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# Tamil Arasu

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*Cover Page:*

## MADURAI

Madurai which became a Municipal Corporation by ordinance on 1st May 1971 has had a glorious past and the new status will add lustre to the great City where the Tamil Sangam flourished.

The provisions of the Ordinance making Madurai a Municipal Corporation are based mainly on the Madras City Municipal Corporation Act, 1919. The salient features of the Ordinance are :—

The Ordinance will extend to the City of Madurai which will include the area comprised in the Madurai Municipality and would include any local area which after the commencement of this Ordinance is included in the City.

The term of office of the Councillors will be three years and the term of office of the Mayor and Deputy Mayor will be one year as in Madras City.

The ordinance also provides for transitional arrangements. The Chairman and Vice-chairman of the existing Madurai Municipal Council holding office on 1st May 1971 will continue to hold the office of Mayor and Deputy Mayor of the Corporation respectively, until their present term of office expires. The present councillors of Madurai Municipal Council will continue to hold the Office as members of the Corporation Council upto the date on which their term of office expires.



# THOSE TWENTY DAYS

## 15. RESURGENT WEST GERMANY

On the seventh day of July we took leave of Paris City and Proceeded to Munich, the capital of Bavaria. Bavaria is a constituent State of the Federal Republic of Germany. At the aerodrome, a warm and affectionate welcome was accorded to us by the Bavarian Minister for Agriculture, the City-Father, other officials of the Bavarian Government, Mrs. Bhalla of the Indian Embassy and others.

Munich City was founded by one Henry who has

M. KARUNANIDHI

been described by historians as the equivalent of a lion, in sheer Prowess. The name Munich is said to have originated from a German word signifying an "abode of ascetics." But today Munich is a city to which tourists in search of entertainments flock. Munich is an ultra-modern city, well advanced in industries; and so, one is led to wonder how this place ever came to be referred to as an abode of ascetics! This accident is on a par with naming a plain lady Miss Beauty and calling a dark-complexioned gentleman Mr. White! With a population of 10 lakhs, Munich happens to be

the third largest city of the Federal Republic of Germany.

Thirty miles from this city is the Alps seeking to hide its coy face behind the curtain of clouds! Munich is the meeting point of the North and the South of Europe. As one travels along the banks of the river, there comes into view the grand scenery of crystal-clear streams, groves sporting flowers that drip nectar, tiny little lakes and turbulent waterfalls.

Munich is known for its glass industry and the manufacture of beer. It has also gathered immortal renown to itself through the making of Church-bells. It is the bells shaped in Munich that toll in the majority of churches in the world.

Although Bonn is the German capital, it is the city of Munich that is in the forefront, in regard to the realm of Art, entertainments and educational development.

The Art Galleries, Museums and mansions that suffered demolition as a result of unrelenting bombing during World War II have arisen again with new life and in new forms. Like Japan, the Federal Republic of Germany too sets out in an eloquent manner that man has the tenacity and endurance to stand erect even in the face of trials unleashed on him by the forces of destruction and that man's fertile brain and strong arms have the strength in them to convert afflictions into joys.

The reason for the development of Germany is the tireless industry



of the German people. The German people are examples of Valluvar's statement of fact that wealth seeks out those of unfailling energy.

Although the ruling party in the Bavarian State is of the Rightist wing, Munich city itself being governed by a Progressive Party. The Mayor of the City Corporation Dr. Vogel told us that in spite of the fact that different parties were in power at the State-level and at the level of the City, there was no question whatsoever, of discrimination or administrative hitches. Those who become Mayors are full-time workers drawing good salary. Dr. Vogel had detailed discussions with me about the administration of the Corporation the sources of revenue for the corporation, the subways being planned and about the arrangements underway for the Olympics scheduled to be held in Munich in the year 1972.

Munich is famous for its operas. Artistes are held in high esteem and they are patronised by the people as well as by the Government. We had an opportunity to witness an opera. Those who arrive late at the theatre should not come in while the performance is in progress; they are to enter only during the interval between one scene and another. Such a tradition is there in Germany and the purpose is to prevent hindrances in matter of witnessing the show.

The citizens of Munich have certainly not forgotten the interesting incidents relating to

the ties between the city and Adolf Hitler through the years when from being a mere soldier he rose to be leader of the National Socialist Party and then Fuehrer.

Much in the manner of Napoleon who although born in the island of Corsica and not France managed to become leader of the French people, Adolf Hitler who was born in Austria and did not even have citizenship rights in Germany made himself Dictator of Germany.

Policies were propagated to the effect that the Nordic race of Germany was the most superior race on earth, that it was the sole repository of all noble and great qualities, that it was the only race with real martial prowess and so it was more fitted than any other

race to rule the world. "The First task of National Socialism was to bring all the Germans under the governance of this unique race. An adequate number of countries would have to be sought, for the spread of this pure Nordic race which should take upon itself the responsibilities of leadership to show the way to the civilisation of the world. This was the paramount duty of that race"!

High pressure propaganda was unleashed along these lines and the feeling gained ground that whatever Hitler uttered was Gospel which was not to be disputed.

Hitler thundered that the Jews and people from other European



With Dr. Vogel, Mayor of Munich City.





Children's Play ground in Munich.

countries had come to and settled in Germany, acquired a stranglehold on German economy and thus enslaved the citizens of the soil, depriving them of their livelihood. They who were born to rule were in shackles whereas strangers from somewhere ruled the roost, said Hitler, and so if Germany was to emerge into an Empire in Europe—why in Europe only, in the whole world!—then,

Jewish domination would have to be wiped out. Hitler formed a party of workers, called the National Socialist Party. Later the name of the Party came to be abbreviated as “Nazi”.

Hitler realised the importance of securing the support of the vast majority of people at the lower rungs of the society, and in order to capture political power

he desired to build up a strong military organisation. That his party had only 7 members to start with would not fail to cause surprise to anyone. It was from the notes raised by these 7 persons that the heavy tune of Hitler's Nazism came to resound throughout Germany. While his attempt to capture the Government in 1923 ended in failure, by 1931 his influence and the strength of the party had increased considerably. The membership of the National Socialist Party rose to over 10 lakhs and Hitler's storm-troopers formed a powerful military wing. After the elections of 1933, the German President Paul Von Hindenburg entrusted to Hitler the responsibility of finding out a way for the salvation of Germany.

After the death of Hindenburg in 1933, Hitler became both President and Chancellor. He instituted certain measures for the alleviation of the people's hardships and simultaneously forced-labour camps were inaugurated. Germany started preparing for war in right earnest. Saar joined Germany in 1935. Britain entered into a new Naval Treaty with Germany. Hitler invaded Austria in the year 1938 and annexed that country.

In 1938 Germany turned its desire on Czechoslovakia. Through the Munich Pact, Britain and France yielded to Hitler's demands, which were backed by Italy's Mussolini, for the cession of the Sudetenland to Germany by Czechoslovakia. Germany promptly occupied Sudetenland.

From 29th September 1938 onwards, Germany was the foremost country in Europe whereas Britain and France were reduced to the status of second-rate powers. Adolf Hitler emerged as the nightmare of Europe.

Hitler was of the opinion that Britain's strength could be attenuated only when the domination by whites was put an end to in India and with this end in view he initiated quite a few efforts in regard to Indian affairs welcoming Subash Chandra Bose as a Fuehrer and greeting him as "Your Excellency". Hitler introduced Netaji to pressmen in an impressive manner. Netaji was accorded the honours due to an Envoy from another country.

While I stayed in Munich, the biography of Hitler ran through my memory. Starting his career as an ordinary soldier, Hitler went on to become Dictator of Germany and he was in a position to strike terror in the hearts of all the Big Powers even. But then History has not recorded any instance of injustice and dictatorship remaining entrenched for long. Adolf Hitler was by no means an exception to this!

We left Munich next morning and reached Cologne. Situated on the bank of the Rhine River Cologne had been founded by Agrippina who was the mother of Nero, the tyrant. It is said that in the beginning this city was called "Agrippina's Colony". Transformed later into "Colonia" the name became "Cologne" ultimately. The popular perfume

"Eau de Cologne" was this city's gift to the world. Cologne too was a victim of heavy bombing during World War II. But the marks of destruction have disappeared now and the City is a shining example today in affluence and elegance.

From Cologne we proceeded to Bonn which is 12 miles to the south on the northern bank of the Rhine. Bonn is the Capital of Federal Germany. Set in the heart of hills, Bonn was but a town where the fragrance of antiquity still lingered in the air. However, when it became the capital of Federal Germany in 1949, Bonn acquired a new look and since then it has developed fast. As a result, in the Bonn of today we are able to see an admixture of the ancient and the modern not only in architecture

but also in the citizenry and in the habits of the people. Bonn was the birth place of that ace-composer Beethoven.

Erhard Eppler, German Minister for Economic Co-operation received me with spontaneous sincerity. Hospitality is the unique characteristic of Tamil Nadu—it is the very basis of Tamil culture. The Germans too have this quality in abundant measure.

Our discussions contred on German aid to Tamil Nadu and German co-operation in regard to the agricultural development of our State, the Nilgiris scheme and the mining of lignite at Neyveli. The Minister told me: "I hear you have written scripts for 40 plays and films, apart from producing quality-pictures! Would

A ballet troupe in Bonn. The Beethoven statue is in the back-ground.





you mind sharing with us the knowledge of making good films?" I replied humorously: "Well, in return, would you extend to us your technical know-how?"

I visited the several sections of the German Parliament. Afterwards I attended a reception-banquet hosted by the President of the Indo-German Association Dr. Alexander Werth. Prominent industrialists of Bonn, senior officers of the Federal Republic and the Indian Envoy were present on the occasion. Dr. Alexander Werth was all praise for the stable administration and the atmosphere of peace prevailing in Tamil Nadu. He assured us that Germany would extend all possible aid to industrialise India. That evening I was interviewed by the German Radio, known as the Deutsche Welle. Questions were put to me in rapid succession and the questions were a clear index of the interest evinced by the German people in the political, social and economic problems of India in general and Tamil Nadu in particular. Here is a record of the interview:

*Question.*—Could you tell us the purpose of your visit to the Federal Republic of Germany?

*Answer.*—German economy has arisen in a most amazing manner from the total destruction inflicted during World War II. I have come here only to see for myself this resurgence and to be benefited by it.

*Q.*—Of the places, factories, etc. that you have seen here what,

in your opinion, would be of utility to your State?

*A.*—There are many, but what is most noteworthy is the progress which Germany has registered in the matter of Housing. I shall take steps to arrange for a study of the methods adopted here so that efforts may be made towards implementing them in our State too.

*Q.*—Would it be possible for you to compare and explain the aspects of Centre-State relations as they obtain in India and Germany?

*A.*—The characteristics of the relations between the Centre and the States, and between the State Government and the local bodies vary from country to country depending on the political structure and the democratic traditions of the countries concerned. I am mentioning this in a general manner without going into the details.

*Q.*—What is the reason for your party's support to the Central Government headed by Mrs. Indira Gandhi?

*A.*—In India there are two Congress parties now. Of these although the Indira Congress has not measured up to our expectations, the fact is there that it is more progressive than the other Congress. That is why we are lending support to the Indira Government.

*Q.*—What are the steps that you have taken to make Tamil the medium of instruction?

*A.*—It has been our policy from a long time back—even

before we came to power—that Tamil should be the medium of instruction at all stages. The Congress partymen who were in power before us had initiated some measures towards making Tamil the medium of instruction. We have taken intensive action to implement the scheme for Tamil becoming the medium of instruction.

It is our opinion that Tamil is adequate as far as Tamil Nadu is concerned and that English would serve to a sufficient extent for the purpose of contact and communication with other States and other countries. Although we have given out the assurance that there would be equal improvement—opportunities for those who have studied with Tamil as their medium of instruction, we are vigilant in the matter of ensuring that this change should occur stage by stage, securing general consent.

Following the representative of the Radio, Press correspondents interviewed me. Their questions revealed the extent of their understanding of Indian Politics:

*Q.*—What is the object of conducting the World Tamil Conference in Paris?

*A.*—Tamilians are spread throughout the world. May be their number is not large. Conferences such as the present one would go to establish closer relations among Tamilians, and between Tamilians and other countrymen and thereby help mutual understanding.

This conference would add to the renown of ancient Tamil

literary works. Also it would bring to Tamil new knowledge and treasures of thought.

Q.—Is this conference being conducted on a political basis?

A.—Development of language does not mean getting into politics.

Q.—Have Tamilians from Ceylon started migrating to Tamil Nadu?

A.—In furtherance of the Shastri-Bandaranaik Agreement already signed, Tamilians are coming from Ceylon.

Q.—It is said that the previous Government of Ceylon had friendly feelings towards you?

A.—Merely because the previous Government was friendly to us, we do not have to assume that the present, new Government would be without feelings of friendliness!

Q.—Whom all did you meet in Germany? What were the topics you discussed with them?

A.—Yesterday I met the Mayor of Munich Dr. Vogel and discussed with him issues regarding local administration.

Today I met the German Minister for Economic Co-operation Dr. Eppler. My discussions with him centred round the nature of the possible aid which Germany could extend to Tamil Nadu in the Fourth Five Year Plan. At the appropriate time we shall be sending in certain requests through the Government of India.

Q.—What is the detailed policy of your Party?

A.—At the Conference of the Dravida Munnetra Kazhagam held at Tiruchirappalli in Tamil

Nadu, I had explained in detail our policies. Among our chief policies, one is State Autonomy, with Federalism at the Centre.

Q.—What is Federalism? Is it similar to the Confederation of Switzerland?

A.—India is a vast country with a high population figure. I would not like to compare any other country with India.

Representatives of the State Government should be there in the Central Government. The procedure for this could be worked out at the appropriate time. Just at present we have appointed a committee of experts to go into the nature of relations between the State Government and the Central Government.

Q.—Do you accept the ideology “All for one and one for all?”

A.—What one gets, all should be able to get. And what all get the one should also get. Only this would be correct and appropriate. The position should never be that the one has access to what is not available to others.

Q.—Who has appointed the Committee to examine Centre-State relations?

A.—We have done so. I would like to give expression to my suggestion that it would be appropriate to examine what particular powers could be transferred from the Central Government to the States.

It is not our object to go to war with the Central Government. But we do believe that a system to share the powers would only strengthen the Central Government.

Q.—What is the attitude of your party towards the Central Government.

A.—I have already stated that there is a difference of opinion in regard to the policy that the States should be given more powers. Yet, there are three reasons for our support to the Centre :—

(1) There should not be an unstable Government at the Centre, as is the position in some of the States.

(2) People should not have to confront general elections frequently.

(3) Mrs. Indira Gandhi does happen to be somewhat progressive minded in her policies.

Q.—What is your stand in regard to Communists?

A.—Not only Communists but members of other parties too should follow democratic procedures. No one should practice violence whatever be the objective. As far as Tamil Nadu is concerned Communist partymen are friendly to us.

Q.—What do you think of the split in the Congress?

A.—As Leader of a Party, I had openly expressed my wish that they should be able to overcome the split in their party. I am not one who depends on the opponent's weakness!

Q.—To which Congress do you accord priority?

A.—We shall support that party which respects the demand for Autonomy of States, our language policy and the other main policies of ours.



After meeting the Pressmen, we went round the Bonn City. We crossed the Rhine in a power-boat. Cars are loaded on the boats as if the boats are ships and thus did we reach the opposite bank. This facility is of considerable attraction to tourists.

When wars occurred in Europe, this Rhine river had served as an instrument to provide opportunity of victory to one side and as a hindrance chasing the other side to defeat. They who conquered the Rhine could alone claim the capability to rule Europe. Julius Caesar it was, who constructed the first-ever bridge to cross the Rhine, at a point a short distance from Bonn. Today both the banks of the Rhine are ideal ground for recreation and relaxation. People here consider it a bracing experience to sail on the Rhine, gazing at the green scenery on the two sides of the river and breathing the sweet air.

That night Mr. Tandon gave us a grand feast. The hospitality of Mrs. Tandon who hails from the Karnataka area reminded us of the excellent qualities of the womenfolk of our State. Mrs. Tandon befriended my wife in a most sincere manner. Conversation in the course of the dinner touched many a topic and then it turned slowly to politics!

It was Mrs. Bhalla who said "The definition of Socialism seems to differ from person to person!"

"Yes, indeed" I said, "much in the manner of the definition of God!"

(To be continued.)

## MADURAI Most Urbanised District

Madurai district has maintained a steady increase in the urban population and this growth is specially marked during the period since 1921.

Out of a total population of 3,211,227 persons in the district 1,015,745 persons or 31.6 per cent of the population has been returned as urban during 1961 Census. In the State as a whole, the urban population constituted 26.69 per cent. The proportion of rural and urban population to total district population during previous Censuses are :—

Years.	Proportion to 1,000 persons of total population.	
	Urban.	Rural.
(1)	(2)	(3)
1901	...	129
1911	...	137
1921	...	163
1931	...	202
1941	...	233
1951	...	278
1961	...	316

The Table below will show the distribution of towns under each class and the total number of towns since 1901.

Year.	Number of Towns.						
	All Classes.	Class I.	Class II.	Class III.	Class IV.	Class V.	Class VI.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1901	...	9	1	...	2	4	1
1911	...	11	1	...	2	3	4
1921	...	14	1	...	2	5	4
1931	...	19	1	...	3	6	9
1941	...	23	1	1	4	8	9
1951	...	26	1	1	4	14	4
1961	...	32	1	1	7	16	6

The outstanding industrial progress and technological developments of the modern age have been in no small measure due to the stress laid on the quantity production of quality goods. The aim of modern industry is to convert raw material into accurate finished products in as short a time as possible using convenient and practical production methods. In fact, every fabrication technique that has been devised in recent times in the field of technology is generally geared to achieve these objectives. The merits of each fabrication technique are very often assessed on the basis of speed, accuracy and cost.

No other fabricating technique has made so great an impact on modern technology as die casting which has made significant contributions to industrial progress and continue to be the key production method adopted by many industries. The versatility of the process can well be judged by the numerous parts of varied applications that are being die cast today. The outstanding example is the automobile industry which makes wide use of die cast parts in functional as well as decorative applications. Aircraft, precision instruments, hardware, industrial machines, internal combustion engines and thousands of other items depend upon the production of die cast components. What in the beginning was an almost obscure and apparently insignificant industry has today become indispensable and with the passage of time, it promises to play an even more

# TANSI DIE CASTINGS

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## HELP MASS PRODUCTION

important role in industry. Die casting has been described as the shortest route from molten metal to finished product and, for this and other economic reasons is usually preferred to other older known processes, such as stamping, forging, sand casting, etc. In fact, designers think first of die casting and only then of other techniques, particularly where mass production is involved.

### Lack of appreciation.

The production process of die casting came into use about the turn of the century. In this process molten metal is injected under pressure into a cavity between two closed steel dies. Speed of production and the ability to accurately reproduce complex shapes are the outstanding virtues of this process. Many different alloys based upon aluminium, copper, lead, magnesium, tin and zinc can be die cast successfully but the most popular and most widely used throughout the world today are the alloys based upon zinc, the reason for this being the zinc alloys represent an unbeatable combination of good physical properties, excellent castability, low melting point, ease of finishing by either plating or painting, and a moderate price.

In India, the die casting industry is still in its formative years and, therefore, has a great potential for growth. The number of die casting machines has increased in recent times, but the production of castings is still relatively low and this can be attributed partly to the sluggish



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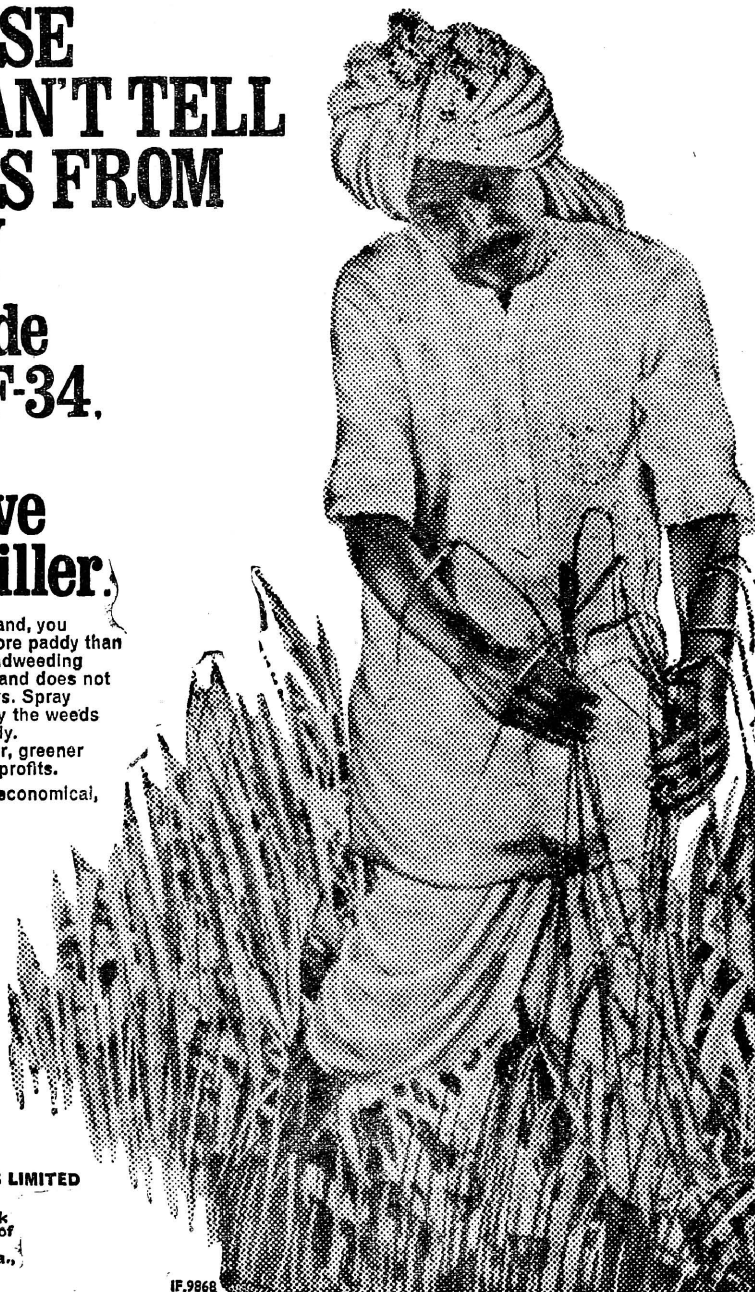
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state of the economy and partly to a lack of appreciation of the potentialities of the process by the consuming industries.

### Wide capacity.

Fully realising the immense potentialities of die castings, the Government of Tamil Nadu set up the Tansi Die Castings, a fully equipped modern die casting foundry, at the Industrial Estate, Guindy. Started on a modest scale in the year 1959, the unit passed through difficult times in the early years and matured into a full-fledged foundry with an attached Tool Room over the years. Modern Die casting machines of 5, 60, 100, 200, 250, 400 and 500 Ton locking capacity are installed in the unit and they are capable of producing castings from 5 gms. to 5 kgms. Die cast parts are made to meet the needs of more than 25 industries in the country which range from small casting such as revolution counter bodies used by instrument makers up to large sized castings used by switchgear manufacturers, motor manufacturers, etc. Some of the components produced have been developed and manufactured for the first time in India. Being the biggest die casting foundry in the south, it supplies castings to a large number of industries in the southern region and has established a good reputation for the quality of its products.

The most crucial requirement in producing a component is a well designed die on which depends the success or failure of the whole operation. The die designer has an extremely impor-

tant role to play in the success of the die casting industry, as with an ill-designed die the entire economy of the industry may be shattered. In order to achieve the best possible die design, not only should the designer have a versatile ingenuity, he should also co-ordinate his activities in consultation with the production people, plant and maintenance department, and tool processing department. Usually it takes several years for the tool designer and tool makers to acquire the requisite skills in making dies capable of giving uninterrupted production, long tool life, low maintenance cost, conformity to standards and above all low production cost. That the Tansi Die castings has established good die making capacity despite constraints inherent in a public sector undertaking is no mean achievement and credit should go to the officers and supervisory staff of the unit.

Before concluding, it is worth noting the beneficial effects that has accrued to the industry in the south due to the die casting unit. By establishing the die casting unit, the Tamil Nadu Government almost pioneered into a new metal processing activity, not very familiar in the South. In the early stages, the officers and workmen who were unfamiliar with the machines, processes and techniques encountered insuperable difficulties in learning them the hard way. The process of learning was both tedious and costly and recourse to such methods as training officers abroad and receiving training from foreign technicians in our

plant became inevitable. This, helped in improving the pace of learning and unit tided over the set-backs it suffered in the early period. A new band of trained workers and staff emerged and a new industry was born in the south. More important is the fact that the skills acquired by our men would not have been possible, but for the Government's boldness in entering this new field. It would be difficult for the private sector industries to have survived the rather painfully long gestation period of this peculiar industry. Quite a number of officers and technicians, who were working with the Tansi Die castings have resigned and helped to establish a number of die casting foundries in the south. It should also be remembered that in the absence of these Die Casting units, the industries in the southern region would have had no alternative but to buy their requirements of castings from Bombay or Calcutta. That this die casting unit has supplied castings valued more than Rs. 50 lakhs to as many as 25 industries is proof positive of the valuable service rendered. The industries helped include motor and motor cycle manufacturers, instrument manufacturers, switch gear manufacturers, Energy meter producers, business machine manufacturers and a host of others. It is hoped that the industries in Tamil Nadu would make great strides in industrial progress by switching to use of die cast components in their products and catch up with advanced industrialised countries.



# SALT AND SALT-BASED CHEMICALS

## INTENSIVE RESEARCH AND PRODUCTION PLANNED

The Government have constituted a Board called the Tamil Nadu State Board for Salt and Allied Chemicals on a non-statutory and advisory basis with the Minister for Industries as Chairman of the Board. Representatives of various interests, officials, port authorities, salt manufacturers, etc., connected with these industries have been appointed as members of the Board. The Board will consider all matters of policy and advise the Government on the several aspects of development of salt production in the State with particular reference to the following :—

1. Planning and setting up major salt works in contiguous areas to provide facilities for small units and absorb them ultimately.

2. Providing technical assistance for the improvement of quality of salt.

3. Export of salt to foreign countries and its allied matters.

4. Road Development works in salt areas.

5. Bringing patches of lands under full utilisation for the storage and condensation of brine.

6. Starting salt-based marine chemical industries.

7. Starting small scale industries for manufacture of varieties of salt like table salt, etc.

8. Examination of reports by consultants on salt and salt-based marine chemicals and other recommendations contained therein.

9. Intensification of research work both on salt production and modernisation of salt works.

The Board will have a whole time officer drawn from the Salt Department functioning as its Deputy Secretary under the Director of Industries and Commerce who will be the Member-Secretary. This is expected to commence functioning shortly.

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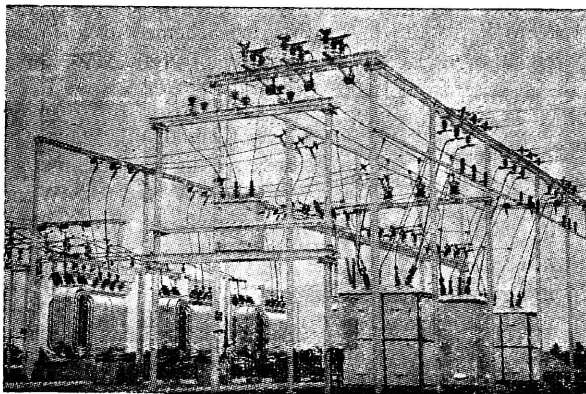
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# POWER DEVELOPMENT IN TAMIL NADU

Today Tamil Nadu leads all other States in India in Rural Electrification. It has the largest number of consumers using electricity. By way of utilisation of power for irrigation, Tamil Nadu ranks first in India.

Bulk of the power produced in the State is utilised in Industries in the urban areas and agriculture in rural areas. With the wide net-work of transmission and distribution lines extending over the length and breadth of the State, Tamil Nadu is supplying about 50 per cent of its power to Industries, 25 per cent to agriculture and the balance for commercial and domestic purposes. About 19 lakhs of consumers are being benefited by Electricity, about 75 per cent of whom directly by the Board and the rest through five municipal and seven private licensees.

## History :

Power generation in Tamil Nadu until about 1908 was confined mainly to a few tiny plants in tea estates run on water power

and to the small hydro installation at Katteri in the Nilgiris. The Government Electricity Department was formed in 1927 and development of power resources in the State was initiated with the commencement of work on the Pykara Scheme in 1929. Since then there has been phenomenal development in the generation and utilisation of electric power in the State.

## POWER DEVELOPMENT DURING THE FIRST THREE PLANS.

As power is indispensable for the development of Agriculture and Industry, special importance assigned to programmes for generation of power in the five year plans.

At the beginning of the First Plan, there were hardly three hydel projects and two thermal stations with a total installed capacity of 156 MW. During the First Plan period, the capacity was increased to 256 MW. During the Second Plan period, there

was more than doubling of installed capacity to 571 MW. By the end of the Second Plan, it was clear that the major weakness of the power system in the State apart from pronounced shortage of power was the preponderance of hydel capacity which rendered the grid particularly vulnerable in the years of poor rainfall. With a view to overcome the shortage and correct the imbalance, both hydel and thermal power stations were planned and taken up for execution. As a result, the Third Plan period witnessed commissioning of six units at Kundah, four units in the Mettur Tunnel Scheme and one unit (4th unit) at Periyar Power House and one unit in the Parambikulam-Aliyar Project at Sarkarpathy and also commencement of work on the 340 MW Ennore Thermal Power Station and on the addition of 30 MW at Basin Bridge, Madras. Thus, the installed generating capacity in the State went up to 1,070 MW apart from 300 MW in the thermal station at Neyveli.

Today there are 13 hydro-electric stations in the State working with a total installed capacity of 1,029 MW and thermal stations (at Basin Bridge, Madras, Madurai and Ennore) having a capacity of 191 MW. Besides these, the thermal station at Neyveli utilising lignite, has a capacity of 600 MW. The total installed capacity of the Tamil Nadu grid is therefore 1,820 MW (including 600 MW. at Neyveli). Four of the hydro-stations, viz., Mettur, Periyar, Papanasam and Sarkarpathy, with an installed capacity of 398 MW are tied to irrigation and they do not therefore contribute to generation during the non-irrigation period. The remaining eight are purely power producing stations. Work on the following schemes is now fast progressing.

1. Sholayar and Aliyar Power Houses in Parambikulam-Aliyar Hydro-Electric Project—(95 MW).

2. Kodayar Hydro-Electric Project—(100 MW).

3. Ennore Thermal Scheme (2nd, 3rd & 4th units) (280 MW).

These power schemes are expected to be completed by 1970-71 (except the 4th unit at Ennore Thermal Scheme) and the total installed capacity of the State will be increased by 365 MW.

#### **POWER DEVELOPMENT DURING THE FOURTH AND FIFTH PLANS.**

The completion of the power schemes mentioned above would augment the generating capacity in Tamil Nadu including

Neyveli during the non-irrigation season to 1,393 MW. from 1970-71 onwards. But the demand is expected to increase from 1,606 MW. in 1970-71 to 2,162 MW. in 1973-74. Hence there will be a large gap between the effective capacity and the expected demand. The deficit of 213 MW. in 1970-71 will worsen to 769 MW. in 1973-74 if new schemes are not taken up and completed in the Fourth Plan. The deficit at the end of the Fifth Plan period will be still greater. The completion of the 200 MW. Kalpakkam Atomic Power Plant will provide limited relief, probably in the beginning of the Fifth Plan period. Although surplus power is now available in the neighbouring States of Kerala and Mysore, it will be unwise to depend upon this surplus during the Fifth Plan period on account of aided fast development in these States. Also, there is a large time interval between sanction of a scheme and its completion. Hence it is necessary to take up additional power schemes in the State during the Fourth Plan itself in order to make up the large deficit expected at the end of the Fifth Plan. Since the hydro-potential to be developed in the State is small, it is necessary to go in a big way to set up large thermal or atomic power stations to meet the deficit. Even so, it is desirable to develop the hydel power also in order to reduce the overall cost of generation and to meet daily peak-loads. With this object in view, the following additional schemes have been proposed for implementation during the succeeding Plan periods.

1. Pandiar - Punnappuzha (Moyar) Scheme with an installed capacity of 100 MW. in the Nilgiris;

2. Kundah 4th Stage extensions covering installation of additional 60 MW. and 50 MW. units at Kundah Power Houses III and IV respectively;

3. Naduvattam diversion scheme to facilitate additional generation of 60 million units at Piykara and Moyar Power Houses;

and 4. Installation of 5th unit of capacity 110 MW. at Ennore Thermal Station.

All these will be implemented during the Fourth Plan period itself, i.e., by 1973-74.

Besides, the above, implementation of the following schemes, viz., Kadamparai Hydro-Electric Scheme (100 M.W.), Suruliar Hydro-Electric Scheme (35 MW.), Servalar Power House under the Upper Tambaraparani Hydro-Electric Scheme (35 MW.) Nelli-thorai Hydro-Electric Scheme (50 MW.), Upper Amaravathy Hydro-Electric Scheme (70 MW.), Paralayar Hydro-Electric Scheme (35 MW.), Cholatipuzha Hydro-Electric Scheme (Inter-State Scheme— 30 MW.), will have to be taken up during the Fourth Plan itself so that these schemes can be completed during the Fifth Plan period.

Even with the completion of these schemes there will be a deficit of 460 MW. of power at the end of Fourth Plan period and 1,633 MW. at the end of the Fifth Plan period. Towards bridging this



gap, it will be necessary to expand the Atomic Power Plant at Kalpakkam from 200 to 400 MW and also to programme for a second Atomic Power Plant of 600 MW capacity preferably around Tuticorin region. Atomic Plant for the State is to be preferred in view of the rising cost of coal and freight and the long distance over which inferior coal which is now used for power generation has to be transported.

Action will also have to be initiated for opening a second mine cut at Neyveli to facilitate further development of thermal power of about 600 MW in a second thermal station. These schemes have to be taken up in the Fourth Plan itself in order to meet the deficit in the Fifth Plan.

### Generation

The energy generated in the Board's generating stations and purchased from the neighbouring States was 1,053 Million Units at the end of the First Plan, which increased to 2,214 M.U. at the end of the Second Plan. At the

end of the Third Plan, the generation and purchase of power was 4,041 M.U. In 1969-70 the total power consumption of the State was 5,597 M.U. out of which 3,134 M.U. or 56 per cent were generated in the Board's generating stations. Out of the balance of 2,463 M.U. 1,952 M.U. were purchased from Neyveli, 207 M.U. from Mysore and 304 M.U. from Kerala. It may be mentioned that in 1969-70, the generation of power was so care-

fully managed by integrated operation of the power plants that in spite of the failure of the North-East Monsoon in that year; the demand of the State was fully and satisfactorily met, without recourse to any power cut.

### Transmission and Distribution

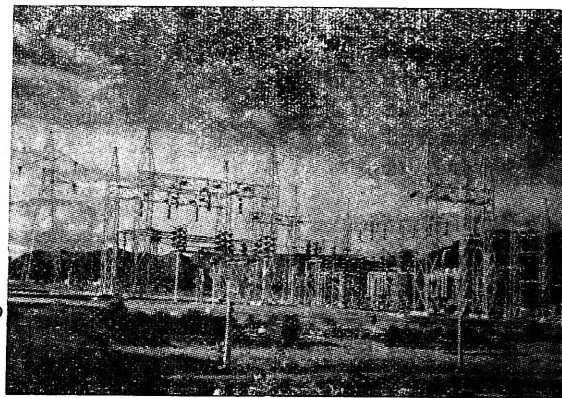
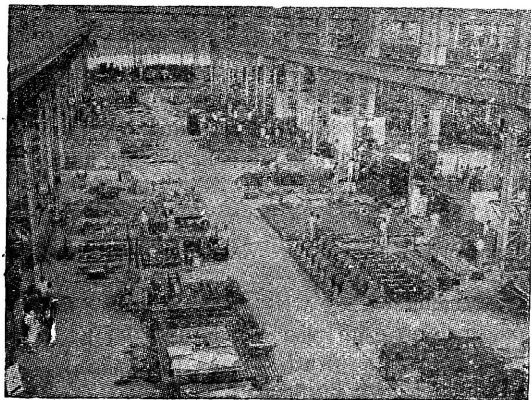
To develop the available power resources and make power available in a rational way at reduced cost and in abundance, over the whole State, the Electricity Department, since its inception, has had its objective the creation of an electric power grid covering the whole State. The grid has been planned in such a way that eventually it would link up the several Hydro Electric and Thermal Stations in the country and convey power to consumers in all villages and towns through a net-work of transmission and distribution lines. Tamil Nadu has the unique distinction of having commissioned the first 230 KV transmission line in India. The State is at present

### Electricity Board's Record Performance.

During the year 1970-71, the Electricity Board has energised 517,634 pumpsets and extended electricity to 10,016 villages and hamlets. Never before, such a large number of villages and hamlets were electrified in a single year. Out of about 10-40 lakhs of irrigation wells in the State, a little over 5-30 lakhs have been already provided with electric pumpsets.

(Left) A view of Tiruverumbur ordnance factory.

- (Right) Power transmission stations carry electricity to all corners of the State.



inter-linked with the grids of Mysore and Kerala by means of 230/220 KV. transmission lines. The line linking with Andhra Pradesh is now under construction and is expected to be completed soon. Today the Grid has 51,000 KM. length of H.T. lines of voltages 11 KV. and above and 119,000 KM. of L.T. lines of 400 volts rating. Additional transmission lines are proposed to be laid during the Fourth Plan period to effectively transmit and distribute the power that will be available from the proposed new schemes.

### **Industrial Development**

The past decade witnessed the beginning of an industrial revolution in the State. The industrial production has increased five fold, since the commencement of the Five-Year Plans as could be seen from the consumption of electricity for industrial purposes. At the end of the First Plan 325 million units of Electrical energy were used in industries. This increase to 766 million units at the end of the Second Plan while at the end of Third Plan the increase was phenomenal which stood at 1,524 million units. By the end of Fourth Plan Period about 4,100 million units of electrical energy are expected to be consumed by the Industries.

### **Rural Electrification**

Tamil Nadu has been focussing its attention to the matter of Rural Electrification. About 75 per cent of the people live in villages and it has therefore become a prime necessity to

extend electricity to rural areas as expeditiously as possible and raise the economic status of the Rural population. Since there are no adequate perennial rivers in the State, the ryots have to depend on well irrigation and such power is playing an important part in lift irrigation and increasing food production besides giving more employment opportunities to Rural population.

In the whole of India about 11-00 lakhs of pumpsets were energised with electricity as on 31st March 1970 out of which 4-71 lakh pumpsets alone are in Tamil Nadu. Out of about 57,000 inhabited villages and hamlets in the State, Electricity has been extended to 36,803 villages and hamlets. The Tamil Nadu Government has an ambitious programme of electrifying the remaining villages and hamlets totalling about 21,000 by 1971-72.

Today a little over 5-30 lakhs of pumpsets are worked by electricity. These pumps have been estimated to irrigate 14-13 lakhs acres of land and fetch nearly 6 lakhs tonnes of paddy. During the Fourth Plan Period it is proposed to keep up the same tempo of electrification of wells and energise 50,000 pumpsets on the average if not more in each year. It is hoped that this stupendous achievement of our State cannot be surpassed by any other State in India. Towards meeting the expenditure on rural electrification, funds are raised by way of loans from banks, L.I.C., Institutional finance, etc.

. On the financial side also the progress made by the State of Tamil Nadu in the field of power is remarkable. At the beginning of the First Plan the capital outlay was about Rs. 24 crores and it has grown steadily to well over Rs. 357 crores as on 31st March 1969. The revenue earned at the beginning of the First Plan was of the order of Rs. 3-18 crores per annum and in 1969-70, the Board earned a revenue of Rs. 55-40 crores.

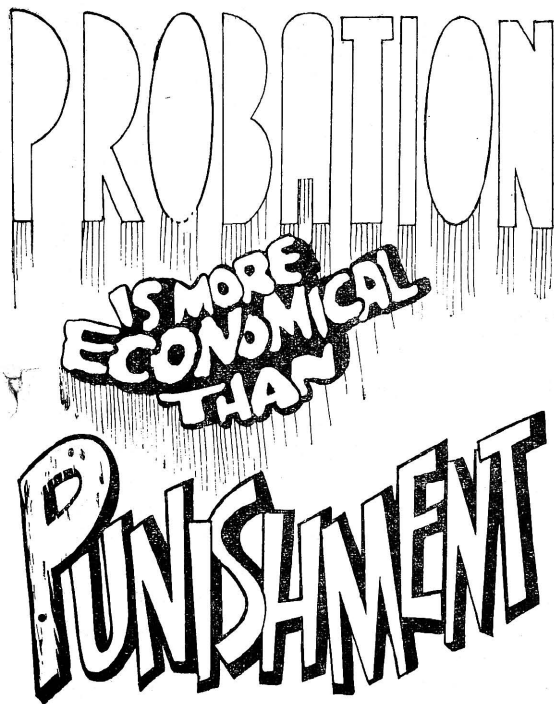
### **Per Capita**

The per capita consumption at the beginning of the first plan was 12 and it has risen to 119 as on 31st March 1970 against the anticipated All India figure of 78-4. With the completion of the new schemes envisaged under the Fourth Plan period the per capita consumption is expected to further rise to about 200 units. This is still very low in relation to developed countries.

### **The Role of electricity in Fostering industries.**

Nearly 50 per cent of the Power generated in the State is utilised by the industries. The statistics of the industrial consumption of electric power during the last decade, reveal that the industrial use of electricity has increased seven fold, resulting in an industrial revolution in the State. In the year 1951, the energy consumption of industries in the State was 321 MU and in 1969-70, this has increased to 2269 MU. At the end of the 4th plan (i.e. in 1973-74) it is expected, that the industries in the State would alone consume 4,100 Million units.

1971 is being observed as *Probation year* throughout India. The Madras Probation of Offenders' Act became law on the 16th February 1937. In March 1937, the Government extended the Act to the City of Madras and the Districts of Bellary, Coimbatore and Madurai and in July 1937 the Act was extended to the District of North Arcot. But it was on 1st August 1937 a batch of Probation Officers took office under the Madras Presidency Discharged Prisoners' Aid Society, following the implementation of the Act.



The Probation system, like many other institutions, had its origin in voluntary service. The earliest Probation Officers in other countries, concerned to help the less fortunate of their fellow men, were private individuals or members of charitable societies. But the first statutory recognition of Probation in England and Wales was contained in the Probation Act, 1907 and in India, thirty years later, i.e., in 1937 with the passing of the Madras Probation of Offenders' Act (Act III of 1936).

On the foundations so laid of the Probation system in this State on a voluntary basis has been built up a strong organisation not only throughout the State but also to the neighbouring Andhra Pradesh and Kerala, which formed part of this State. In observing this year as *Probation year*, *Tamil Nadu* takes the pride of having given a lead to all the other States in the country and also for the fact that the Madras Probation of Offenders' Act had been a model for the Central Probation Act which was passed in 1958.

#### Probation—What it means.

In brief, Probation may be defined as a method of dealing with persons convicted of crime who, instead of being punished, are released on their undertaking to behave properly and who are placed under the supervision of a Probation Officer as their friend and adviser. If, however, a probationer fails in his undertaking or gets into further trouble, he may be brought back to be sentenced for his original offence.



# SCOPE AND SOCIAL BENEFITS OF PROBATION

## **Probation—Its scope.**

The primary and controlling purpose of any method of dealing with crime should be the protection of Society. To this end all others must be subordinated, however desirable in themselves. Probation, in bringing about the successful adjustment of the individual to his family, work, and community relationships, is a direct contribution to the protection of Society. During the early years of its development fear was expressed that the wide-spread use of Probation would result in an increase of crime ; but that fear was proved to be unfounded and the expression of it is now seldom heard. The number of offenders placed on Probation as compared with the number committed to penal institutions has steadily increased. Probation reduces crime by rehabilitating offenders. Many offenders are made much more anti-social by serving terms in prison where they inevitably associate with criminals of many kinds, are infected by anti-social attitudes and learn more about how to commit crime. Probation protects them from such criminal associations and helps them to lead normal lives in the community.

## **Probation—Its benefits.**

In so far as Probation provides the machinery and involves the practice of the thorough investigation and study of the accused before they are sentenced, it protects society and reduces crime by aiding courts in making the best disposition of cases. Many courts desire not only reports of such investigations but also specific recommendations of the Probation Officers. The investigatory function of the Probation system helps to ensure not only that those persons shall be placed on probation who can be best dealt with in that way, but also that those persons who require prison or correctional school treatment shall be committed to such institutions. This part of the probation programme is in line with the philosophy of individualizing the treatment of offenders which is rapidly displacing the practice of mass or generalised treatment under which punishment is determined in accordance with a legal classification of offences with little consideration of the reasons why a particular offender violates the law or of his personal conditions and needs.

## **After punishment, what?**

The Indian Penal Code prescribes the maximum punishments for the offences. Only in very few instances the minimum sentence also is given. Hence full discretion is given to fix the quantum of sentence to the court having regard to the nature of offence and the nature of the individual. At present even in jails, reformatory treatment is given. Dark, filthy and uninhabitable cells and infliction of bodily pain in jails are things of the past. In jails as far as possible, prisoners are trained in a vocation, given some education and given many other facilities also. Wages are paid for the work done and they are allowed to spend their earnings in the jail canteen. Facilities for reading papers, games, dramas, film shows, etc. are given. And now, lately, the experiment in Open Air Jails for prisoners in our State as well as elsewhere, has shown encouraging results and the Government is seriously contemplating to start such Open Air jails more. The main reason is that the maladjusted convict is given treatment and not interned there only for punishment. The idea is to make the person socially and vocationally rehabilitated so that after discharge he will take to normal life. The period that a person might require for final reformation varies. That is the general idea why wide discretion is given to courts in the matter of giving sentences in the Indian Penal Code. Also this wide discretion is given to the courts to fix the sentence according to the circumstances of the case and the nature of the accused. Here, the Probation Officer plays his role. The court sees the offender only in the dock, for a very short time and under the worst possible conditions and it is difficult even for the most experienced Judge or Magistrate to get an accurate picture of his background. If the court is to do justice it needs all the information it could get. It does not lose any dignity or display lack of knowledge but only exhibits sound common sense in calling for the Probation Officer's report to its aid. Probation is a specialised subject and the theory of punishment has swung from retributive and deterrent to reformatory. Hence the court will get a clear picture of the accused and be able to decide what treatment—whether institutional or

probation—is needed for the individual. Here, the Probation Officer helps the court to achieve the desired object of prevention of crime and reformation of offenders.

## **There's economy too in probation.**

It is needless to point out that probation is not judicial leniency or clemency. It has regard for justice—for the individual and for the society. Its use has grown as we begin to appreciate more and more the worth and dignity of the individual. In the working of the probation system it is now proved that in many instances justice is better served by putting the emphasis on supervision and treatment rather than on incarceration and punishment. Apart from this fact that probation is very good from the social and moral point of view of the offender and the society, economically also probation can be preferred to imprisonment in the treatment of offenders. From the economic point of view the expenses of 10 offenders in jail will be sufficient to meet the salary of a Probation Officer, who can supervise 50 to 60 persons.

## **Present set-up.**

The introduction of Probation System which is the most democratic and modern method of dealing with crime and criminals synchronised in our State with the inauguration of the democratic form of Government in July 1937. Starting from humble beginnings under the non-official auspices of the Discharged Prisoners' Aid Society with only five officers for the entire composite Madras State of twenty-five districts, we have developed the Probation System, especially after the same has been provincialised in May 1946, to such an extent that today we have 66 Probation Officers, both men and women, for the present area of Tamil Nadu of 14 districts, in addition to eight Regional Probation Officers to supervise the progress of the Probation System.

With the observance of 1971 as Probation Year, a notable and social aspect of Governmental activity completes 34 years of its existence and we are now celebrating the Silver Jubilee of the Probation Department in Tamil Nadu.

# TAMIL NADU LEADS IN PROBATION WORK

## Probation Officers—Functions.

The Probation Officers in Tamil Nadu are at present performing duties under the Madras Children Act, the Probation of Offenders' Act, Madras Borstal School Act and the Madras Suppression of Immoral Traffic Act and also supervise the probationers, the ex-pupils of Approved Schools and the Borstal School, ex-inmates of Vigilance Homes and the convicts released prematurely. They also make enquiries in maintenance cases coming under the Code of Criminal Procedure effecting compromises wherever possible, thereby avoiding disruption of families and possible destitution of children. Their services are also utilised for investigation in the cases of certain prisoners before their cases are placed before the Advisory Boards for premature release. The Orientation and pre-discharge work is being done in the Borstal School, in the Approved schools and in the various Central Jails. Orientation and pre-discharge work in the Sri Sadana and Vigilance Home are being done by the Lady Probation Officers in the City of Madras as Welfare Officers. In addition to all these the Probation Officers are incharge of reforming and rehabilitating the numerous wards of various categories under their care.

## Tamil Nadu Leads.

Tamil Nadu occupies an enviable position in the Probation map of India when compared with the other States as is revealed by the table shown below, as furnished by the Central Bureau of Correctional Services, New Delhi :—

## Probation Services in India—1968

Name of State.	Number of districts.	Number of Probation Officers.	Total number of Social enquiries.	Number released on probation.
1 Andhra Pradesh ...	20	49	5,238	853
2 Assam ...	11	9	...	...
3 Haryana ...	7	10	112	474
4 Gujarat ...	17	55	2,424	425
5 Kerala ...	9	13	2,569	1,253
6 Madhya Pradesh	42	91*	...	...
7 Maharashtra ...	19	35	5,564	197
8 Mysore ...	13	21	1,719	267
9 Punjab ...	11	13	489	768
10 Tamil Nadu ...	14	60	29,267	6,877
11 Uttar Pradesh ...	58	57	...	2,412
12 Union Territories	9	27	4,628	256

## \*Honorary Probation Officers.

The expansion of the Probation system in Tamil Nadu, then and now, is due to the keen interest evinced and the policy pursued by the State Government with the help, lately, of the Union Government under the Plan Scheme. The provincialisation of the Probation Service, not only gave it a great fillip, but marked a definite stage in its development, unification and co-ordination in this State. The two sets of Probation Officers working formerly under the Madras Children's Aid Society and the Madras Discharged Prisoners' Aid Society were absorbed into the provincialised service, thereby creating a Single State-wide service for juveniles and adults, which was a unique experiment, which paved the way for a well organised and expended Probation administration in Tamil Nadu.





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PARIS	5984	4189	6732	4713	5984	4189	6650	4655
PRAGUE	5984	4189	6732	4713	5984	4189	6650	4655
GENEVA/ZURICH	5895	4127	6646	4653	5895	4127	6561	4593
ROME	5233	3664	6027	4219	5233	3664	5899	4130
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„ via MIDDLE EAST/EUROPE	7704	5393	8498	5949	7704	5393	8370	5859
LONDON	6070	4249	6821	4775	6070	4249	6736	4716
NEW YORK	9210	5603	9615	5963	9210	5603	9615	5963
KUALA LUMPUR	2915	2041	2207	1545	2736	1916	2339	1638
MANDI	8649	6055	8073	5652	8649	6055	7987	5591
PERTH	6133	4294	5561	3893	6133	4294	5471	3830
SINGAPORE	2915	2041	2385	1670	2915	2041	2339	1638
SYDNEY	7015	4910	6441	4509	7015	4910	6354	4448
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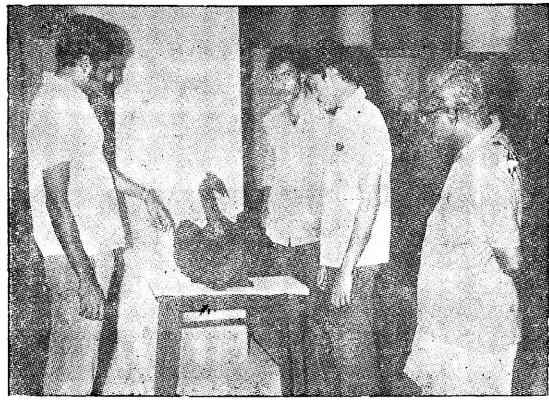
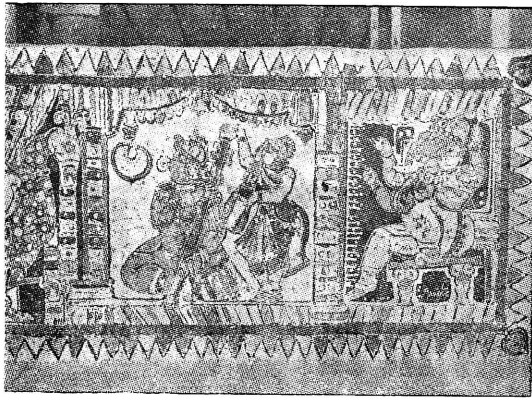
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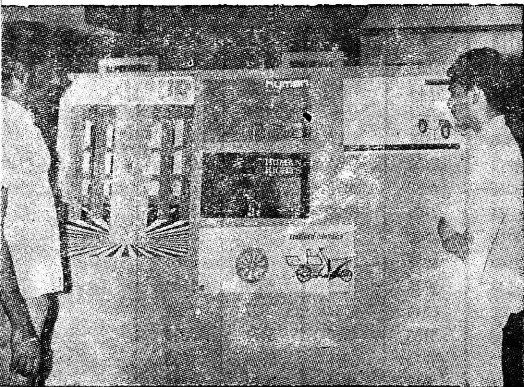
**TAM**



The art works of the students of Government College of Arts and Crafts, Madras and Government School of Arts and Crafts, Kumbakonam, were on public display for a week from 26th April to 3rd May 1971 at the premises of the Madras College of Arts and Crafts.



Sponsored by the Government of Tamil Nadu through the Department of Industries and Commerce, the display was an outlet for sale of the students' works. Curiously enough some employers were able to recruit their personnel requirements from seeing the talents behind the works on display. A notable recruitment was by the Army authorities who were on the look-out for an artist to run an evening class of art for the benefit of the Military personnel.



The display attracted 247 items from 90 students, 20 of whom were from the School of Arts and Crafts, Kumbakonam. Among the works, paintings predominated ; only 37 were sculptures and 25 were commercial designs.

Thiru G. Kulanthaivelu, Statistical Inspector, received the award of Rs. 500 from the Education Minister for writing best Administrative notes in Tamil.



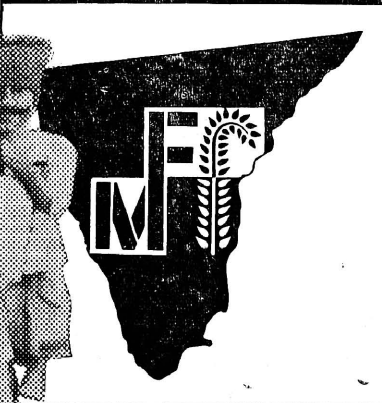
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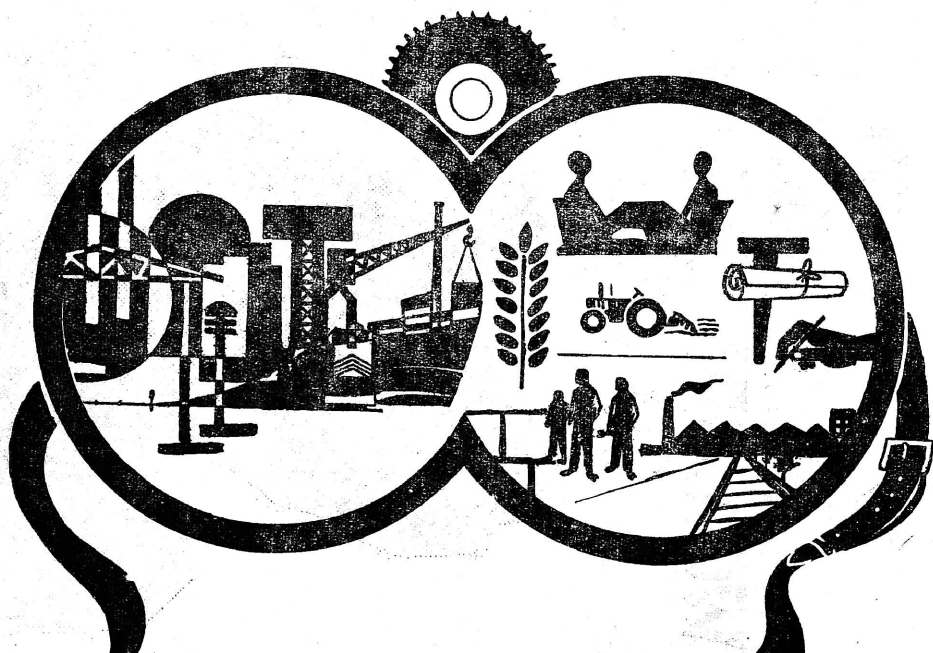


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# PRODUCTIVITY OPENS UP NEW VISTAS OF PROSPERITY

- ▷ THRO COST REDUCTION
- ▷ THRO INVENTIONS AND
- ▷ THRO MANAGEMENT  
AND LABOUR EFFICIENCY



# ASIAN PRODUCTIVITY YEAR SUPPLEMENT

20 Pages

## SCOPE FOR PROSPERITY THROUGH COST REDUCTION

To-day we are in the midst of a fast changing world. Science and Technology are developing at a rapid pace. Man is using his creative ability to a greater extent not only in quest of more knowledge but to exploit fully what is already known and thereby improve the standard of living. People are beginning to realise that higher prosperity can be achieved only through increased Productivity and consequent reduction in the cost of goods and services produced. The increase in Productivity in some of the countries during the last decade has been very spectacular especially in Japan and Germany. A number of favourable factors have contributed to this phenomenal success in these countries ; the two important ones being the higher Labour Productivity and increased awareness on the part of all concerned to reduce their costs with a view to make the products competitive especially in the overseas markets.

Unfortunately, we in India have not been able to make any significant economic progress due to one reason or other, even though we have got the necessary natural resources and manpower. No doubt some success has been achieved during the last three plan periods, but so far we have not been able to fully utilise our resources and manpower to increase the Productivity both at the micro and macro levels. This failure is largely due to—

(a) Being in a sellers market enough attention was not paid to produce quality goods at a price which the consumers can afford to pay with the result we are still operating in a protected market with restricted sales. The tendency all along has been to “jack up” the prices to cover inefficiency and increased operational costs. This has resulted in our products being outpriced in the international markets.

by

S. N. LAL

*Chairman, Employers' Federation of  
South India, Madras.*

(b) Managerial Science in the country is sadly lagging behind technological progress with the result that the various management techniques are not being fully and effectively applied to increase the productivity and reduce cost of production.

### **Productivity and Cost Reduction :**

Productivity in very broad terms is the ratio of output to input and increase in productivity can be achieved only through optimum utilisation of the input resources and by maximising the output for a given input. The same objective holds good for cost reduction also. In cost reduction we try to achieve better utilisation of men, materials, machines and money (4M's) by eliminating wastages of all sorts. In other words an effective cost reduction programme is a *must* for improving the productivity in any industry or organisation.

The term **Cost Reduction** has shot into prominence in India in the last few years on account of the gradual change from a seller's to buyer's market and our inability to compete in export markets in view of our higher prices. This has brought about a change in the outlook and attitude of many organisations and greater attention is now being paid to increase productivity and reduce costs in the various areas.

### **Definition of Cost Reduction**

Cost reduction can be defined as a systematic approach to analyse the various costs that constitute the total cost of a product, a process or a service (like sales) with a view to bring out hidden or superfluous costs which can be eliminated without impairing the product quality or reliability or any deterioration in service facilities offered.

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Cost Reduction is not a magic formula which can be applied by one and all. It requires sustained effort, creative thinking, hard work and co-operation from all concerned ; but the results are highly rewarding. There are a few progressive industrial units in India where excellent results have been achieved through well organised Cost Reduction Programmes. To cite one example a particular company has been able to almost double its sales turnover per employee over a period of 5 years. This represents an annual growth rate of 20 per cent which is indeed a remarkable achievement by any standard.

The success of any Cost Reduction Programme will depend on—

(a) *Planning*.—The Cost Reduction Programme will have to be thoroughly planned and co-ordinated with the various other activities like production, research and development, product strategy, marketing facilities, etc. Further in formulating and carrying out the Cost Reduction plan, the co-operation from all levels of Management should be ensured.

(b) *Performance Analysis*.—The Cost Reduction Programme should be a continuous procedure and a systematic approach should be followed to make improvements year after year. Adequate cost data should also be made available for performance analysis and for comparison from year to year.

(c) *Team Approach*.—It is considered desirable to have a task force/team approach to organise and implement the Cost Reduction Programmes. The advantage of the team approach is that the departmental co-operation is assured and implementation is faster. Further in the team approach, there is bound to be cross-fertilisation of ideas from people of different disciplines and the combined knowledge and experience of the team is brought to bear on the problem. The size of this team will depend on the type, size of the Industry, the environmental conditions and the targets set for achieving reduction in costs.

### Identification of High Cost Areas:—

One of the most difficult problems in Cost Reduction is to identify the areas of high costs and convince the people concerned that there is scope for the application of Cost Reduction Techniques. Sometimes the departments are not sympathetic to the application of modern Cost Reduction Techniques and would prefer the existing practices to continue. In certain other cases, it has been found that habits and attitudes and the “fear of the unknown” are some of the “road-blocks” that stand in the way of Cost Reduction.

Save for a few exceptions, the Indian Industries have not taken the Cost Reduction approach seriously even though many of the techniques do not require any elaborate data collection or sophisticated analysis involving complicated mathematical models or use of computers. In many cases “Commonsense Approach”, initiative and a keen sense of observation will uncover areas where costs can be reduced appreciably. Some of the methods adopted to identify areas of high costs are—

(a) Analysis of the departmental costs into A B C category and a critical examination of the A & B groups.

(b) Inter-departmental or Inter-factory comparison by visits to other factories wherever possible or by abstracting the information from published reports and returns.

(c) Study of the annual Balance Sheets of similar companies. A critical examination of the Balance Sheets can give vital information on product mix, plant utilisation, process efficiency/ raw material costs, etc., and will serve as the nucleus for identifying areas for Cost Reduction.

### Techniques used for Cost Reduction—

Basically, the various Cost Reduction Techniques are only an analytical approach to problem



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solving and decision making through the process of Analysis, Evolution and Evaluation. In other words it is more of a concept, a basic discipline and a way of looking at things with a view to make improvements.

Some of the techniques commonly used for effecting Cost Reduction are—

(a) Method Study/Work Measurement.

(b) Planning Techniques covering integrated Production Planning, Maintenance Planning and Project Planning using network techniques such as PERT/C.P.M.

(c) Value Analysis.

(d) Operational Research.

(e) Inventory Control.

(f) Quality Control, etc.

The basic steps involved in the application of the above techniques can broadly be classified into—

(a) *Information Phase*.—All possible and available data about the various phases of the problem are collected from authentic records, by tactful questioning and by cross checking the facts and figures obtained from different sources. Process charts, work flow charts, multiple activity time charts, etc., are used at this stage to present the mass of data collected in a readily understandable manner.

(b) *Creative Phase*.—Once the problem has been defined and all the available facts have been collected, the next stage is to critically examine them with the searching tool “WHY”. Very often the existing practices breakdown when subjected to searching questions resulting in clues which lead to better methods and procedures resulting in substantial reduction in costs.

(c) *Implementation Phase*.—The various alternatives generated during the creative phase will have to be evaluated in the light of Technical, Economical and Human Factors involved to arrive at the most feasible solution which can then be put into actual practice.

Although the basic steps are more or less the same in the application of the various Cost Reduction Techniques, the emphasis during the creative phase will be slightly different depending on the technique used and the problem under study. For example—

(a) *Method Study and Work Measurement*.—Emphasis is on optimum utilisation of men and machines through work simplification, better layouts, reduction in movement of materials, etc.

(b) *Planning Techniques*.—Emphasis is to reduce the time taken to complete a job or a project and also to determine the economical product mix/machine allocation, etc., which will give optimum sales turnover.

(c) *Value Analysis*.—This is a functional approach to the problem of Cost Reduction in the sense that it tries to identify the key function of a product, a process, or administrative procedure and then attempts to provide the same function at a reduced cost, through the process of creative thinking. Value Analysis had its early start in the General Electric Company, in U.S.A., during the Second World War when some of the critical materials were difficult to obtain and substitution had to be made. As a pleasant surprise it was found that replacement of some of the traditional methods/items not only reduced the costs but resulted in improvement of the service product quality. Since then, this technique has gained considerable momentum and to-day it is being applied in a variety of fields such as Product Design, Purchasing, Development of alternative packing materials, etc. The application of V.A. Techniques to product/process design is sometimes called “Value Engineering”.

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(d) *Operation Research*.—This is one of the recent developments in the field of Management Science and can be defined as a mathematical approach to define and solve problems involving a number of components which are interacting and interdependent. In other words it is an integrated study of the system or organisation as a whole with a view to arrive at an optimum range of solutions leaving the final decision to the Management. The most important phase in the application of O.R. Techniques lies in formulating the actual problem and constructing the mathematical model in which the interaction of the various components are representative of the real life situation. This is really a hard-boiled job and requires a clear insight into the working of the whole system.

Linear Programming, Inventory Models, Simulation, Dynamic Programming, etc., are some of the Operation Research Tools. Operation

Research finds its application in production problems, marketing and distribution, machinery replacement, investment analysis, etc.

“Cost Consciousness” is a term which has gained universal acceptance and the importance of Cost Control or Cost Reduction is slowly having its impact on the Indian Industry. Whether one belongs to a small industry or to a big industry or anything in between, one has to be cost conscious to achieve greater productivity. Cost Reduction is essentially a discipline and a way of looking at things in a more rational and creative manner. Most of the Cost Reduction Techniques mentioned above do not require any elaborate data collection or sophisticated analysis, but a perception of the problem as a whole, initiative, a keen sense of observation and the ability to work as a team. The scope for improvement if applied properly is quite considerable.

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# PRODUCTIVITY INCREASE THRO INVENTIONS

The importance of productivity to a nation's economy requires no emphasis. What is perhaps not so well appreciated is that technical innovation in the development, direction and application of new products and processes, is an inevitable consequence of improved standards of living. At the same time, technological innovation is essential if a country is to continue to maintain its rate of progress.

As the work of the Asian Productivity Organization becomes increasingly effective, the prosperity of the peoples of its member countries will rise. There will follow increased demands for new products and processes, some of which will themselves help still further to improve productivity and both individual and collective wealth. Indeed, we have seen in Japan during the past twenty-five years the world's most striking example of this process.

## The Pattern of Innovation.

The history of the more technologically advanced countries suggests that there is an exponential rate of increase in the number of inventions, and correlation between the volume of invention and the prosperity of a particular country. The factors affecting invention and inventiveness, however, appear to be little understood. There is evidence, in the case of Great Britain, that it was the opening of men's minds following the Reformation which led to the developments of water power, steam power, the textile industry, which were the basis of the

Industrial Revolution. There followed a crescendo of invention—Railways, cheap steel, coal-gas and electricity, nuclear fission, man-made fibres and so on. During my last visit to Tokyo in October, 1969, I presented a list of 119 major British technological contributions to the well-being of mankind, which showed that there has been no abatement in the rate of innovation during the past three centuries. These developments can be matched, particularly during the past century, in other countries. It can safely be concluded that the recent example of Japan will be followed in all the other countries represented here, and with explosive rapidity as compared with the slower rate in the longer-industrialized countries.

This more rapid growth rate will present its own problems. Hence it is important to learn from the experiences of Great Britain, of the United States, of Japan, which have developed over periods of time varying between three centuries and one century.

By

Mr. FRANK NIXON, C.B.E.,  
Quality and Reliability Engineer,  
Rolls-Royce, Ltd., England.

A penetrating study has been made, by Messrs. Jewkes, Sawers and Stillerman ('The Sources of Invention' MacMillan, London, 1960), of the sources of the more important inventions of the first half of this century. It was found, somewhat surprisingly, that fewer than half of them were made by workers in large industrial research organizations. The majority of the discoveries, which include such important ones as penicillin, the safety razor, shell moulding, the Sulzer loom, Kodachrome, the Kroll process for titanium production, were all the work of individuals, or were accidental. The authors found that some of these develop-

ments required the support of large industrial organizations, in order to bring the processes to the stage of commercial feasibility. In general a similar pattern held in different countries, the main difference being that in some countries the inventor received more encouragement than in others. This last is an important point to be borne in mind.

#### **The Importance of Technological Innovation.**

As a broad generalisation it can be said that technological innovation has one or both of two main results. We can take Thomas Tredgold's definition of engineering, as 'the art of directing

the great sources of power in nature for the use and convenience of man' (Institution of Civil Engineers, London, 1828) and apply it to the whole of science and technology. We then see that many technological innovations have given rise to whole new industries.

A few examples are textile machinery, the steam engine and the motor car; coal-gas, electricity for light, heat and power; man-made fibres, radio and radar and electronics, detergents, drugs and insecticides.

In their turn many of these developments, important in their

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own right, make major contributions to productivity, Coal-gas and fossil-gas, electricity, machine tools, electronics, the computer, all help to raise the efficiency of processes of manufacture. Chemical fertilizers, insecticides and weedkillers machinery and power, all help to raise productivity in agriculture.

Technological innovation therefore seems to be a vastly complex subject, following no set pattern, yet contributing greatly to the welath and the well-being of peoples.

### **Managing Technological Innovation**

The proper encouragement, harnessing and direction of technological innovation poses considerable problems. These need to be understood by governments and managers alike, if developing economics are to reap the maximum benefit from the genius of their people. Unfortunately, the current trend in management training and education is to emphasise 'management' as an end in itself rather than as the means of co-ordinating and directing the activities of the technical and professional people throughout the enterprise, towards the aim of evolving a product or a service which will offer to the market better satisfaction than it can obtain elsewhere.

The classic successes in the Japanese camera, radio and television and ship-building industries suggest that the managements concerned are well aware of this. The general principles, however, need to be more widely known. They have

been clarified in Britain through the Q&R movement there, and owes something to my own experience in the aeroengine industry, and with Rolls-Royce Ltd., a company which has for more than 60 years maintained technological leadership in its field, by a long succession of 'first' and 'bests.'

There is one other matter of great importance to the encouragement of technological innovation—the attitude of Government. Particularly in large-scale industry, to make an important advance may involve the company concerned in very considerable risks. Since the successful outcome of the enterprise cannot fail to improve the nation's prosperity, it is justifiable to expect from the Government sympathy and support. This must surely follow when there is on the part of Government the same understanding of the technological activities which are essential for satisfactory product as is required of successful managers.

The extreme example is the American space programme. The value of the lessons learnt, and the technological 'spin-offs' from the Appollo programme cannot yet be assessed. It is doubtful if it will, in the long run, be less than the vast money expended.

In passing, it may be mentioned that it was the coupling of Reliability with Quality which helped British managers to broaden their horizons along the lines discussed above.

It is always difficult to discover the beginnings of any trend or movement. That great technological innovation, the aeroplane received its greatest impetus in the early days of the 1914-1918 war. The importance of total management as clearly seen by the engineers employed at what became the Royal Aircraft Establishment at Farnborough. By 1915 a formal pattern of a planned system of activities had been laid down, which assured the consistent quality and reliability of aircraft and of aero-engines. This was the forerunner of the Quality Assurance of the Bell Telephone System, of MIL-Q-9858A and of NASA's similar approach. In 1930 a team from the British Aeronautica Inspection Directorate visited Japan to advise the Government on the British methods.

In the time available it has been possible only to outline briefly the importance of and the problems involved in the management of technological innovation. I might end with two quotations. In 1832 John Stuart Mill said: 'Where, then, is the remedy?...It is the distinct recognition that the end of education is not to teach, but to fit the mind for learning from its own consciousness and observation..... Let society cease to stigmatize the independent thinking'.

Forty years later, the Emperor Meiji decreed that 'education shall be so diffused that there shall be no ignorant families in the land, and no family with one ignorant member.'



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The Administrator or the Managing Director of an Industry is concerned with getting the maximum value for the money invested in the business. In effect, it means he has to administer to obtain maximum out-turn per work man or operator. In addition to maximising out-turn, he has to keep other costs, such as overheads, within limits so that he may not only compete for his products with others in the field, but also develop sufficient reserve to expand the business as well as give an adequate return to the shareholders. The spheres in which the Managing Director has to pay special attention for the efficient running of his factory and hence its productivity, are briefly dealt with in this article.

### **Production.**

The cost of production is, needless to say, the first concern of the administrator. The workman gives an out-turn depending on the materials, machines, tools and the working conditions made available to him. Productivity is the ratio of the product output to the input of material and labour. With the employment of improved machines, increase in output can be achieved, but this has to be weighed against the cost of capital in the purchase of new and more sophisticated machines and in their maintenance. Materials in more conveniently usable forms, such as, strips in place of sheets, can also be obtained to reduce production costs and increase productivity. The cost of materials, however, has to be weighed against the cost of labour before such steps are taken.

In the input of materials, there are severe restrictions because of shortage of foreign exchange. In the use of indigenous materials, the Managing Director has to decide as to whether indigenous sources would, if encouraged, be in a position to supply materials to the required specifications and also whether the quality of materials would be fairly consistent so as not to affect production after he has switched over to indigenous sources. Another important item to be considered is the amount of scrap. Scrap has a bearing on the cost of production. For minimising the amount of scrap, methods of improvement and the types of machines and tools used have both to be considered. It is feasible to use indigenous materials, though they may be, in

# AN ADMINISTRATOR LOOKS AT PRODUCTIVITY

U. SHANKAR

the earlier stages of development, somewhat inferior in quality compared to foreign materials, for this purpose, by improved tooling. Even the lowering of output in some cases in order to reduce scrap may sometimes be advantageous, if one has to use comparatively inferior type of raw materials because of non-availability of requisite raw material from foreign sources. Such reduction in output for conserving foreign exchange may be desirable irrespective of economic considerations in the overall interest of the country but should be resorted to only as a very temporary expedient and production should be improved by appropriate tooling.

### **Quality control.**

Quality control, as is well known, is very necessary in a manufacturing concern. Suitable control charts and inspection procedures are necessary for keeping up the quality of production and for building up the reputation of the Company for its products. The Managing Director should suitably staff the inspection Wing of the factory and adopt inspection procedures so that the general efficiency and the tone of working of the factory is kept as high as possible.

### **Purchase and inventories.**

Purchase is now recognised as a highly specialised function. The Purchase Department has not only to see that materials are bought at reasonable prices,

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but that they are of proper quality. It is also necessary to ensure that the materials arrive in time so as not to jeopardise production at any stage. The tendency generally is to carry a high stock of materials to safeguard against shortage of materials. The effective control of material costs hinges on the maintenance of minimum stock levels and maximum turnover rate of stores. The main consideration for the administrator is the achieving of high capital turn-over rate rather than a low level of material stocks, though this is important by itself. For accomplishing this, it is essential to employ capital to as great an extent as possible, on fast moving stock items. This method of stock control, known as the ABC Method, keeps the cost of inventories low by the Management directing its main effort towards the fast moving items in which maximum capital is employed.

### Personnel.

The effect of a sound personnel policy on the efficiency of the organisation and hence on productivity cannot be overstressed. Personnel policy in this regard covers recruitment, training and promotional avenues. It is necessary for the Managing Director to adopt suitable policies and procedures for recruitment, training, and promotion, consistent with the objectives of expansion and research and development. He has constantly to keep in view competition, if he is operating in a free market and lowering of prices for economic development of the country in evolving his personnel policy. The recruitment rules should lay down the minimum educational qualifications for the various jobs—operatives, clerical, supervisory and accounts. While selecting personnel, suitability tests should be conducted. These should include tests of powers of observation, mechanical ability tested by the now well-known method of assembling geometrical patterns, general intelligence and psychology tests. It has to be remembered here that an operator in a factory is situated in an environment entirely different from what he has been used to. Several candidates may possess the necessary educational qualifications, but may not be able to adapt themselves to factory working and discipline. After recruitment, the necessary training should be imparted by well-qualified instructors able to train

the candidates properly, eliminating all unnecessary movements which are wasteful and which reduce the efficiency of the operator. The instructors should have had training in time and motion study, in addition to their knowledge of handling machines and men. They should be capable of enthusing the trainee to learn to do his work in the right way and get interested in it.

### **Promotional avenues.**

It is necessary to offer incentives in the shape of promotions to personnel engaged in the various activities in a factory. It is not uncommon for efficiency to be affected by the workman's feeling, growing over a number of years, that he has no scope for advancement. A method of proper assessment of workman's abilities has, for this purpose, to be devised so as to offer to those deserving, higher posts within a reasonable length of service. In the assessment of the workman's abilities, his assistance can also be obtained for supplementing the assessment given by his supervisor. Several methods of self-assessment have been tried out. A simple method is for the workman to himself indicate, in a suitably devised form, his achievements and what he has done in the shape of suggestions for improvements in production techniques relating to his job. Such factors as attendance, keenness for work and intelligence can only be assessed by the supervisor, who should separately give his assessment.

\*Promotional avenues should be available to the deserving and stagnation for long periods of time at a particular level should not normally be permitted particularly in the case of those who have shown marked ability.

### **Grievance procedure.**

There should be a properly devised grievance procedure to enable individual and group grievances of the workmen to be brought to the notice of the Management for rectification. Individual grievances may cover all aspects of the individual's association with the Company, such as seniority, promotion, transfer, punishment, etc. Group grievances cover service conditions relating to a group such as,

promotional avenues of a class of workmen, allowances for arduous work, etc. The importance of a properly devised grievance procedure can be judged from the fact that in the case of a factory, the Managing Director had to intervene to prevent the dismissal of a workman for alleged inefficiency when actually the conditions under which the employee had to work for loading trucks in the open and exposed to the hot sun were such that he could not possibly function efficiently; the Managing Director, whilst retaining the workman ordered that a shade should be built. Such a situation would never have arisen had there been a properly devised grievance procedure in operation in the Company.

### **Suggestions scheme.**

For workmen to be able to make their contribution to the efficiency of the factory and hence to production, it is necessary to have a properly devised suggestions scheme whereby the workers are awarded for suggestions for improvements in working that they may be able to make. It is found that workmen are able to give vital suggestions which lead to economies in working by their familiarity with their work.

With regard to officers and supervisors, those who show conspicuous ability in getting the co-operation of others, maintenance of discipline and capacity to organise their work should be specially rewarded by promotions or special increments of salary. They should be trained for higher appointment by giving them experience in the working of the various departments in the factory.

### **Incentives.**

A properly devised incentive scheme, drawn up in consultation with the Employee's Union, provide the necessary impetus to the worker to improve his performance. There are several well tried schemes of payment by results and a suitable one may be adopted depending on the conditions prevailing in a particular factory.

### **Z-D Programmes.**

Z-D (Zero Defects) programmes for motivating the worker to achieve the absolute minimum in rejections and thus increasing productivity have been



tried out in the United States and in Europe and have yielded handsome returns. The worker has to be educated in the basic requirements of the programme and its benefits to him. The promise of handsome rewards for achieving the minimum in rejects results in the worker coming up with suggestions for improvements in production methods relating to his work. The awards enable the worker to win a place of pride amongst his colleagues.

### **Some aspects of production**

So as to utilise capital to the maximum, it is generally the practice to keep sufficient machine capacity available for the various components to be produced. However, as the work load increases, because of expansion or even otherwise, it is found that due to pressures from the Sales Department the tendency to produce the higher valued items to the detriment of the lower valued items increases, with the result that bottlenecks occur. The planners are unable to cope with this problem because of the tendency of labour to earn higher incentives. It is necessary, therefore, to devise methods to see that production is balanced and backlogs do not occur. For this purpose, planning of production at the various work centres should be in accordance with the "Least Process Time" method whereby the items that require the least process time are taken up first at the work centre followed sequentially with those items that require higher process time.

### **Invest in Tool Room**

For tooling to be constantly improved, it is worthwhile for the Company to invest in a well-equipped tool room. The employment of capital for this purpose yields handsome dividends. It gives scope for the Methods Engineer in the organisation to exercise his talents and for suggestions for improving productivity by the use of more sophisticated or multi-stage tools to be readily admitted.

The other factors that lead to productivity such as proper association of machines for saving on material handling and flow of processed and semi-processed components, proper lighting, good house-keeping, etc., are facts to which the Managing Director should of course, pay attention.

## **Factory Communication**

The importance of an efficient factory communication system cannot be overstressed. It is of inestimable value for the worker to feel that he is participating in the enterprise in the interests of the Company and the country. Discussions at the shop level between supervisors, foremen and workers to explain the objectives of the production programme, for suggestions for achieving better output, steps to be taken for improving safety and other matters relating to the day-to-day working of the shop lead to the intelligent worker feeling that his place in the organisation is of significance and importance.

### **Effective Channel**

For the supervisor and foreman to be able to communicate effectively with the worker, the Management should devise a suitable communication channel with the Shop Superintendents, foremen and supervisory staff for explaining to them such matters of interest as the objectives of the Company, the state of the market as it fluctuates from time to time, the labour and personnel policies of the Company, etc. The establishment of a channel communication also results in vital information being fed back to the management with suggestions for improvements in the working of the enterprise. The understanding of the Company's working and objectives thus created has a subtle and profound influence and leads to happier relationship between all sections of the undertaking.

### **Marketing**

Without proper marketing and sales effort the efficiency and productivity of the factory would suffer. This also covers the pricing policy and the determination of priorities for the manufacture and sale of various goods produced in the factory. The subject of marketing is vast, but this is an area to which the Managing Director has to devote special attention. Market surveys carried out with the help of people well qualified to make them with comparison of prices of goods manufactured by competitors are determining factors in policy decisions by the Managing Director regarding the price to be charged and the determination of the programme of manufacture.

# THE HUMAN ELEMENT IN PRODUCTIVITY

BY

M. M. RAJENDRAN, I.A.S.,  
*Commissioner of Labour,  
Government of Tamil Nadu.*

In any situation, a rise in productivity is to be achieved :—

(1) by minimising the INPUT resources through the elimination of WASTE in all forms ; and

(2) by maximising the values that are extracted from these resources and added to the product or OUTPUT. While both these objectives are attained by managerial and technological improvements it must not be forgotten that material resources can be activated and made available as goods and services ONLY through human endeavour. The attitude and the contribution of the MAN behind every activity is the predominant factor, specially so, in the developing economies of Asia where the task of productivity is not merely to produce

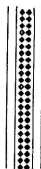
more and more from less and less but also FOR MORE and MORE PEOPLE. No productivity movement can therefore make much headway in these countries unless it carries the people along with it and under-scores and improves the efficiency of MANPOWER—as in the case of Japan—with continuous and sustained attention despite the meagreness of its material resources.

This, at once, dictates that the consciousness of productivity and its potential in all organised human activities should not only be made universal but it should also be sustained by practical evidence on a physical plane of the benefits of higher productivity to ALL those who worked for it, commensurate with their actual promotional contribution

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but conditioned by the developmental requirements for the future. In this process, it is important that efforts and incentives are linked in terms of well-defined and clearly understood standards and the wage levels have a proper correlation with price levels so that higher real earnings and purchasing power can keep the market expanding and help consumption keep pace with increasing production, thus paving the way for productivity and prosperity to act and react on each other and generate further productivity and prosperity.

### Unemployment is a Waste.

Such an informed and enlightened approach to the movement for productivity from all its participants calls for the systematic edification and development of our manpower in all walks of life at all levels. This in turn enjoins the eradication of illiteracy and the improvement of the level of education. This applies not only to children but also to adults, many of whom are either unemployed or are not employable due to the lack of skill often attributable to educational limitations. Special urgency attaches to the primacy of this task of manpower development in Asian Countries when we see that out of the annual population rise in the world of about 65 million, 40 million is in Asia alone. Again, the density of population in the member-countries of the Asian Productivity Organisation is nearly three times as high as the average in the world. In such a situation the non-utilisation of vast resources of manpower through unemployment inhibits productivity and hampers economic development by imposing the burden of such manpower waste on the producers and consumers, the two fundamental elements for generating economic activities in any community.

### Ratio of manpower in Working Capital.

In most developing countries while nearly 80 to 90 per cent of the working capital is deployed on materials, hardly, 15 per cent of the cost incurred is on labour, which in developed countries could be as high as 50 per cent. While this highlights the comparative importance of material inputs in the developing countries we must not

# INFORMED INDUSTRIAL RELATIONS IN TAMIL NADU

lose sight of the fact that it is the efficiency of the human skill and effort which leads to a rise in productivity in the ultimate analysis. A survey carried out in our own country indicated that productivity could be easily raised to any thing from 34 to 90 per cent in many small and medium industries with proper motivation and incentives.

This underlines the need for a proper attitude to productivity in the mind of MAN, an analytical attitude of looking at things objectively and breaking away from tradition and set habits to welcome a change for the better and evolve the optimum method of performance. To this end one branch of Productivity deals with HUMAN RELATIONS and the study of what motivates a man to work and work happily. The disciplines pressed into service are Psychology, Sociology, Ergonomics, Personnel Management, Environmental Engineering, etc. The main philosophy is that a worker is not a mere tool of production through his pair of hands but a whole human being with his own personality as an individual. Likewise a factory is not a mere workhouse for production but essentially a place of human habitation where the worker spends half his waking hours. While he may have to go a long way before he can fully enjoy in his dwelling, the benefits of the higher standard of living to which end he toils, he must have a foretaste of it at least where he works, in the form of safe and comfortable working conditions and other amenities of modern living and welfare facilities.

## Managerial personnel.

Another branch of Productivity deals with programmes for the training and development of managerial personnel from top management down to first line supervisors in the different functional areas of Purchasing, Cost and Budgetary Control,

Marketing and Administration. Industrial Engineering is another branch of Productivity which helps management take better decisions by making recommendations based on an objective, systematic and critical analysis of FACTS relating to any work system or work situation. The techniques used are Plant Layout and Materials Handling Work Study, Inventory Control, Preventive Maintenance, Fuel Efficiency Service, Production Planning and Control, Quality Control, Operations Research, PERT, etc. The emphasis in all these programmes and techniques is to motivate PEOPLE all the time to reduce costs and add values to the products, making through a better utilisation of material and human resources for an acceleration of the tempo of activities which leads to further growth and more employment opportunities in return.

It gives me pleasure to record here the good work done in our State in the propagation of the movement for productivity by the Regional Directorate at Madras of the National Productivity Council and the six Local Productivity Councils at Coimbatore, Madras, Madurai, Salem, Tiruchi and Tirunelveli. Special mention must be made of the unique role played by the Madras Productivity Council as Technical Assessor for the fixation of work assignment, efficiency, incentives, etc., in about 20 industrial disputes so far on appointment by Industrial Tribunals or Arbitrators or by common request of the Management and Union. In all these cases representatives of the Management and Union are first put through a programme of training in the methodology of the studies and the studies are carried out in the presence of Union representatives. The acceptance of such scientific studies by the Unions is a good augury for the future of informed industrial relations in the State.

## **A Tamilian to solve London's traffic Problems.**

If London's traffic snarls are ever untangled, and if the problem of too many cars using too little road space is ever solved, it is likely that this consummation will owe something to Thiru Sambamurthy Thyagarajan, 33 year old traffic and town planner and architect who has just taken over the important post of Chief Planner, Transportation, in the Department of Planning and Transportation at the Great London Council.

Of the hundreds of applicants for the post, which carries a salary of Rs. 1,26,000 (£ 7,000) a year, twenty-eight were short listed.

Thiru Thyagarajan comes to his new post with an impressive record. He attended Bombay University and the Sir J.J. College of Architecture and practised for a year as an architect in Bombay before going to the United States in 1968. Later he was planning consultant for Wayne State University Centre for urban studies and helped produce a new road system for Detroit. He was also resident consultant to the Belgrade Town Planning Institute and for this job he managed to become fluent in the language in 6 months.

His London job is the biggest he has ever tackled. The Greater London Council area is more than 600 square miles with a population of about 8 million. The functional areas of the department he has joined include highway and

## **LONDON'S TRAFFIC MAZE TO BE SOLVED BY TAMILIAN**



**Sholingur born  
Thyagarajan  
Appointed for the  
job.**

public transportation, airports and ports, parking and terminals.

The statistics of the department's responsibilities are impressive. There are almost 8,000 miles of roads in Greater London, and 1,600,000 cars and more than a quarter of million goods vehicles are licensed there. In a 24 hour period 430,000 cars come into central London carrying 600,000 people. During a day London Transport buses carry 5 million passengers and the underground railway 2 million.

Thiru Thyagarajan's approach to his new job is one of cautious optimism. He wryly discounts any suggestion that he may be able to perform "instant miracles". "Traffic problems are solved by evolutionary developments", he says flatly. "There is no one answer to present-day traffic problems".

"The car is an intrinsic part of the social environment. It cannot be banned from city traffic because such a move would not be acceptable. The car has great advantages; it is, for instance, more flexible than public transport. The planner's job is to create options for the motorist, to make attractive alternatives to the use of a car in cities."

Thiru Thyagarajan lives in London with his wife and young daughter and travels to his office, a few minutes walk from the House of Commons—by the underground, a journey which takes him 35 minutes.



# Dr. Nalini has an important message to all married couples:



"The problem facing millions of couples in the country is simply this: how to provide the essentials of life to everyone in the family. We talk about green revolution, but is it really going to help us because our increasing population wipes off all our surplus resources of food, clothing, and employment. At a rate faster than any Government can provide".

"How, then, are we going to give greater opportunities for our children and ensure our own happiness? Happiness is not just a national problem. Rather it is a matter of individual planning and adjustment: My advice to all couples is "Plan your family and live happily"!

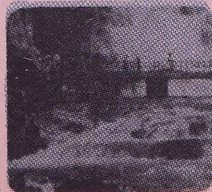
Today you can have a child by choice, not by chance. That is when you desire one, and can give it the best care and attention. Ask your doctor. Ask any of your friends who have benefited by family planning. There are 10 lakhs of them in Tamil Nadu. Visit one of the family planning clinics. You'll get free advice, help and other aids from trained staff.



***Plan your family! And live happily!***

Issued by : Director of Information & Publicity,  
Govt. of Tamil Nadu, Madras-9.

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