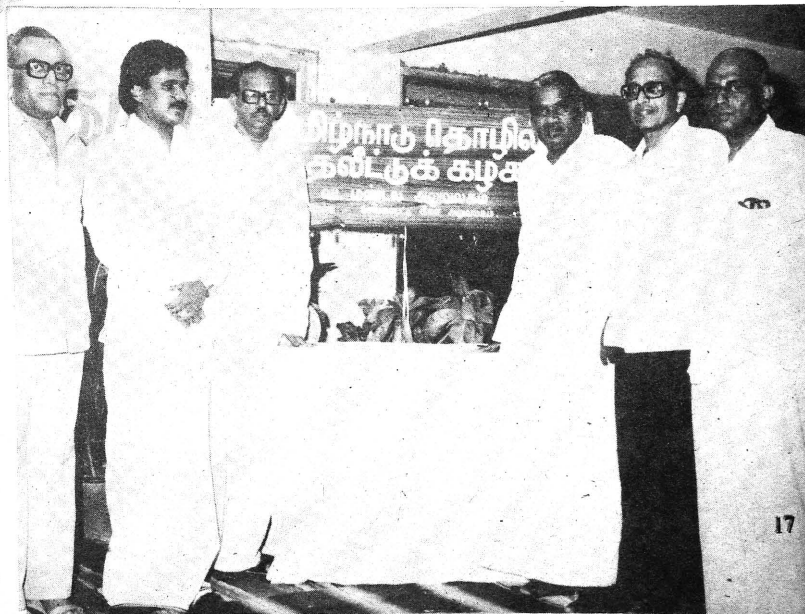


On behalf of the Indian Oxygen Limited a cheque for Rs.2 lakhs was donated to the Chief Minister's Public Relief Fund (Drought). The cheque was handed over to Chief Minister Thiru M.G.Ramachandran, by Thiru K.P.Deb, Director of Indian Oxygen Limited on 31.5.'83 at the Secretariat Madras.



Thiru V.R.Nedunchezian, Minister for Finance declared open the Regional Office for the Northern Region and the Branch office for Madras and Chengalpattu Districts of the Tamil Nadu Industrial Investment Corporation Ltd., on 31.5.'83 at Nandanam, Madras. Thiru K.A.Krishnasamy, Minister for Rural Industries and Thiru S.Thirunavukkarasu, Minister for Industries participated in the function.

**Pictures**



The University seeks to maintain and raise the levels of excellence in teaching and research through phased programmes. The linking of learning and research to the Integrated Rural Development and the National Adult Education Programme priorities in the country, has been given top priority. The research work of some of the Departments has been of a very high order and has been drawing national and international attention. These include the work in Plant Pathology, Polymers, Crystallography, Theoretical Physics, Bio-Chemistry, Basic Medical Sciences, Pure Mathematics, Philosophy, Psychology and Tamil language, to mention a few only. Expanding research guidance facilities for M. Phil. and Ph. D. programmes and institutionalising the research work of the specialists in the Departments in relation to the urgent problems and issues confronting the country and higher education are its notable achievements.

A significant landmark was registered in recent times with the starting of the Institute of Basic Medical Sciences at Taramani which houses the disciplines of Bio-Chemistry, Genetics, Endocrinology, Micro-Biology, Pathology, Pharmacology, and Anatomy. The University proposes to establish a peripheral hospital complex to make this Institute viable.

Another important landmark in recent times is the starting of the Institute of Correspondence Education in several subjects in Humanities like Tamil, English, History, Economics at B.A. and M.A. levels, B.Com. and M.Com. courses, thus opening the door of learning to one and all, who are keen in enriching themselves with higher knowledge.

The call to learning in an ever-changing and growing society, is squarely met by the University which has drawn a perspective plan for a eight-year period, the implementation of which sprawls into three phases with an outlay of an anticipated 25 crores of rupees.

It is a matter accredited that there has been an explosion in the advancement of knowledge in all disciplines — scientific, technological, human and social. The University, keeping in mind the need to disseminate up-to-date knowledge to the

student community, has come forward with plans to establish new departments and strengthen the existing departments. These include:

- (a) Department of Performing Arts with an Auditorium
- (b) Department of Jainism
- (c) Centre for Gandhian Studies and Peace Research
- (d) Department of International Understanding (including International House for accommodating foreign students)
- (e) Centre for Indo-Japanese Studies and Japanese Language and Literature
- (f) Department of General Practice and Family Medicine (with a fully equipped Clinical Laboratory with Modern equipments)

## THE UNIVERSITY IN RETROSPECT

### Landmarks

- 1857 The Universities of Bombay, Calcutta and MADRAS established.
- 1873 The Senate House constructed.
- 1923 By the Madras University Act of 1923, it is constituted a "Teaching and Residential University". Started with the four faculties of Arts, Law, Medicine and Engineering.
- 1936 University Departmental Buildings and the Examination Hall are completed.
- 1944 The Alagappa Chettiar College of Technology established.
- 1957 Centenary Year.
- 1976 Institute of Basic Medical Sciences established.
- 1981 Institute of Correspondence Education started.

# drinking water for madras

**K. Madhava Sarma,  
Commissioner & Secretary  
to Government, Public Works  
Department Tamilnadu**

Madras Metropolitan City is the fourth largest city in India. The city which was formed in 1798 by grouping a number of hamlets near Chennapatna had grown to a Metropolitan city after the independence of India.

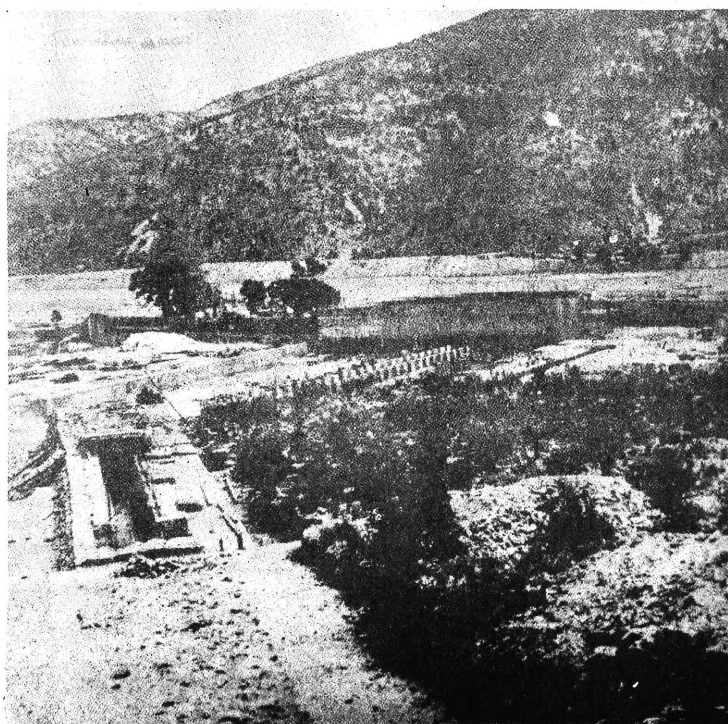
2. The initial scheme for providing drinking water supply designed in 1866 by Mr. Frazer envisaged supply to a population of 4.70 lakhs by construction of an anicut across Kusasthalaiair at Tamarapakkam with the supply channel leading to Cholavaram tank and Redhills. From the Redhills lake, the water was drawn through an open channel to the Kilpauk Water Works for city distribution. The Poondi reservoir constructed in 1944 provided for supply of water to 9.75 lakh citizens. With the raising of the bunds of Cholavaram tank by 4 feet and Redhills lake by 2 feet and the acquisition of the irrigation rights of the ayacutdars under these tanks in the sixties, the availability for use in the city has been increased to 2.5 Thousand Million Cubic feet water (TMC) per annum

(in actuality, 140 million litres per day (mld). The availability from ground water sources around Madras has been surveyed by U.N.D.P. and increasing industrialisation necessitated the exploitation of ground water

potential of 117 mld. The total available sources for city including private sources, is estimated as 299 mld which works out to less than 67 litres per capita per day at the present level of population of 4.1 million. This is much below the required urban standards.

3. The city population which was about 5.40 lakhs in 1901 increased to 41.0 lakhs in 1981 and with the extension of Madras City to an area of 1167 sq. kms, the population of Madras metropolitan area by 2002 A.D is anticipated to be 69.72 lakhs. The per head drinking water supply should be increased atleast to 125 lpcd in the shortest possible time and increased to 145 lpcd by around 2000 AD when total water demands rise to 1294 mld for an anticipated population of 69.72 lakhs against the existing availability of 299 mld, leaving a gap of 995 mld which works out to about 12 tmc water annually.

4. Though the possibilities of inter linking river Krishna and Pennar have been suggested

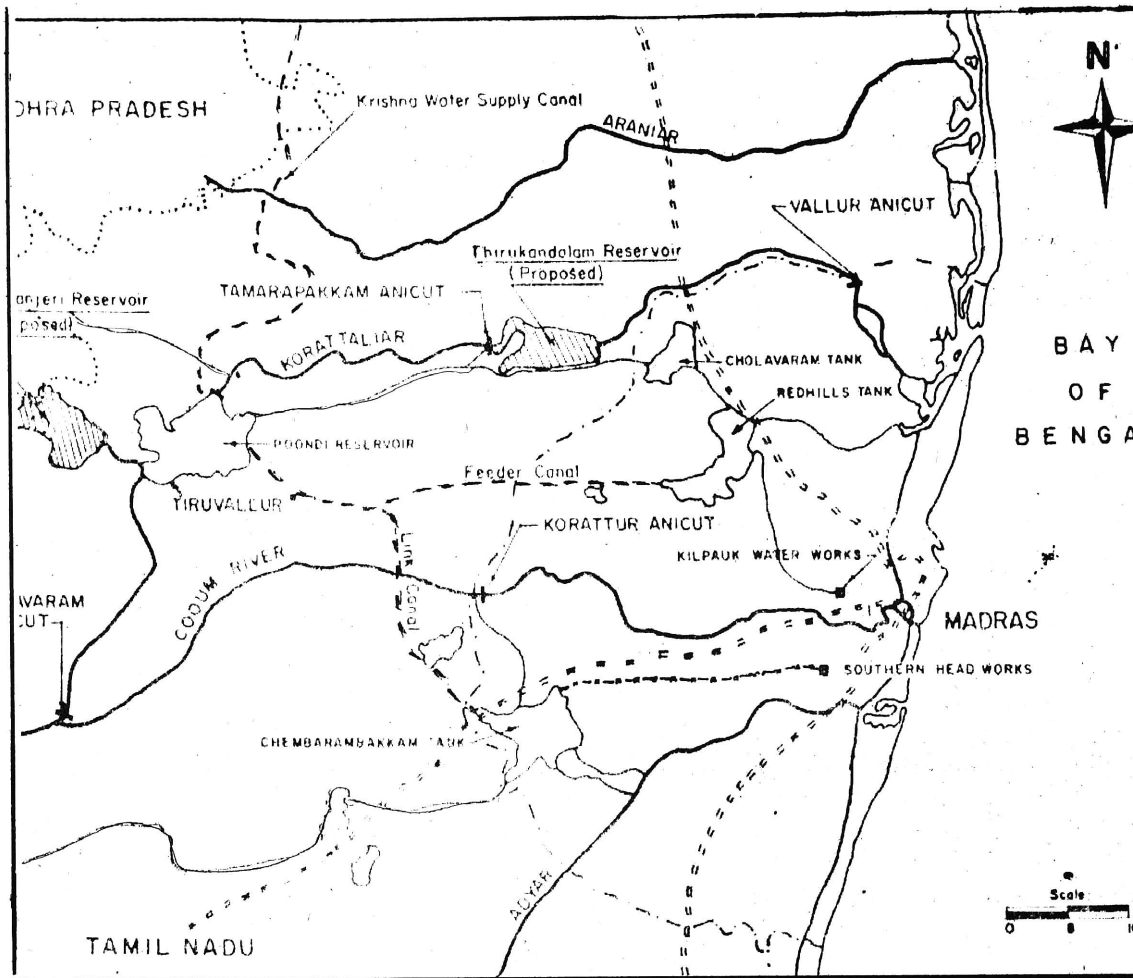


for a century now, several attempts made from time to time to augment the water supply from Krishna did not yield results earlier. A fully investigated Krishna Pennar project was formulated between 1947 to 1951 envisaging irrigation of an extent of 36 lakh acres in the then Composite State of Madras and supply to Madras. The suggestion of the Central Planning Commission to make the Krishna waters available to Madras water supply was not accepted in 1951. The Khosla Committee appointed in 1953 regarding Krishna made a mention about city water supply scheme and Gulhati Commission appointed in 1958 also made a mention about sparing 15 tmc of water for Madras water supply from Nagarjuna Sagar Project. The then Union Minister for Irrigation in a statement in Lok Sabha on 23.3.1963 mentioned that sparing of 15 tmc of waters for Madras water supply scheme could be sympathetically considered by Maharashtra, Karnataka and Andhra Pradesh. Later on when the Krishna Tribunal was formed on 10.4.69, Tamilnadu was not impleaded as a party to the dispute and our attempts at every stage to get Krishna Water Supply project sanctioned did not materialise.

5. The Veeranam Project was started in 1967 to augment the city water supply by 180 mld by pumping water from the Veeranam lake of the Cauvery system. This project came to a standstill in 1975 and was not pursued further for various reasons. At one stage, a gravity canal from Cauvery to supply 15 tmc to Madras was thought of but was not pursued in view of its likely affect on agriculture.

6. It was only on 15.2.1976 when the Prime Minister of India announced, after consultation with Krishna basin States, in Madras that the basin States of Maharashtra, Karnataka and Andhra Pradesh had agreed to spare 5 tmc each from their share of Krishna waters to meet the requirements of Madras city water supply, it was possible to take positive action to come to an inter-State agreement among the States.

7. In pursuance of the announcement, an agreement was signed among the basin States and Tamilnadu on 14.4.76. At the Inter-State Ministerial meeting held on 27.10.77, Tamilnadu was permitted to draw the spared quantity of 15 tmc of Krishna Waters annually from Srisaillam reservoir to Pennar during the period from July to October through an open lined canal. At the subsequent meeting held at Hyderabad on 15.6.78, the Chiefministers of Andhra Pradesh and Tamilnadu finalised the



details for taking up investigation of the project. It was also agreed that a Liaison Committee consisting of Secretaries and technical officials of both the States be formed to monitor the progress of investigation of the scheme. The Government of Andhra Pradesh commenced the investigation in July 1978. The Liaison Committee monitored the progress of investigation. The project report was sent by the Government of Andhra Pradesh in September 1982. Even while the negotiations were in progress the Liaison Committee met frequently and drew up alternatives on various issues to be considered by the Chiefministers of both the States. The Chiefministers Messrs M.G. Ramachandran and N.T. Rama Rao met at Hyderabad on 18.4.83 accompanied by Messrs S. Ramachandran, Minister for Electricity and S. Raghavanandam, Minister for Labour and Water Supply of Tamilnadu and N. Bhaskara Rao, Finance Minister and N. Srinivasulu Reddy, Minister for Works, Andhra Pradesh. They discussed the matter with large-heartedness determined to solve the problem. It is a tribute to their perspective and concern for public welfare that a historic agreement, benefitting both the States and setting an example to the rest of the country, was arrived at during the course of the day and signed on 18.4.83.

The salient features of the agreement are as follows:-

- (1) The water supply to Madras will be through a lined canal through which Krishna and Pennar waters will flow to benefit irrigation in Andhra Pradesh and to deliver drinking water to Madras.
- (2) Andhra Pradesh will execute works relating to the Madras water supply scheme within their limits. The cost of each of the components of work will be shared by both States in proportion to the utilisation of water by States. The cost of maintenance will also be apportioned in the same proportion.
- (3) The Government of Andhra Pradesh have agreed to supply at Tamilnadu border the specified quantum of water over a period of 8 months (except November, December, May and June) every year in accordance with the schedule of supplies specified by the Government of Tamilnadu.
- (4) The quantum of water to be supplied

will be 15 tmc per annum inclusive of transmission losses. The Government of Andhra Pradesh have also agreed to restrict the transmission losses to 3 tmc per year. If the transmission losses are more than 3 tmc, the cost of remedial measures to reduce the transmission losses will be shared by the Governments of Andhra Pradesh and Tamilnadu as per the guidelines already formulated.

- (5) The Liaison Committee consisting of officials of both the States will monitor the implementation and operation of the scheme.
- (6) The Government of Tamilnadu will not use the water obtained from this scheme for any purpose other than drinking water supply to Madras city.
- (7) Both the States consider that, it is

possible to complete this scheme within a period of 3 to 6 years.

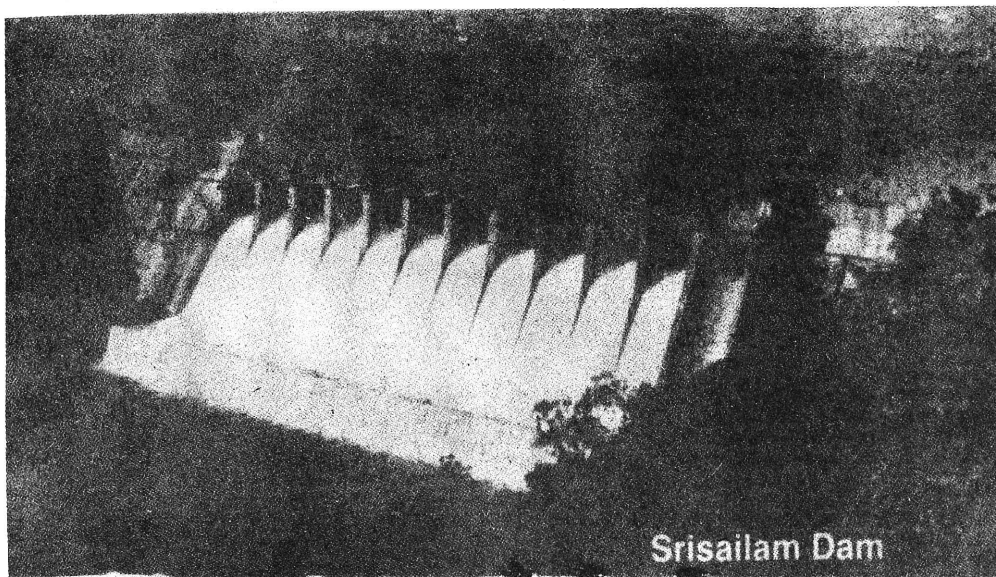
- (8) The Government of Tamilnadu have agreed to place funds at the disposal of the Government of Andhra Pradesh to an extent of Rs. 60 crores per year during the first three years depending on the progress of works in order to expedite the implementation of schemes.
- (9) This agreement will be permanent one without any time limit.

Within Tamilnadu limits, the works needed to be done are estimated to cost Rs. 30 crores. The estimated cost of the works in Andhra Pradesh is Rs. 760 crores of which about Rs. 200-crores will be on account of Tamilnadu according to the cost sharing principles agreed to and the present ideas about the

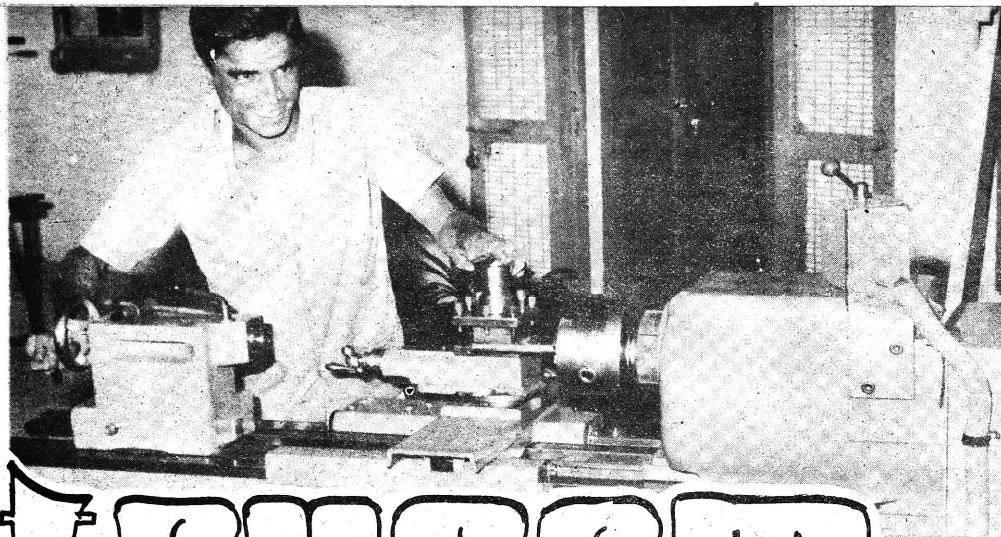
quantum of water to be drawn by Andhra Pradesh. The actual cost of Tamilnadu will be accurately determined only after the completion of the project.

The existing distribution system in Madras needs to be greatly strengthened to distribute waters to be received. Apart from strengthening the water distribution system, the resulting sewage needs to be collected, pumped and treated. This is proposed to be done by stages. The first stage is expected to cost about Rs. 206 crores.

The scheme is thus expected to cost Rs. 436 crores. This scheme after completion will meet the long term requirements of Madras adequately. The Government of Tamilnadu and the people of Madras express their gratitude to the Government and the people of Andhra Pradesh for making this shining example of inter-State co-operation possible.



Srisailem Dam



# TRYSEM

*Holds the key*

'TRYSEM' is the abbreviation for Training of Rural Youth for Self employment. It is a training

programme to equip the rural youths of both sexes to seek self-employment and to enable them to supple-

Thiru H.B.N. SHETTY, I.A.S.

*Commissioner and Secretary to Govt.,  
Rural Development and Local  
Administration Department*



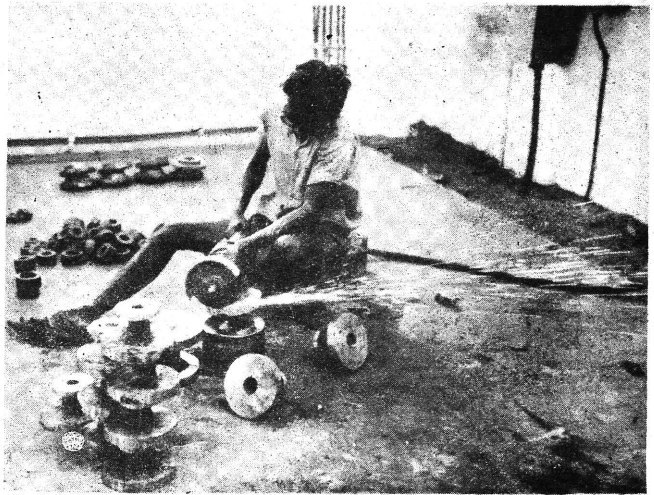
ment the income of the family. After completion of the training, the trainees get appropriate support from the Government and the banks for setting up their own enterprises. TRYSEM was started as a national scheme in August 1979 and in October, 1980 it was merged with the Integrated Rural Development Programme (IRDP).

IRDP is the name of the overall programme of integrated rural development with its emphasis on the reduction of rural poverty. It has several components aimed at agricultural and allied fields, industries, business and services sector, rural youth etc.

Such of those youths whose age is between 18 and 35 years and who basically stay in the rural areas are alone eligible to derive benefit from this Scheme. They should necessarily fall in the category of small and marginal farmers, agricultural labourers, rural artisans and other poor households. The per capita income of these families should not exceed Rs. 62 per month. Members



of the scheduled castes and tribes and women are given priority in the selection of candidates. The main aim of these restrictions are to enable the rural youth in the weaker section of the community to acquire training and to eke out a decent livelihood on their own. There is no need to pack up the personal effects to go and to stay for a long period in the centres to receive the training. It is imparted at the work spot or at the business premises of the trainer. The training is pre-dominantly practical and learning the trade by "doing"—rather than by studying in theory—is sole aim. No formal syllabus is made out and there is no examination to get through. The trainees at the end of the course should be able to take up the craft, trade or skill independently once the training is completed.



Trainees should ofcourse possess requisite aptitude. No minimum educational qualification is insisted upon.

Apart from traditional trades like blacksmithy, masonry, carpentry etc. the newly emerging trades like installation, repair and maintenance of domestic electric fittings, pumpsets, tractors, jeeps, agricultural implements etc. have also been included in the training chart. There are wide opportunities in small scale industries as well. Cottage industries like soap making, articles

# OBITUARY



Thiru K. Diraviyam, Chief Secretary to the Government of Tamil Nadu passed away on 13-6-83. He will be remembered for his contribution to the success of world Tamil Conference and the Nutritious Meal Scheme for children. He worked with indefatigable vigour for both these schemes. His last outstanding work was in finalising the modalities of the scheme to bring Krishna River Waters to augment Madras City Water Supply. He was due to retire next month. In his student days he had taken part in the country's struggle for independence.

made of wood, steel and clay, toy making, sewing, knitting, embroidery carpet weaving, fruit and food preservation, cottage matches and agarbathi, oil ghanis, leather products etc. are also included as trades.

Training is imparted in any suitable institution run by the Central or State Governments or by a voluntary agency—for example, Industrial Training Institutes, Farmers Training Centres, Gram Sevak Training Centres, Agricultural Universities, Khadi & Village Industries Commission and Khadi and Village Industries Board Training Centres are some of the institutions selected to impart training under the TRYSEM.

The training is not without any financial incentive. During the training period a stipend of Rs. 125/- per month is paid to the trainees if accommodation is not provided free of cost. If free accommodation is provided the stipend is reduced to Rs. 100/- per month. However, if a trainee undergoes training in his own village, the stipend is limited to Rs. 50/- per month. A tool kit costing not more than Rs. 250/- is given in kind during the course of training itself.

Likewise the trainer or the institution gets upto Rs. 50/- per trainee per month towards training expenses. They will get upto Rs. 25/- per trainee per month for raw materials subject to a maximum of Rs. 200/- per course. In the case of a "master craftsmen and trainers" an additional amount of Rs. 50/- per trainee per course can be provided as a reward in case of successful completion of training.

Selection of training is done by a committee at the block level where banks are associated. When the trainee undergoes the required period of training, a bankable, viable, project report is prepared for him with the assistance of his trainer, Block Development Officer and the bank's manager.

And what about the subsidy part of it? It mainly depends on what category of rural poor he is. Small farmers are eligible to 25% subsidy while others get 33%. The ceiling of subsidy for one family is Rs. 3,000/-. However, in the case of beneficiaries who are tribals, the percentage is 50 and the limit is Rs. 5,000/-.

Our figures will tell about the break through made under TRYSEM.

During 1980-81, a sum of Rs. 197.25 lakhs has been spent giving training to 29,488 youths out of which women beneficiaries were 12,325.

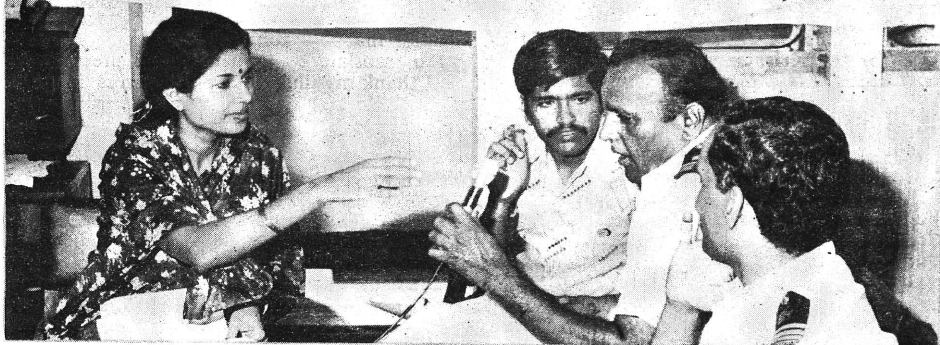
In 1981-82, this tempo was stepped up to Rs. 520 lakhs involving total beneficiaries of 59,802. Out of this, 28,493 women were benefited. During the current year more than 50,000 youths are being trained.

This is a mechanism for follow-up. Each beneficiary is provided with an "Identity-cum-monitoring Card". It contains all the details and the progress of the beneficiary is monitored for two years by which time he is expected to cross the poverty line.

If you are a rural youth, without any gainful employment you are welcome to meet the local Rural Welfare Officer, or the Block Development Officer or the Project Officer, District Rural Development Agency. They will render you all assistance to train you in any trade you like. In fact the whole scheme has been evolved with you in mind! Rush and take advantage of the same.

# ALL INDIA RADIO, MADRAS, TELE-CONFERENCE LIVE BROADCAST

*Kindly Do Not Disturb*



**Alladi Ramakrishnan,**  
Director, Matscience.

## Introduction:

Heartiest greetings to all of you on the World Telecommunication day of 1983, declared as the World Telecommunication year. It is appropriate that the All India Radio, with other departments of the Governments of India and Madras, should observe it by a novel method of conducting a live Telecommunication conference with participants 'at different point in space moving with uniform velocity with respect to one another', the airplane, the train, the bus and the studio.

The past four hundred years have transformed life on earth to a greater degree than the two thousand years earlier of human civilisation. The past forty years, under the stimulus and pressure of a world war have seen an explosive growth of Telecommunication and during the last decade after space exploration and satellite communication, a new era has begun in the history of man, as one part of the world is brought in instantaneous or more precisely, lightning contact with every other.

To symbolise this fantastic development we now hold a free and impromptu conversation with one another from moving objects to demonstrate how an intimate conference can be held among persons far apart.

All India Radio, Madras broke new grounds when it broadcast 'LIVE' a teleconference programme with people travelling in an Aeroplane, a ship, train and a bus on 17-5-83. The programme was organised on The World Telecom-

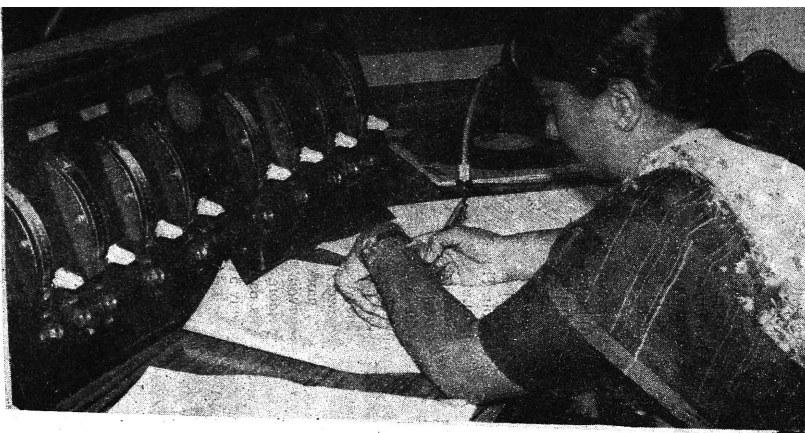
munication Day to highlight the telecommunication revolution in the country and is an attempt to take Science and Technology to the benefit of the common man as desired by our respected Prime Minister. The programme was in collaboration with the Tamilnadu Police Radio Office, Madras Telephones, Indian Airlines, Overseas Communication service, Madras Port Trust, Southern Railway and the Pallavan Transport Corporation.

Wireless sets were installed in the ship, train and bus with the cooperation of Tamilnadu Police Radio Office. The communications system of the Indian Airlines was used between Aircraft and airport and cable pairs of the Madras Telephones were used between Overseas communication service and AIR, and Airport and All India Radio.

A coordinator sitting at the AIR studio cued the comperes travelling by different modes of transport.

The audience were in Dredger Coleroon moving towards the mid sea, Quilon Express moving towards Chingleput, Flight No.502 somewhere in the Madurai - Bangalore sector and a Pallavan Transport Bus carrying the journalists moving in various parts of the city.

The comperes posed questions to officials of the police, Southern Railway, Madras Telephones, Overseas Communication Service, Pallavan Transport Corporation, Madras Port Trust, AIR, and Doordarshan. The officials concerned read out the replies that had been prepared in advance.



A quiz programme was also Conducted by the moderator, Dr.Alladi Ramakrishnan, Director of MATSCIENCE, MADRAS.

### TRAIN

1 *Question:* I have always been intrigued by illusions about the relative motion of moving objects. For example an insect flying inside a train moves with the train but if outside it is left behind, Why?

**ANSWER** The insect flies with respect to the air. The air inside the train moves with it while the air outside is stationary. This is the same principle governing the speed of an aircraft which moves faster with tail wind and slower against headwind.

### BUS

2 *Questions:* Looking at the distant moon from a bus we find it moves with the bus. Why?

**ANSWER** If a line is drawn from the moon to the bus, in view of the large distance the line doesnot change in angle with respect to the bus. So we have the illusion that the moon moves with the bus.

### SHIP

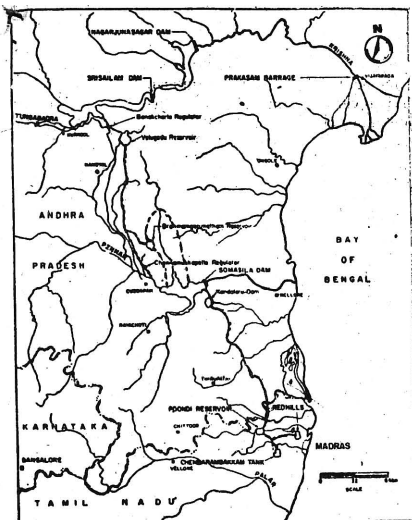
3 *Question:* Taking the curvature the earth into account how high should a pole be if it is to be visible 100 miles away?

**ANSWER** The earth's diameter is approximately 8000 miles and so there is dip of more than a mile if we travel 100 miles. So the pole should be about a mile and quarter high.



It has been an exciting conference and I assume that, like me, our listeners shared the excitement with our participants. We are living in a period when miracles and marvels of science are occurring in such rapid succession that we do not realise adequately their origins and their impact. For example, Satellite communications first took shape in the imagination of man. Arthur Clarke in 1945 described it as an event in science fiction. It is now commonplace reality after going through successive trials and triumphs - the Sputnik, Atlas, Score, Echo, Telstar, Intelsat and Insat, the Spacelabs and Space Shuttles. It is the product of imagination and engineering and we have now a race of 'Imagineers'. The space age which started with Kennedy's announcement in 1961 has opened the vertical frontier and there is now congestion in the synchronous orbit twenty thousand miles away.

The AIR has 'imagined' today's programme with the cooperation of the different departments of government and we hope the tempo and temper will be continued in further programmes. On this day we express mankind's hope that the benefits of science should be shared by all in a 'happy warless world robed in universal harvest pole to pole.



KRISHNA WATER SUPPLY PROJECT FOR MADRAS - INDEX MAP

# KRISHNA COMES TO MADRAS

**A. MOHANAKRISHNAN**  
CHIEF ENGINEER, IRRIGATION,  
TAMILNADU

River Krishna is the second largest river of Peninsular India. Rising in Mahadev ranges of the western ghats near Mahabaleshwar in Maharashtra it runs for nearly 1400 km length draining the three States of Maharashtra, Karnataka and Andhra

Pradesh and infalls into the Bay of Bengal near Machilipatnam. Some of its large tributaries are Ghataprabha, Malaprabha, Bhima, Tungabhadra and Musi.

River Krishna gets the benefit of the South West Monsoon. The high rainfall zone along the western ghats forms the western boundary of the Krishna basin and the annual rainfall in this zone varies from 3048 mm to 1016 mm. The rainfall sharply

decreases to less than 600 mm to the east of the western ghats and picks up again to about 940 mm near the coastal area.

The total catchment of the Krishna basin is 258948 sq.km of which 76252 sq.km lie in Andhra Pradesh, 113271 sq.km in Karnataka and 69425 sq.km in Maharashtra. The water potential of the Krishna river system has been assessed at different times by different authorities. The tribunal appointed by the Government of India in 1969 for adjudication of the water dispute among the basin States has assessed the yield of the river as 2060 TMC (Thousand million cubic feet), about 3 times that of River Cauvery, on a 75% dependability basis. The tribunal in their award have allocated 800 TMC for Andhra Pradesh, 700 TMC for Karnataka and 560 TMC for Maharashtra.

They have noted that the existing use of the yield at that time amounted to 1693 tmc. All the three States have now embarked upon planning and execution of projects for full utilisation of the waters allocated to them.

Irrigation has been practised in the Krishna basin over a long time. The most important work in the basis is the Krishna Delta Canal system at the mouth of the river. The Vijayawada anicut constructed in the year 1855 with a net work of canals and distributaries on either side of the river provides irrigation for 556,440

hectares besides affording navigation facilities. This anicut was replaced by the Prakasam barrage in 1957.

The next important work in the Krishna Basin is the Kurnool-Cuddapah Canal completed in 1866. This is a diversion work on Tungabhadra with a Canal taking off on the right and irrigating 39,510 hectares in Kurnool and Cuddappah districts.

After Independence a few gigantic storage schemes were constructed on this river. The Tungabhadra Project is a scheme jointly completed by erstwhile Hyderabad and Madras States in 1956. The reservoir formed has a gross storage of 133 tmc. It irrigates an area of 97,620 ha. (hectares)

The mighty masonry dam of Nagarjunasagar 125 m (409 ft) high was constructed on Krishna in Nalgonda district about 80 km upstream of Prakasam Barrage and completed in 1969. The reservoir created has a gross storage of 11558 M.cum (408 tmc) about 4-1/2 times that of Mettur Reservoir. This is the largest man-made lake in the country and third largest in the world. The canals on both the sides will ultimately irrigate about 1.21 million hectares.

Almost at the farther end of the Nagarjunasagar waterspread, about 100 km upstream of Nagarjunasagar dam the Srisailem dam has been built. This was originally conceived mainly for hydro power for 4 units of 110 mw in the 1st stage and 3 more units of 110 mw in the II stage. The reservoir has a gross capacity of 308 tmc a little more than three times Mettur Reservoir. This dam has been built in a deep gorge and is only 512 m (1680 ft) long on top. Since the river Krishna runs through narrow deep gorge in these areas the waterspread which is about 616 sq.km (238 sq.miles) is long and narrow. This dam is 143 m (470 ft) high above the deepest foundation and has twelve vents of spillway 18.3 m (60 ft) span fixed with radial gates 16.76 m (55 ft) high to discharge the maximum flood discharge of 37,400 cumecs (13,20,000 cusecs). It is from this reservoir the Krishna waters will be flowing down south to reach Madras, when the "Krishna water supply project for Madras" comes to fruition.

River Pennar like its counterpart, the South Pennar in Tamilnadu, is mainly served by the Nor East Monsoon. It has its source in the Chakrasava Hills northwest of Nandidurg in Karnataka whereas the South Pennar starts from the same hill ranges but from the southern

slop. Jayamangali, Kunderu, Sagileru, Papagani and Cheyuru are some of its tributaries. With a catchment of 55,213 sq.km its water resources is estimated only as above 250 tmc. This is because the entire basin lies largely in a semi arid region, with low rainfall. The normal annual rainfall decreases from 988 mm at Nellore in the eastern end of the basin to about 508 mm at the western end.

The Nellore and Sangam anicuts with their canals and tanks form the oldest irrigation systems in the basin. They irrigate about one lakh hectares of land in the delta.

A masonry cum earth dam is under construction across Pennar about 100 km west of Nellore at Somasila. First stage of this project is planned to be completed by 1984. Essentially an irrigation project, this reservoir will give the benefit of irrigation to about 32,700 ha (80,800 acres) in Atmakur, Rappur, Kavali and Nellore taluks in the first stage of development.

The feasibility of interlinking the river Krishna with Pennar and carrying the waters down south by gravity has been known for over a century. Sir Arther Cotton who was the pioneer Architect of irrigation and navigation works of South India and Col. Ely who came after him had studied these possibilities.

The adjacent basins of Krishna and Pennar have the dividing ridge narrowing down near Mittakandla and it is this fact that has been inviting the attention of several of the Engineers, almost enticing them to cut this ridge across so that the link is established and the waters of Krishna flow into Pennar. The Krishna Pennar Project investigated and planned in 1951 in the erstwhile Madras State proposed this ridge cutting and linking and creation of a large storage reservoir across Pennar, from where canals would run right upto the South Arcot District. This project which was to have brought irrigation to 14.57 lakh hectares (36 lakhs acres) and 250 mw of power was not taken up after the States' Reorganisation.

The historic announcement of the Prime Minister on the sands of Marina on the 15th February 1976, that the three basin States of Andhra Pradesh, Maharashtra and Karnataka have agreed to spare 5 tmc from their respective shares of Krishna waters to meet the requirements of Madras water supply and the momentous accord signed by the Chiefministers of Andhra Pradesh and Tamilnadu on the 18th of April 1983 at Hyderabad for executing the

water supply project have now really paved the way for Krishna waters to flow to Madras.

The components of the project works lying in the Andhra Pradesh limits which would form part of the Krishna water supply for Madras city may be described as below:

- (1) A Head Regulator has been built on the foreshore of Srisailem Reservoir at

Pothireddipadu. This has four vents of 10 m x 8.57 m capable of discharging 315.73 cumecs (11,150 cusecs). An approach channel 3.40 km in length and of capacity of 315.73 cumecs (11,150 c/s) has been excavated connecting the reservoir to the Head Regulator. The main canal to be excavated across the Mittakondala ridge will be 16,338 km in length and will also be of the same capacity viz. 315.73 cumecs (11,150 cusecs). The maximum depth of cutting is about 30 metres. At the southern end of this canal a cross regulator called Banakcherla cross regulator will be built. Banakcherla Cross regulator will have 3 sets of openings controlled by gates, one to feed the Srisailem Right Branch Canal, another to feed Srisailem Left Branch Canal with the central opening meant to pass down the surplus floods when it becomes necessary, which will directly flow to Kunderu river, a tributary of Pennar. The FRL (Full Reservoir Level) of Srisailem Reservoir is +885.00 ft and the MDL +854.00 ft. The sill level of the head regulator at Pothireddipadu is at +840.00 ft. and the sill level of the Left Branch Canal in the Banakcherla Cross Regulator is +833.00 ft.

- (2) From Banakcherla Cross Regulator the left branch Canal will be excavated for about 140 km length. In the course of the Canal a balancing reservoir called Velugodu reservoir is planned. This canal at about 115th km of its length will shoot out a branch to its left, which will irrigate Sagileru valley in which another balancing reservoir is planned at Brahmangari Matham. The area proposed for irrigation in the Pennar basin between Srisailem and Somasila with Krishna waters is about 1.11 lakh ha. (2.75 lakh acres) in Kurnool and

Cuddappah Districts and the water utilisation in this reach is 29 tmc. This canal would also convey the 15 tmc of waters intended for Madras City.

- (3) The offtake for Madras water supply will be located at Chennakukkappalli on this Srisailem Left Branch Canal at its 140th km. This regulator will have a capacity to draw a discharge of 1500 c/s. From this regulator a separate canal for Madras water supply will be excavated upto the river Pennar and will carry the flows between the months of July to October.
- (4) The FRL of Somasila Reservoir across Pennar as completed in the first stage is +285.00 ft. This is proposed to be raised to +330.00 ft. in the second stage by installing 45 ft. shutters on the spillway crest. The gross capacity of the reservoir will increase from 16.40 tmc to 74 tmc in the second stage. The additional extent of irrigation proposed in the second stage would be 0.47 lakh ha. (1.15 lakh acres) irrigated dry. The rise in the FRL is necessary to facilitate diversion of Krishna waters south of Pennar.
- (5) From Somasila Reservoir a canal of capacity 283 cumecs (10000 cusecs) will be excavated for a length of 38 km to Kandaleru valley. This is meant for diverting the surplus floods of Pennar to Kandaleru and also to carry Krishna waters for Madras City. The bed level of the Canal taking off from Somasila Reservoir will be +79.25 m (260.00 ft).
- (6) Across Kandaleru valley a reservoir of 54 tmc capacity will be built which is meant to store the surplus floods of Pennar. It is from this storage that irrigation for another 1.21 lakh ha. (3 lakhs acres) utilising the Pennar flows is planned in the districts of Nellore and Chittoor in Andhra Pradesh. A storage space of 5 tmc will be reserved for Tamil Nadu in this reservoir for storing waters for Madras water supply since the Krishna waters brought in the four months of July to October are to be drawn over a period of 8 months at the rate of 1000 cusecs for the city water supply. The FRL of Kandaleru will be +269.00 ft. and the MDL +201.00 ft.

- (7) A canal will be excavated from Kandaleru to Poondi Reservoir. The length of the canal upto Tamilnadu border is 152 km. This canal will have a capacity of about 4000 cusecs at the head gradually reducing to 1000 cusecs at the Tamilnadu Border. The FSL of the canal at Kandaleru is at +199.00 ft. and at the Tamil Nadu Border is at +149.11 ft.

The works to be done in the Tamilnadu area in continuation are as described below:

- 1) Kandaleru Poondi canal will be continued from Tamilnadu Border with a capacity of 1000 c/s throughout, upto its infall into Poondi Reservoir. The length of this part of the canal will be 25 km.
- 2) The full Reservoir levels of Poondi Reservoir, Red Hills lake and Chembarambakkam tank will be raised by 2 ft. which will give an additional storage space of 1.68 tmc.
- 3) A link canal will be excavated between Poondi reservoir and the Chembarambakkam tank with a branch connecting the Red Hills lake, so that the flow of Krishna waters for the Madras water supply may be conveniently handled through the two terminal reservoirs viz. Red Hills and the Chembarambakkam, one from the north and the other from the South.
- 4) Two more new reservoirs, one at Ramanjeri, upstream of Poondi Reservoir and another at Tirukkandam, downstream of Poondi will be formed on the Korttalayar river at a later stage, which will give an additional storage capacity of 2.18 tmc within the Tamilnadu limits.
- 5) Improvements and extension to the treatment, transmission and distribution systems within the city area and also in the greater Madras area with adequate provisions for expansion in the sewerage system will also form part of this project.

As Krishna comes to Madras through the way detailed above, there are bright prospects that the water supply within the greater Madras improves substantially. Our per capita consumption for the population projected to 2002 AD would have gone up to 145 lpcd against the present meagre supply of 67 lpcd. A reliable adequate flow into our reservoirs, hopefully, will make our present experience of drought a thing of the past.

# Coins of Tamil Nadu

**Nadana Kasinathan**

Deputy Director,

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## Punch marked coins

The barter system of the pre-historic period in Tamilnadu gave way to the currency system in historical times. The earliest available coins in Tamilnadu are the punch marked ones. They are in silver and bear punched marks of the sun, the crescent, the mountain, the tree and of some geometric designs. There are a few coins of this type bearing the figure of a peacock on a mountain. Punch marked coins were found in different parts of Tamilnadu, some in association with Roman coins, indicating the existence of these circulation even in the first and second centuries A.D.

## Coins from Literature

Sangam classical works refer to Pon, Kanam and Kappon as coins. Narmudceral, the illustrious chera king, is said to have gifted 40 lakhs gold coins (Pon) to the poet Kappiyanar. Selvakkaduvigovallatan, another celebrated Chera, is said to have

donated 100,000 Kanam to Pappilar, Aduktoppattucceraladan, another Chera, is praised for having given nine kappon (probably one-fourth of a pon) for making an ornament and 100,000 kanam to a poetess, Kakkapadiniyar Naccellaiyar. Perunceral who conquered Tagadur, the capital of the Atiyaman, is said to have presented 900,000 Kanam with a couchant seat to Aricil Kilar, the poet who eulogized him. Incidentally, the shape of the coin, literature says was the seed of the margosa fruit. But it is not known which coin, Pon or Kanam, was in this shape.

## Andipatti Hoard

An interesting hoard of coins, assignable to the second century A.D. was found at Andipatti (North Arcot district). These coins are made of potin lead are round in shape and bear a Tamil legend on the obverse and some designs on the reverse. The legend is written in Damili (Brahmi) characters and has been deciphered as "Centan, cetiran

Tinnama". The probable meaning of the legend is that 'Centan's opponent was Tinnag' suggesting Tinnan, the ruler of that region opposed Centan, while Centang, waged war against him. This Centan may have been a Pandya king since there were some Pandya kings of the same name in the later period.

## Sangam coins:

Some copper square coins have been discovered in Tamilnadu bearing the elephant, or fish or tiger symbol with some auspicious marks like the kumbha, vastika, Srivatsam etc. on the obverse and some geometric design on the reverse. The elephant coin is identified as the issue of the Cheras, the fish one of the Pandyas and the tiger one of the Cholas, of the Sangam age. Unfortunately, no legend or figure of the king is found on these coins. It is also not possible to say whether these were the Pon or the Kanam mentioned in Sangam literature.

## Roman coins:

**Pallava Coin bearing figure of Nandi, their emblem, ship showing their victory over far east countries.**



## Copper coin of Virapandya.

A considerable number of Roman coins have been found in Tamilnadu, especially in the Kongu region, around Karur. On the basis of these finds some scholars think that Karur was the ancient capital of the Cheras. Coins issued by Augustus, were discovered in association with punch marked coins at Pennar (Coimbatore District). Coins of Augustus and Darius totalling about 500 were found at Karur. Recently the Tamilnadu State Department of Archaeology collected a silver Roman coin during excavations at Karur. These find attest the theory that there were flourishing trade contact between Tamilnadu and Rome. But it is not certain that the Roman coins were used as currency in Tamilnadu. This is because on almost all these coins there are deliberate cut on the head of the King's figure. Scholars have suggested that the cut might have been made to prevent the coins from being used as currency, but only as metal for making ornaments.

### Coins of Pallava period:

The Pallavas seem to have issued their own coins having the bull symbol, their lanchana, on the obverse. Some of these were found in excavations at Kanchipuram, a few were collected from Mamallapuram and some other parts of Tamilnadu. The coins found at Kanchipuram bear only the bull motif without any legend. In the excavations conducted by the Madras University a mould with the symbol of a bull was found. It may have been used for minting the coins. These are attributed to the early Pallavas,

Coins found from other parts of Tamilnadu bear either the bull or the fish symbol with a legend, Sribhara or Srinidhi. Sribhara and Srinidhi were the titles of Narasimhavaraman II. A coin bearing the bull motif on the obverse and a ship design on the reverse is identified with the Pallavas. This coin may have been issued to commemorate their south-east contact by sea. Another coin bearing the lion motif on the obverse has also been attributed to the Pallavas. But in recent year scholars are of the opinion that this might have been issued by the Vishnukundins.

Rajadhiraja I who succeeded Rajendra I, spent most of his time in war and it is believed to be responsible for almost all the victories of his father. To him is assignable a old coin with the legend 'Rajadhiraja' and with the usual standing human figure on the obverse. On the reverse the seated human figure is found in front of a seated tiger.

Among a few gold coins found at Kavaliavalli village (Nellore district) one series is said to bear the tiger and the fish on one side and the legend 'Sunga' on the other. Another series carries the legend 'kanchi' in Tamil characters along with figures of tiger and fish on the obverse and the word 'Sunga' on the reverse. The above two types of coins are attributed to Kulothunga I, since he ruled both Chola and Vengi countries and had the titles of Sungam Tavaratta Cholan.

### Pandyan coins:

The Pandyas who were great

patrons of literature and enjoyed the great privilege of having saint Agastya as their preceptor, had their hold in the Southern part of Tamil country from the pre-christian era to the 17th century A.D. They played an important role during the Sangam age in organising a congregation of Tamil poets in order to discuss newly composed Tamil Poems. It is believed that Siva himself participated in that congregation and presented Tamil poems on a subject suggested by Pandya King.

These Pandyas were scound to none in other fields also. They too issued coins, They have already been discussed in the section on the coins of Pandyas of the Sangam age.

So far only a few coins of the early Pandyas who ruled from the sixth century A.D. to the ninth have been noticed. But the epigraphs of the period mention coins such as Dinar, Kanam, Kalanju, Kasu, Palankasu, Sempon, Tulaipon, Krishna Kaca and Nishka.

The coin, recently attributed to Srimara Srivallabha by Dr. R. Nagswamy is of great interest since it belongs to that early Pandyan King. It bears on the obverse two fish and on the reverse the legend 'Sri Avani-pasekhara Kolaka'. The inscription found on the front wall of Sittana-vasal cave mentions Srivallabha, the Pandya king as Avani-pasekhar Srivallabha. So it is believed that Srimara Srivallabha could have issued this coin. From the Palaeographical point of view also the characters of the legend found on the coin could be attributed to

pandya Coin of Sangam age

the ninth Century A.D., the period of Srirmara Srivallabha.

Another coin of the early Pandyas is of Varaguna II (862-880 A.D.) which is in the National Museum, Delhi. It has two fish on one side and the legend 'Sri Varaguna' in Grantha characters on the other. Its identity is till in dispute. The Museum authorities hold that it is of early Pandya. But Dr. Nagaswamy doubts its authenticity.

With regard to the coins of the later Pandyas who ruled from the 13th century to the 15th, one may find much difficulty in identifying them. Most of them bear either their name or one of their titles. The coins bearing legends such as Sundara Pandya, Condu Kondan, Kodandaraman, Kulasekhara, Vira Pandya, Kaccivalangum Periumal Ellantalaiyanan are satisfactoril

Pandya. Coins bearing the name Kodandarama are also believed to have issued by Jatavarman Sundara Pandya since an inscription of his states that he had instituted Kodandaraman Sanadi in a temple under his name.

A considerable number of coins bearing the legend Kulasekhara and Virapandya are found. Since there were more than one Pandya King having these names it becomes impossible to assign these coins to a particular king. However on the basis of palaeography these may be safely attributed to a period between the 12th and 14th centuries.

#### Mavali Bana Coins:

During the declining period of later Pandyas, the Mavali Banas had some decisive control over the region around Madurai. They issued

intense care in renovating numbers of Hindu temples from Godavari to Kanyakumari also issued a number of coins of their own. They bear the figures of Gods and Goddesses reflecting their staunch faith in Hinduism. The Sangama rulers seem to have followed saivism while Tuluva and Aravidu rulers followed Vaishnavism. Almost all the Vijayanagar Kings issued coins and it is fortunate that we have numbers of them. Among them the issues of Krishna Devaraya are worth mentioning. The famous Rama tanga which bears the coronation scene of Sri Rama, the coin that bears the figure of Lord Venkatesa inside a makara torana or prabhavali and the gold coin with an image of Balakrishna seated with butter ball in right hand are very important with reference to religious upsurge during the Krishna Devaraya period.



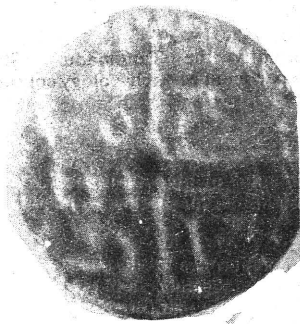
Copper Coin of Chola King Rajaraja I

identified with the rulers who issued these coins. The coin with the legend Sundara Pandya posed a very great problem since there were a number of Pandya rulers who had that name. But on the basis of palaeography it is identified with Sundara Pandya who ruled during the 13th century. On the obverse, his coin bears the standing figure of the king and on the reverse the legend Sundarapandya.

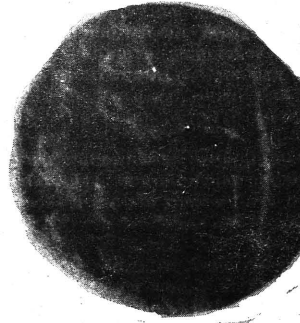
Conadukondan was the title of Maravarman Sundara Pandya. Therefore it has become easier to assign this coin to Maravarman Sundara Pandya. Similarly Kaccivalangum Perumal and Ellantalaiyanan was epithets assumed by Jatavarman Sundara Pandya. These two coins bearing the above legends are taken as the issues of Jatavarman Sundara Pandya who came to the throne after Maravarman Sundara

coins of their own. Two types of their coins have been recently identified by this author. One type bears a seated Garuda on a fish and a conch and discus flanking Garuda on either side on the obverse and the legend, "Samarakolakala" written in three lines in Tamil characters on the reverse. The others bears Garuda, conch and discus with a beautiful umbrella on the obverse while the legend Bhuvane-kavira in Tamil characters is written on the reverse. All the earlier scholars attributed the two types to the Pandyas. But due to the fact that Garuda is shown on the fish surmised that it has a symbolic meaning to indicate that the Banas who had Garuda flag had conquered the Pandyas whose emblem was fish.

The Vijayanagar kings, the sa liours of Hindu Dharma, who took

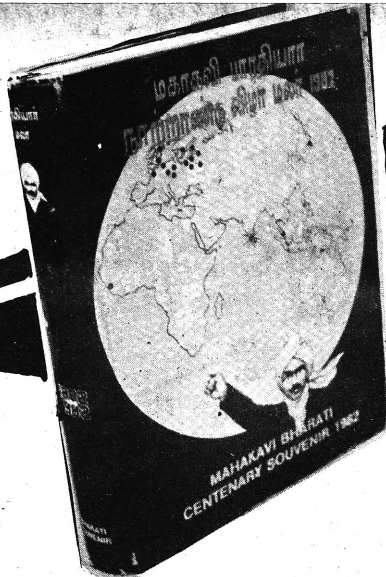


Silver coin of Uttama Chola,



Nayak coins:

Following the rule of the Vijayanagar Rajas Tamilnadu was divided into principalities ruled by Nayaks. The Nayak rulers too issued coins. Most of their coins in copper, bear religious images without any legend, posing problems of identification with great difficulty some of their coins have been identified recently such as the coins of Chokkanatha Nayak, Tirumalai Nayak and Visvanatha Nayak.



## Hold Your Head High

Thiru P. Harikrishnan

I.P.R.O (Retd.)

A sumptuous volume of tributes and homage, criticism and appraisal of Mahakavi Bharati in many languages of the world and all the languages of India - thanks to the off-set process we are able to see these languages in original - has been brought out by the assiduous efforts of the dedicated, academics of Annamalai University to commemorate the Bharati Birth Centenary. This souvenir is claimed to be only a part of the wide spectrum of publication work planned by the Government of Tamil Nadu as part of the Birth Centenary Celebrations of the poet. So this volume merely whets our appetite for the other Bharati publications being processed in the other Universities of Tamil Nadu, on behalf of the Government of Tamil Nadu. The volume under review is not only a mosaic of tributes in many languages it is also a labyrinth of the vision many artists have had of the work of Bharati brought out in their own telling language their art. "வெந்து தணிந்தது காடு" concludes the Poet in one of his poems to describe the omnipotence of fire, and these lines have been tellingly brought out by Chandrasekaran, so much so we don't feel let down by the fact that the essay in appreciation of the Poem "AgniKunju" happens to be in French Sans an English translation (all tributes in foreign languages carry along side an English translation). Art does speak more profoundly than language. Bhaskar brings out Bharati's "Kandan-Valli" romance to depict the power of wind, in his own inimitable way. Interspersed with such arresting illustrations, the volume is both fetching and bewitching.

The meticulous planning is seen in the fact that miniscule art works adorn even the filler space at the end of articles. The reader is left wondering whether the titillating literary masterpieces or the variety of art pieces that will linger longer in his memory.

"How to present him (Bharati) in a page" asks the Homage in French. After going through all the 474 pages of this Volume the avid reader is bound to ask "is this all?" Aptly enough the same French Homage concludes: "He is not meant for being commented upon. His poems are divine remedies, to absorb, then to recite about, the head held high, with one's whole being, as he himself enjoyed to do". So let us hold our heads high that Bharati was of us the Tamils. Pride enough for centuries.

Appropriately enough the volume begins with Bharati Dasan's tribute to the Poet describing him as "a capsule of verbal incense that can perfume a forest" followed by a colour portrait of the poet by that doyen among artists, Ammayappan. The Preface by the Vice-Chancellor tells us that the cover page was designed on the lines suggested by the Hon'ble Information Minister Thiru R.M.Veerappan. It shows Bharati proudly pointing to a map of the Globe and indicating all the 32 countries where Tamil studies are undertaken in line with the Poet's exhortation "Let us strive to make known to all the world, the mellifluous cadences of Tamil".

The messages from dignitaries are not mere trite encomiums and many of them deserve to be read and savoured. Nor are the Homages received from the countries of the world, mere courtesies. Some of them such as the one in Japanese compares Japanese literary traditions with the role played by Bharati and compels attention: "In the long history of Tamil literature he was the first person who recognised the true value in the language of common people and use it in his literary composition. Mainly thanks to his efforts the modern Tamil prose writing was formulated". We have been insured to inane fatuities appearing as homages and messages, but it is quite a surprise to go through the messages in this volume as they happen to be in-depth studies in capsule form. Priced Rs.50/- the volume appears to be heavily subsidised.

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