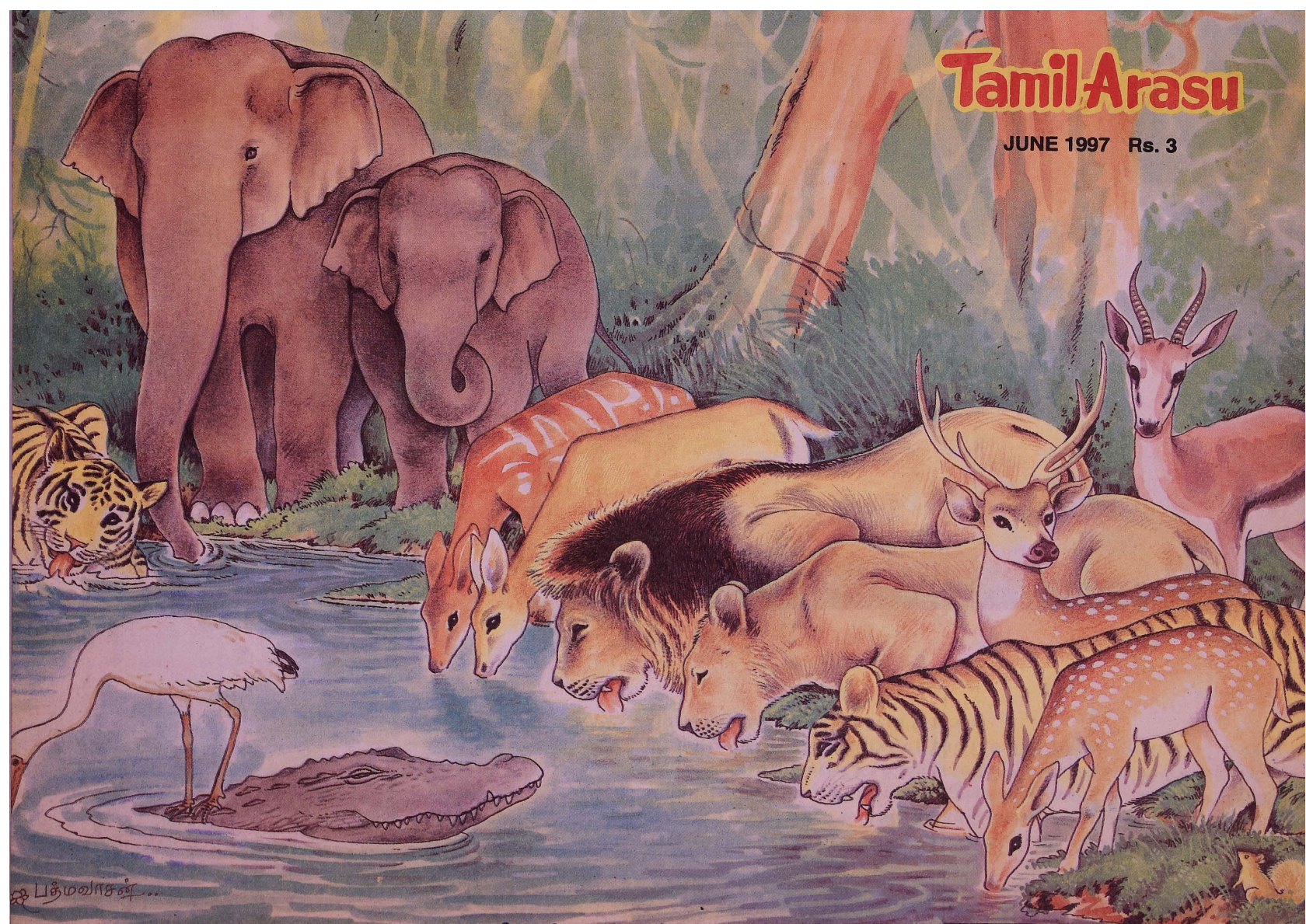


Tamil Arasu

JUNE 1997 Rs. 3





Her Excellency the Governor of Tamil Nadu, Justice Fathima Beevi presented an award to Tmt. Chandiraleela Bharathiraja at the 1995 Annual Film Award Function at Kalaivanar Arangam on 16.5.97. Thiru Rajni Kanth donated Rs.5 lakhs to the Chief Minister's Public Relief Fund towards rehabilitating the families of the victims of recent disturbances in the Southern Districts.





Tamil Arasu

Magazine of the Government of Tamil Nadu

JUNE 1997



In this issue...

Cash Award to top rankers in +2 Exams	...	2
The Urban challenge	...	3
The Art of maturity	...	8
Peacock	...	9
A threatened future	...	10
Environmental protection in Tamil Nadu	...	17
Antimicrobial drugs fail	...	21
Addiction - a disease	...	24
Invaluable artefacts of 2400 years old unearthed from Alagankulam and Kodumanal	...	31



Editor and Publisher : V. Irai Anbu, I.A.S.,
Director of Information & Public Relations
Government of Tamil Nadu

Office : Tamil Arasu Office, Government Estate
Anna Salai, Chennai - 600 002.
Phone : 568926/568927

Printed at : 'Tamil Arasu Press', Chennai - 600 002.

CASH AWARD TO TOP RANKERS IN +2 EXAMS

The Hon'ble Chief Minister, Kalaingar M. Karunanidhi on 31.5.97 announced that the Government would bear the expenses for the higher studies of the students, who have secured the top three ranks in the Plus Two exams in the State.

The Chief Minister presented Rs.5000 to each of them at the Secretariat as a token appreciation of the efforts of the top rankers.

The Chief Minister also presented a cheque for Rs.5000 to the top ranker in Tamil and Rs.3000 each to the second and third ranker in the subject. Similar cash awards would be given to 87 students in various districts, the Chief Minister announced.

The Hon'ble Minister for Education, Thiru K. Anbazhagan was present on the occasion.



The Urban Challenge

By the turn of the century, almost half the world will live in urban areas—from small towns to huge megacities. The world's economic system is increasingly an urban one, with overlapping networks of communications, production and trade. This system, with its flows of information, energy, capital, commerce, and people, provides the backbone for national development. A city's prospects—or a town's—depend critically on its place within the urban system, national and international. So does the fate of the hinterland, with its agricultural, forestry and mining, on which the urban system depends.

In many nations, certain kinds of industries and service enterprises are now being developed in rural areas. But they receive high-quality infrastructure and services, with advanced telecommunications systems ensuring that their activities are part of the national (and global)

urban-industrial system. In effect, the countryside is being 'urbanized'.

THE GROWTH OF CITIES

This is the century of the 'urban revolution'. In the 35 years since 1950, the number of people living in cities almost tripled, increasing by 1.25 billion. In the more developed regions, the urban population nearly doubled, from 447 million to 838 million. In the less developed world, it quadrupled, growing from 286 million to 1.14 billion.

Over only 60 years, the developing world's urban population increased tenfold, from around 100 million in 1920 to close to 1 billion in 1980. At the same time, its rural population more than doubled.

Population Living in Urban Areas, 1950-2000

Region	1950	1985	2000
	(percent)		
World Total	29.2	41.0	46.6
More Developed Regions	53.8	71.5	74.4
Less Developed Regions	17.0	31.2	39.3
Africa	15.7	29.7	39.0
Latin America	41.0	69.0	76.8
(Temperate South America)	(64.8)	(84.3)	(88.6)
(Tropical South America)	(35.9)	(70.4)	(79.4)
Asia	16.4	28.1	35.0
(China)	(11.0)	(20.6)	(25.1)
(India)	(17.3)	(25.5)	(34.2)
	(million)		
World Total	734.2	1,982.8	2,853.6
More Developed Regions	447.3	838.8	949.9
Less Developed Regions	286.8	1,144.0	1,903.7
Africa	35.2	164.5	340.0
Latin America	67.6	279.3	419.7
Asia	225.8	791.1	1,242.4

Source : 'Urban and Rural Population Projections, 1984', Unofficial Assessment, Population Division, UN, New York.

- In 1940, only one person in eight lived in an urban centre, while about one in 100 lived in a city with a million or more inhabitants (a 'million city').
- By 1960, more than one in five persons lived in an urban centre, and one in 16 in a 'million city'.
- By 1980, nearly one in three persons was an urban dweller and one in 10 a 'million city' resident.

The population of many of sub-Saharan Africa's larger cities increased more than sevenfold between 1950 and 1980-Nairobi, Dares Salaam, Nouakchott, Lusaka, Lagos, and Kinshasa among them. During these same 30 years, populations in many Asian and Latin American cities (such as Seoul, Baghdad, Dhaka, Amman, Bombay, Jakarta, Mexico City, Manila, Sao Paulo, Bogota and Managua) tripled or quadrupled. In such cities, net immigration has usually been a greater contributor than natural increase to the population growth of recent decades.

In many developing countries, cities have thus grown far beyond anything imagined only a few decades ago-and at speeds without historic precedent. But some experts doubt that developing nations will urbanize as rapidly in the future as in the last 30-40 years, or that megacities will grow as large as UN projections suggest. Their argument is that many of the most powerful stimuli to rapid urbanization in the past have less influence today, and that changing government policies could reduce the comparative attractiveness of cities, especially the largest cities, and slow rates of urbanization.

The urban population growth rate in developing countries as a whole has been slowing down-from 5.2 percent per annum in the late 1950s to 3.4 percent in the 1980s. It is expected to decline even further in the coming decades. Nevertheless, if current trends hold, Third World cities could add a further three-quarters of a billion people by the year 2000. Over the same time, the cities of the industrial world would grow by a further 111 million.

These projections put the urban challenge firmly in the developing countries. In the space of just 15 years (or about 5,500 days), the developing world will have to increase by 65 percent its capacity to produce and manage its urban infrastructure, services, and shelter-merely to maintain present conditions. And in many countries, this must be accomplished under conditions of great economic hardship and uncertainty, with resources diminishing relative to needs and rising expectations.

DOMINATING CITIES

Nairobi, Kenya : In 1975, Nairobi had 57 percent of all Kenya's manufacturing employment and two-thirds of its industrial plants. In 1979, Nairobi contained around 5 percent of the national population.

Manila, Philippines : Metropolitan Manila produces one-third of the nation's gross national product, handles 70 percent of all imports, and contains 60 percent of the manufacturing establishments. In 1981, it contained around 13 percent of the national population.

Lima, Peru : The metropolitan area of Lima accounts for 43 percent of gross domestic product, for four-fifths of bank credit and consumer goods production, and for more than nine-tenths of capital goods production in Peru, in 1981, it was home to around 27 percent of Peruvians.

Lagos, Nigeria : In 1978, Lagos' metropolitan area handled over 40 percent of the nation's external trade, accounted for over 57 percent of total value added in manufacturing, and contained over 40 percent of Nigeria's highly skilled workers. It contains only some 5 percent of the national population.

Mexico City, Mexico : In 1970, with some 24 percent of Mexicans living there, the capital contained 30 percent of the manufacturing jobs, 28 percent of employment in commerce, 38 percent of jobs in services, 69 percent of employment in national government, 62 percent of national investment in higher education, and 80 percent of research activities. In 1965, it contained 44 percent of national bank deposits and 61 percent of national credits.

Sao Paulo, Brazil : Greater Sao Paulo, with around one-tenth of Brazil's national population in 1980, contributed one-quarter of the net national product and over 40 percent of Brazil's industrial value-added.

Source : J.E. Hardoy and D.Satterthwaite, 'Shelter, Infrastructure and Services in Third World Cities', Habitat International, Vol. 10, No.4, 1986.

The Crisis in Third World Cities

Few city governments in the developing world have the power, resources, and trained staff to provide their rapidly growing populations with the land, services and facilities needed for an adequate human life: clean water, sanitation, schools and transport. The result is mushrooming illegal settlements with primitive facilities, increased

'Given the distribution of incomes, given the foreseeable availability of resources-national, local and world-wide-given present technology, and given the present weakness of local government and the lack of interest of national governments in settlement problems. I don't see any solution for the Third World city.'

Third World cities are and they will increasingly become centres of competition for a plot to be invaded where you can build a shelter, for a room to rent, for a bed in a hospital, for a seat in a school or in a bus, essentially for the fewer stable adequately paid jobs, even for the space in a square or on a sidewalk where you can display and sell your merchandise, on which so many households depend.

The people themselves organize and help construct most new housing units in Third World cities and they do so without the assistance from architects, planners, and engineers, nor from local or national governments. Furthermore, in many cases, national and local governments are frequently harassing these groups. The people themselves are becoming increasingly the true builders and designers of Third World cities and quite often the managers of their own districts.'

*Jorge Hardoy
International Institute for
Environment and Development
WCED Public Hearing, Sao Paulo, 28-29 Oct 1985*

overcrowding, and rampant disease linked to an unhealthy environment.

In most Third World cities, the enormous pressure for shelter and services has frayed the urban fabric. Much of the housing used by the poor is decrepit. Civic buildings are frequently in a state of disrepair and advanced decay. So too is the essential infrastructure of the city; public transport is overcrowded and overused, as are roads, buses and trains, transport stations, public latrines, and washing points. Water supply

systems leak, and the resulting low water pressure allows sewage to seep into drinking water. A large proportion of the city's population often has no piped water, storm drainage, or roads.

A growing number of the urban poor suffer from a high incidence of diseases; most are environmentally based and could be prevented or dramatically reduced through relatively small investments. Acute respiratory diseases, tuberculosis, intestinal parasites, and diseases linked to poor sanitation and contaminated drinking water (diarrhoea, dysentery, hepatitis and typhoid) are usually endemic; they are one of the major causes of illness and death, especially among children. In parts of many cities, poor people can expect to see one in four of their children die of serious malnutrition before the age of five, or one adult in two suffering intestinal worms or serious respiratory infections.

Air and water pollution might be assumed to be less pressing in Third World cities because of lower levels of industrial development. But in fact hundreds of such cities have high concentrations of industry. Air, water, noise, and solid waste pollution problems have increased rapidly and can have dramatic impacts on the life and health of city inhabitants, on their economy, and on jobs. Even in a relatively small city, just one or two factories dumping wastes into the only nearby river can contaminate everyone's drinking, washing and cooking water. Many slums and shanties crowd close to hazardous industries, as this is land no one else wants. This proximity has magnified the risks for the poor, a fact demonstrated by great loss of life and human suffering in various recent industrial accidents.

The uncontrolled physical expansion of cities has also had serious implications for the urban environment and economy. Uncontrolled development makes provision of housing, roads, water supply, sewers and public services prohibitively expensive. Cities are often built on the most productive agricultural land and unguided growth results in the unnecessary loss of this land. Such losses are most serious in nations with limited arable land, such as Egypt. Haphazard development also consumes land and natural

Environmental Problems in Third World Cities

Out of India's 3,119 towns and cities, only 209 had partial and only 8 had full sewage and sewage treatment facilities. On the river Ganges, 114 cities each with 50,000 or more inhabitants dump untreated sewage into the river every day. DDT factories, tanneries, paper and pulp mills, petrochemical and fertilizer complexes, rubber factories, and a host of others use the river to get rid of their wastes. The Hoogly estuary (near Calcutta) is choked with untreated industrial wastes from more than 150 major factories around Calcutta. Sixty percent of Calcutta's population suffer from pneumonia, bronchitis, and other respiratory diseases related to air pollution.

Chinese industries, most of which use coal in outdated furnaces and boilers, are concentrated around 20 cities and ensure a high level of air pollution. Lung cancer mortality in Chinese cities is four to seven times higher than in the nation as a whole, and the difference is largely attributable to heavy air pollution.

In Malaysia, the highly urbanized Klang Valley (which includes the capital, Kuala Lumpur) has two to three times the pollution levels of major cities in the United States, and the Klang river system is heavily contaminated with agricultural and industrial effluents and sewage.

Sources: Centre for Science and Environment, State of India's Environment: A Citizens' Report (New Delhi: 1983); V. Smil, The Bad Earth: Environmental Degradation in China (London: Zed Press, 1986); Sahabat Alam Malaysia, The State of Malaysian Environment 1983-84-Towards Greater Environmental Awareness (Penang, Malaysia: 1983)

landscapes needed for urban parks and recreation areas. Once an area is built up, it is both difficult and expensive to re-create open space.

In general, urban growth has often preceded the establishment of a solid, diversified economic base to support the build-up of housing, infrastructure, and employment. In many places, the problems are linked to inappropriate patterns of industrial development and the lack of coherence between strategies for agricultural and urban development. The world economic crisis of the 1980s has not only reduced incomes, increased unemployment, and eliminated many social programmes. It has also exacerbated the already

low priority given to urban problems, increasing the chronic shortfall in resources needed to build, maintain, and manage urban areas.

The Situation in Industrial World Cities

The Commission's focus on the urban crisis in developing countries is not meant to imply that what transpires in the cities of the industrial world is not of crucial importance to sustainable development globally. It is. These cities account for a high share of the world's resource use, energy consumption, and environmental pollution. Many have a global reach and draw their resources and energy from distant lands, with enormous aggregate impacts on the ecosystems of those lands.

Nor is the emphasis on Third World cities meant to imply that problems within the cities of industrialized countries are not serious. They are. Many face problems of deteriorating infrastructure, environmental degradation, inner-city decay, and neighbourhood collapse. The unemployed, the elderly, and racial and ethnic minorities can remain trapped in a downward spiral of degradation and poverty, as job opportunities and the younger and better-educated individuals leave declining neighbourhoods. City or municipal governments often face a legacy of poorly designed and maintained public housing estates, mounting costs, and declining tax bases.

But most industrial countries have the means and resources to tackle inner-city decay and linked economic decline. Indeed, many have succeeded in reversing these trends through enlightened policies, co-operation between the public and private sectors, and significant investment in personnel, institutions and technological innovation. Local authorities usually have the political power and credibility to take initiatives and to assess and deploy resources in innovative ways reflecting unique local conditions. This gives them a capacity to manage, control, experiment, and lead urban development. In centrally planned economies, the ability to plan and implement plans for urban development has been significant. The

priority given to collective goods over private consumption may also have increased the resources available for urban development.

The physical environment in many cities of the industrial world has improved substantially over the decades. According to the historical records of major centres-like London, Paris, Chicago, Moscow, and Melbourne-it was not too long ago that a major part of their population lived in desperate circumstances amid gross pollution. Conditions have improved steadily during the past century, and this trend continues, although the pace varies between and within cities.

In most urban areas, almost everyone is served by refuse collection today. Air quality has generally improved, with a decline in the emission of particles and sulphur oxides. Efforts to restore water quality have met with a mixed record of success because of pollution from outside of cities, notably nitrates and other fertilizers and pesticides. Many coastal areas, however, close to major sewage outlets, show considerable deterioration. There is rising concern about chemical pollutants in drinking water and about the impacts of toxic wastes on groundwater quality. And noise pollution has tended to increase.

Motor vehicles greatly influence environmental conditions in the cities of the industrial world. A recent slowdown in the growth rate of vehicle numbers, stricter emission standards for new vehicles, the distribution of lead-free gasoline, improvements in fuel efficiency, improved traffic management policies, and landscaping have all helped reduce the impacts of urban traffic.

Public opinion has played a critical role in the drive to improve urban conditions. In some cities, public pressure has triggered the abandonment of massive urban development projects, fostered residential schemes on a more human scale, countered indiscriminate demolition of existing buildings and historic districts, modified proposed urban highway construction, and led to transformation of derelict plots into playgrounds.

The problems that remain are serious but they affect relatively limited areas, which makes them

Large cities by definition are centralized, manmade environments that depend mainly on food, water, energy, and other goods from outside. Smaller cities, by contrast, can be the heart of community-based development and provide services to the surrounding countryside.

Given the importance of cities, special efforts and safeguards are needed to ensure that the resources they demand are produced sustainably and that urban dwellers participate in decisions affecting their lives. Residential areas are likely to be more habitable if they are governed as individual neighbourhoods with direct local participation. To the extent that energy and other needs can be met on a local basis, both the city and surrounding areas will be better off.

*'Sustainable Development and How to Achieve It'
Global Tomorrow Condition
WCED Public Hearing, Ottawa, 26-27 May 1986*

much more tractable than those of Cairo or Mexico City, for example. Certain aspects of urban decline even provide opportunities for environmental enhancement. The exodus of population and economic activities, while creating severe economic and social difficulties, reduces urban congestion, allows new uses for abandoned buildings, protects historic urban districts from the threat of speculative demolition and reconstruction, and contributes to urban renewal. The de-industrialization of these cities is often counterbalanced by the growth of the services sector, which brings its own problems. But this trend creates opportunities to remove heavy industrial pollution sources from residential and commercial areas.

The combination of advanced technology, stronger national economies, and a developed institutional infrastructure gives resilience and the potential for continuing recovery to cities in the industrial world. With flexibility, space for manoeuvre, and innovation by local leadership, the issue for industrial countries, is ultimately one of political and social choice. Developing countries are not in the same situation. They have a major urban crisis on their hands.

*Courtesy: Our Common Future
Published by: World Commission
on Environment and Development*

The Art of Maturity



he distilled experience of many men has resulted in discoveries like these about the art of mature living...

That life is too short to be wasted in hatred, revenge, fault-finding, prejudice, intolerance and destruction.

That only the affirmative approach inspires progress. We should follow the wise advice of Charles W. Eliot and "cultivate a calm nature, expectant of good."

That our basic direction should always be toward wholeness of life. The great life is built on deep and enduring values. Like a giant tree, we should grow from within.

That no outstanding work is done alone. Miracles can be achieved when we don't care who gets the credit.

That we should not dodge reality or turn our backs on situations that must be faced. Private bravery is the price of personal victory.

That it is never wise to become too elated or too discouraged. As Robert Louis Stevenson suggested, we should strive to "go on in fortune and misfortune like a clock during a thunderstorm."

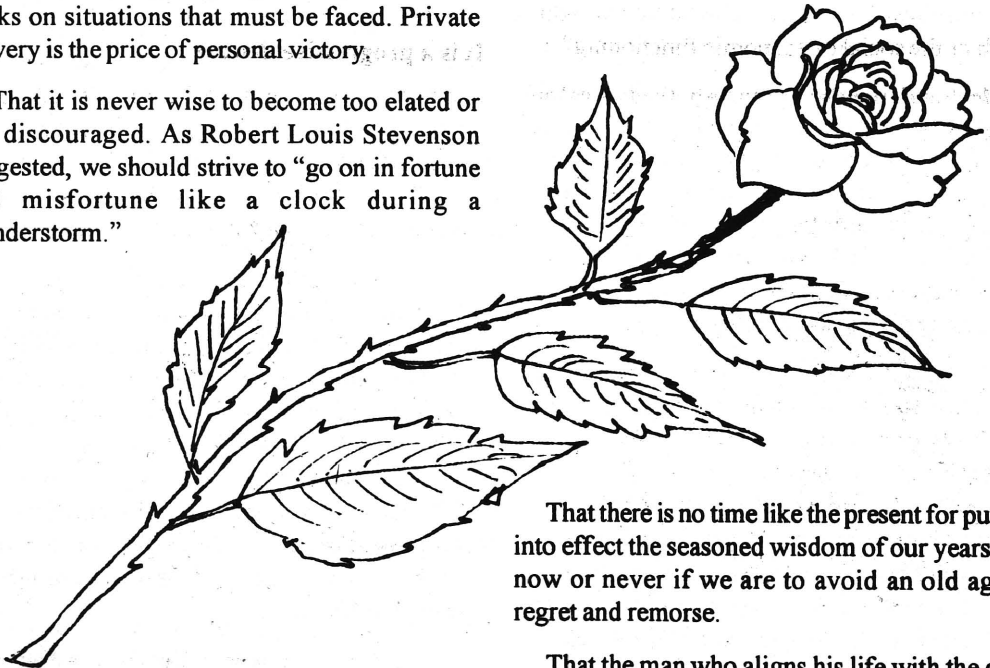
That a few troubles and a little pain are good for us and help us to grow. We should not complain that the rosebush has thorns but should rejoice because it bears roses.

That time is the great healer of hurts, sorrows and disappointments. When one door closes another will open if we don't lose heart.

That it is wiser to judge a man by how he lives than by what he says.

That moderation in all things is a good rule. It is wise to live a balanced and varied life without permitting anyone or anything to enslave us.

That we must learn to distinguish between the important and the unimportant. Then trifles will not trip us up and we can devote our lives to the meaningful and the significant.



That there is no time like the present for putting into effect the seasoned wisdom of our years. It is now or never if we are to avoid an old age or regret and remorse.

That the man who aligns his life with the good and true need fear no evil.

Courtesy: The Art of Living by Welfred A. Peterson

Peacock

The peacock - male of the common peafowl (*Pavo cristatus*) - is an incomparably beautiful bird. In its domesticated form it is a familiar inhabitant of parks and zoos and like other pheasants it has an ancient history. According to mythology the hundred eyes of the giant Argus, killed by Mercury, were transferred by eyes by the goddess Juno to the peacock's tail. In its native India the bird is not only valued for the way in which it attacks and kills young cobras but is also worshipped in many districts as the reincarnation of the god Krishna. The date of its domestication is unknown but it may have been a gradual, almost accidental process as a result of wild birds straying from their forest habitat towards villages in search of food. Certainly the species was imported into Mesopotamia by 300 B.C., was later introduced to Egypt, Greece and Rome, and thence found its way to other parts of the Western world.

The peacock is perhaps the most handsome bird alive. The colour of the head, neck and breast is variable, ranging from emerald green to rich, dark blue, with glistening metallic reflections. The small head is surmounted by a flat fan of feathers of similar hue and there are white areas around the eyes. But the most resplendent attribute of the peacock is its magnificent flowing train-green and blue with rows of large, brilliantly coloured ocelli or eye-spots. These dazzling ornamental feathers are not in fact part of the tail proper, but elongated upper tail coverts. The long train is actually supported by the tail itself.

Peafowl, among the largest of the Galliformes, are inhabitants of the densest parts of the jungles of southern Asia, especially of impenetrable areas where hills and valleys are traversed by streams which sometimes turn the lowlands into swamps. The birds

are gregarious, gathering in small family groups, and are active at more or less any time of the day, except in regions where they are likely to be disturbed, in which case they only venture out at dawn and sunset.

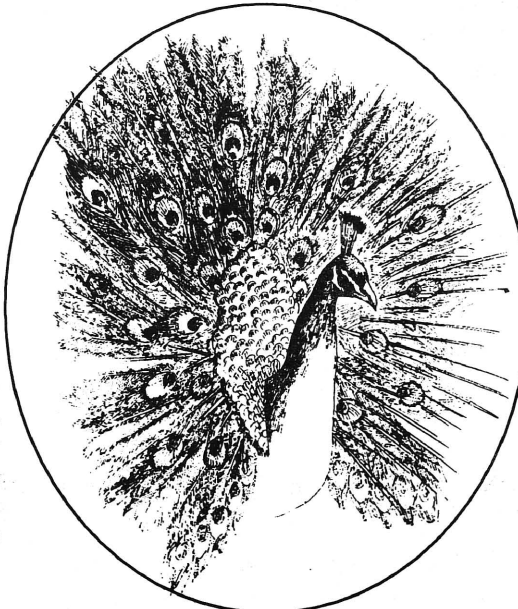
The breeding cycle of the peafowl depends largely on the pattern of local rainfall, normally coinciding with the onset of the dry season. The polygamous cock

after performing his spectacular train - spreading display, mates in turn with from two to five hens. Unlike other pheasants, the peacock does not face the hen when courting her but turns round and round with his back towards her, so that she is compelled to run about frantically to keep up with him. Schenkel is of the opinion that she pursues her mate as though he held a morsel of food in his beak, the outspread train, being the signal that stimulates her to do this. Among other pheasants a genuine food offering is part and parcel of the

courtship ritual, so that if Schenkel is correct it would seem to be a residue of an ancient pattern of behaviour which has lost its original meaning.

Eventually the hen stretches out on the ground and the cock, bringing the display to a conclusion by closing the train, lowers his tail and couples with her. Later she conceals herself in the thickets, sometimes selecting a hollow tree trunk or the abandoned nest of a bird of prey, and lays from three to five eggs. After an incubation of four weeks the chicks are born, covered with light brown down, and within a few hours are pecking at the ground for food. They are closely protected by the mother and often take refuge under her tail. The young males soon begin to spread their tiny tails but the ornamental feathers of the train only reach full development after two years.

★



A Threatened future

The Earth is one but the world is not. We all depend on one biosphere for sustaining our lives. Yet each community, each country, strives for survival and prosperity with little regard for its impact on others. Some consume the Earth's resources at a rate that would leave little for future generations. Others, many more in number, consume far too little and live with the prospect of hunger, squalor, disease, and early death.

Yet progress has been made. Throughout much of the world, children born today can expect to live longer and be better educated than their parents. In many parts, the new-born can also expect to attain a higher standard of living in a wider sense. Such progress provides hope as we contemplate the improvements still needed, and also as we face our failures to make this Earth a safer and sounder home for us and for those who are to come.

The failures that we need to correct arise both from poverty and from the short-sighted way in which we have often pursued prosperity. Many parts of the world are caught in a vicious downward spiral: Poor people are forced to overuse environmental resources to survive from day to day, and their impoverishment of their environment further impoverishes them, making their survival ever more difficult and uncertain. The prosperity attained in some parts of the world is often precarious, as it has been secured through farming, forestry, and industrial practices that bring profit and progress only over the short term.

Societies have faced such pressures in the past and, as many desolate ruins remind us, sometimes succumbed to them. But generally these pressures were local. Today the scale of our interventions in nature is increasing and the physical effects of our decisions spill across national frontiers. The

growth in economic interaction between nations amplifies the wider consequences of national decisions. Economics and ecology bind us in ever-tightening networks. Today, many regions face risks of irreversible damage to the human environment that threaten the basis for human progress.

These deepening interconnections are the central justification for the establishment of this Commission. We travelled the world for nearly three years, listening. At special public hearings organized by the Commission, we heard from government leaders, scientists, and experts, from citizens' groups concerned about a wide range of environment and development issues, and from thousands of individuals—farmers, shanty-town residents, young people, industrialists, and indigenous and tribal peoples.

We found everywhere deep public concern for the environment, concern that has led not just to protests but often to changed behaviour. The challenge is to ensure that these new values are more adequately reflected in the principles and operations of political and economic structures.

We also found grounds for hope: that people can cooperate to build a future that is more prosperous, more just, and more secure; that a new era of economic growth can be attained, one based on policies that sustain and expand the Earth's resource base; and that the progress that some have known over the last century can be experienced by all in the years ahead. But for this to happen, we must understand better the symptoms of stress that confront us, we must identify the causes, and we must design new approaches to managing environmental resources and to sustaining human development.

SYMPTOMS AND CAUSES

Environmental stress has often been seen as the result of the growing demand on scarce resources and the pollution generated by the rising living standards of the relatively affluent. But poverty itself pollutes the environment, creating environmental stress in a different way. Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down forests; their livestock will overgraze grass lands; they will overuse marginal land; and in growing numbers they will crowd into congested cities. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge.

On the other hand where economic growth has led to improvements in living standards, it has sometimes been achieved in ways that are globally damaging in the longer term. Much of the improvement in the past has been based on the use of increasing amounts of raw materials, energy, chemicals, and synthetics and on the creation of pollution that is not adequately accounted for in figuring the costs of production processes. These

trends have had unforeseen effects on the environment. Thus today's environmental challenges arise both from the lack of development and from the unintended consequences of some forms of economic growth.

Poverty

There are more hungry people in the world today than ever before in human history, and their numbers are growing. In 1980, there were 340 million people in 87 developing countries not getting enough calories to prevent stunted growth and serious health risks. This total was very slightly below the figure for 1970 in terms of share of the world population, but in terms of sheer numbers, it represented a 14 percent increase. The World Bank predicts that these numbers are likely to go on growing.

The number of people living in slums and shanty towns is rising, not falling. A growing number lack access to clean water and sanitation and hence are prey to the diseases that arise from this lack. There is some progress, impressive in places. But, on balance, poverty persists and its victims multiply.

Population Size and per Capita GNP by Groups of Countries

Country Group	Population (million)	Per Capital GNP (1984 dollars)	Average Annual Growth Rate of Per Capita GNP, 1965-84 (percent)
Low-income Economies (excl. China, India)	611	190	0.9
China and India	1,778	290	3.3
Lower Middle-income Economies	691	740	3.0
Upper Middle-income Economies	497	1,950	3.3
High-income Oil Exporters	19	11,250	3.2
Industrial Market Economies	733	11,430	2.4

Source : Based on data in World Bank, *World Development Report 1986* (New York : Oxford University Press, 1986.)

The pressure of poverty has to be seen in a broader context. At the international level there are large differences in per capita income which ranged in 1984 from \$190 in low-income countries (other than China and India) to \$11,430 in the industrial market economies.

Such inequalities represent great differences not merely in quality of life today, but also in the capacity of societies to improve their quality of life in the future. Most of the world's poorest countries depend for increasing export earnings on tropical agricultural products that are vulnerable to fluctuating or declining terms of trade. Expansion can often only be achieved at the price of ecological stress. Yet diversification in ways that will alleviate both poverty and ecological stress is hampered by disadvantageous terms of technology transfer, by protectionism, and by declining financial flows to those countries that most need international finance.

Within countries, poverty has been exacerbated by the unequal distribution of land and other assets. The rapid rise in population has compromised the ability to raise living standards. These factors, combined with growing demands for the commercial use of good land, often to grow crops for exports, have pushed many subsistence farmers onto poor land and robbed them of any hope of participating in their nations' economic lives. The same forces have meant that traditional shifting cultivators, who once cut forests, grew crops, and then gave the forest time to recover, now have neither land enough nor time to let forests re-establish. So forests are being destroyed, often only to create poor farm land that cannot support those who till it. Extending cultivation on to steep slopes is increasing soil erosion in many hilly sections of both developing and developed nations. In many river valleys, areas chronically liable to floods are now farmed.

These pressures are reflected in the rising incidence of disasters. During the 1970s, six times as many people died from 'natural disasters' each year as in the 1960s, and twice as many suffered from such disasters. Droughts and floods, disasters among whose causes are widespread deforestation and overcultivation, increased most in terms of numbers affected. There were 18.5 million people affected by droughts annually in the 1960s, but 24.4 million in the 1970s; 5.2 million people were victims of floods yearly in the 1960s, compared with 15.4 million in the 1970s. The results are not in for the 1980s, but this disaster prone decade seems to be carrying forward the trend, with droughts in Africa, India, and Latin America, and floods throughout Asia, parts of Africa, and Andean region of Latin America.

Such disasters claim most of their victims among the impoverished in poor nations, where subsistence farmers must make their land more liable to droughts and floods by clearing marginal areas, and where the poor make themselves more vulnerable to all disasters by living on steep slopes and unprotected shores-the only lands left for their shanties. Lacking food and foreign exchange reserves, their economically vulnerable governments are ill equipped to cope with such catastrophes.

The links between environmental stress and developmental disaster are most evident in sub-Saharan Africa. Per capita food production, declining since the 1960s, plummeted during the drought of the 1980s, and at the height of the food emergency some 35 million people were exposed to risk. Human overuse of land and prolonged drought threaten to turn the grasslands of Africa's Sahel region into desert. No other region more tragically suffers the vicious cycle of poverty leading to environmental degradation, which leads in turn to even greater poverty.

Growth

In some parts of the world, particularly since the mid-1950s, growth and development have vastly improved living standards and the quality of life. Many of the products and technologies that have gone into this improvement are raw material- and energy-intensive and entail a substantial amount of pollution. The consequent impact on the environment is greater than ever before in human history.

Over the past century, the use of fossil fuels has grown nearly thirtyfold, and industrial production has increased more than fifty fold. The bulk of this increase, about three-quarters in the case of fossil fuels and a little over four fifths in the case of industrial production, has taken place since 1950.

The annual increase in industrial production today is perhaps as large as the total production in Europe around the end of the 1930s. Into every year we now squeeze the decades of industrial growth and environmental disruption—that formed the basis of the prewar European economy.

If people destroy vegetation in order to get land, food, fodder, fuel, or timber, the soil is no longer protected. Rain creates surface runoff, and the soil erodes. When the soil is gone, no water is retained and the land can no longer produce enough food, fodder, fuel, or timber, so people need to turn to new land and start the process all over again.

All major disaster problems in the Third World are essentially unsolved development problems. Disaster prevention is thus primarily an aspect of development, and this must be a development that takes place within the sustainable limits.

*Odd Grann
Secretary General, Norwegian Red Cross*

Environmental stresses also arise from more traditional forms of production. More land has been cleared for settled cultivation in the past 100 years than in all the previous centuries of human existence. Interventions in the water cycles have increased greatly.

Massive dams, most of them built after 1950, impound a large proportion of the river flow. In Europe and Asia, water use has reached 10 percent of the annual run-off, a figure that is expected to rise to 20-25 per cent by the end of the century.

Distribution of World Consumption, Averages for 1980-82

Commodity	Units of Per Capita Consumption	Developed Countries (26 percent of population)	Developing Countries (74 percent of population)		
		Share in World Consumption (percent)	Per Capita Share in World Consumption (percent)	Per Capita	
Food :					
Calories	Kcal/day	34	3,395	66	2,389
Protein	gms/day	38	99	62	58
Fat	gms/day	53	127	47	40
Paper	kg/year	85	123	15	8
Steel	kg/year	79	455	21	43
Other Metals	kg/year	86	26	14	2
Commerical Energy	mtce/year	80	5.8	20	0.5

Source : WCED estimates based on country-level data from FAO, UN Statistical Office, UNCTAD, and American Metal Association.

The impact of growth and rising income levels can be seen in the distribution of world consumption of variety of resource-intensive products. The more affluent industrialized countries use most of the world's metals and fossils fuels. Even in the case of food products a sharp difference exists, particularly in the products that are more resource-intensive.

In recent years, industrial countries have been able to achieve economic growth using less energy and raw materials per unit of output. This, along with the efforts to reduce the emission of pollutants, will help to contain the pressure on the biosphere. But with the increase in population and the rise in incomes, per capita consumption of energy and materials will go up in the developing countries,

as it has to if essential needs are to be met. Greater attention to resource efficiency can moderate the increase, but, on balance, environmental problems linked to resource use will intensify in global terms.

Survival

The scale and complexity of our requirements for natural resources have increased greatly with the rising levels of population and production. Nature is bountiful, but it is also fragile and finely balanced. There are thresholds that cannot be crossed without endangering the basic integrity of the system. Today we are close to many of these thresholds; we must be ever mindful of the risk of endangering the survival of life on earth. Moreover, the speed which changes in resource use are taking place gives little time in which to anticipate and prevent unexpected effects.

The 'green house effect', one such threat to life-support systems, springs directly from increased resource use. The burning of fossil fuels and the cutting and burning of forests release carbon dioxide (CO₂). The accumulation in the atmosphere of CO₂ and certain other gases traps solar radiation near the Earth's surface, causing global warming. This could cause sea level rises

over the next 45 years large enough to inundate many low-lying coastal cities and river deltas. It could also drastically upset national and international agricultural production and trade systems.

Another threat arises from the depletion of the atmospheric ozone layer by gases released during the production of foam and the use of refrigerants and aerosols. A substantial loss of such ozone could have catastrophic effects on

human and livestock health and on some life forms at the base of the marine food chain. The 1986 discovery of hole in the ozone layer above the Antarctic suggests the possibility of a more rapid depletion than previously suspected.

A variety of air pollutants are killing trees and lakes and damaging buildings and cultural treasures, close to and sometimes thousands of miles from points of emission. The acidification of the environment threatens large areas of Europe and North America. Central Europe is currently receiving more than one gram of sulphur on every square metre of ground each year. The loss of forests could bring in its wake disastrous erosion, siltation, floods, and local climatic change. Air pollution damage is also becoming evident in some newly industrialized countries.

'The remarkable achievements of the celebrated Industrial Revolution are now beginning seriously to be questioned principally because the environment was not considered at the time. It was felt that the sky was so vast and clear nothing could ever change its colour; our rivers so big and their water so plentiful that no amount of human activity could ever change their quality, and there were trees and natural forests so plentiful that we will never finish them. After all, they grow again.'

Today we should know better. The alarming rate at which the Earth's surface is being denuded of its natural vegetative cover seems to indicate that the world may soon become devoid of trees through clearing for human developments.'

*Hon. Victoria Chitepo
Minister of Natural Resources and Tourism,
Government of Zimbabwe*

In many cases the practices used at present to dispose of toxic wastes, such as those from the chemical industries involve unacceptable risks. Radioactive wastes from the nuclear industry remain hazardous for centuries. Many who bear these risks do not benefit in any way from the activities that produce the wastes.

Desertification - the process whereby productive arid and semi-arid land is rendered economically unproductive-and large-scale deforestation are other examples of major threats to the integrity of regional ecosystems. Desertification involves complex inter -actions between humans, land and climate. The pressures of subsistence food production, commercial crops, and meat production in arid and semi-arid areas all contribute to this process.

Each year another 6 million hectares are degraded to desert-like conditions. Over three decades, this would amount to an area roughly as large as Saudi Arabia. More than 11 million hectares of tropical forests are destroyed per year and this, over 30 years, would amount to an area about the size of India. Apart from the direct and often dramatic impacts within the immediate area, nearby regions are affected by the spreading of

sands or by changes in water regimes and increased risks of soil erosion and siltation.

The loss of forests and other wild lands extinguishes species of plants and animals and drastically reduces the genetic diversity of the world's ecosystems. This process robs present and future generations of genetic material with which to improve crop varieties, to make them less vulnerable to weather stress, pest attacks, and disease. The loss of species and subspecies, may as yet unstudied by science, deprives us of important potential sources of medicines and industrial chemicals. It removes forever creatures of beauty and parts of our cultural heritage; it diminishes the biosphere.

Many of the risks stemming from our productive activity and the technologies we use cross national boundaries; many are global. Though the activities that give rise to these dangers tend to be concentrated in a few countries, the risks are shared by all, rich and poor, those who benefit from them and those who do not. Most who share in the risks have little influence on the decision processes that regulate these activities.

Annual Rate of Increase of GDP in Developing Countries,
1976-85 (percent)

Indicator	1976-80	1981	1982	1983	1984	1985
Gross Domestic Product :						
All Developing Countries	4.9	1.3	0.2	0.8	2.1	2.5
Developing Countries Excluding Large Countries	4.5	1.0	-0.6	0.1	1.5	1.4
Per Capita GDP :						
All Developing Countries	2.4	-1.0	-2.1	-1.5	-0.2	-0.2
Developing Countries Excluding Large Countries	1.9	-1.5	-3.1	-2.4	-1.0	-1.1

Source : Department of International Economic and Social Affairs, *Doubling Development Finance: Meeting a Global Challenge, Views and Recommendations of the Committee on Development Planning* (New York : UN, 1986)

Little time is available for corrective action. In some cases we may already be close to transgressing critical thresholds. While scientists continue to research and debate causes and effects, in many cases we already know enough to warrant action. This is true locally and regionally in the cases of such threats as desertification, deforestation, toxic wastes, and acidification; it is true globally for such threats as climate change, ozone depletion, and species loss. The risks increase faster than do our abilities to manage them.

Perhaps the greatest threat to the Earth's environment, to sustainable human progress, and indeed to survival is the possibility of nuclear war, increased daily by the continuing arms race and its spread to outer space. The search for a more viable future can only be meaningful in the context of a more vigorous effort to renounce and eliminate the development of means of annihilation.

The Economic Crisis

The environmental difficulties that confront us are not new, but only recently have we begun to understand their complexity. Previously our main concerns centred on the effects of development on the environment. Today, we need to be equally concerned about the ways in which environmental degradation can dampen or reverse economic development. In one area after another, environmental degradation is eroding the potential for development. This basic connection was brought into sharp focus by the environment and development crises of the 1980s.

The slowdown in the momentum of economic expansion and the stagnation in world trade in the 1980s challenged all nation's abilities to react and adjust. Developing countries that rely on the export of primary products have been hit

particularly hard by falling commodity prices. Between 1980 and 1984, developing countries lost about \$55 billion in export earnings because of the fall in commodity prices, a blow felt most keenly in Latin America and Africa.

As a consequence of this period of slow growth in the world economy—together with rising debt service obligations and a decline in the inflow of finance—many developing countries have faced severe economic crises. Over half of all developing countries actually experienced declining per capita gross domestic product (GDP) in the years 1982-85 and per capita GDP has fallen, for developing countries as a whole, by around 10 percent in the 1980s.

The heaviest burden in international economic adjustment has been carried by the world's poorest people. The consequence has been a considerable increase in human distress and the overexploitation of land and natural resources to ensure survival in the short term.

Many international economic problems remain unresolved: developing country indebtedness remains serious; commodity and energy markets are highly unstable; financial flows to developing countries are seriously deficient; protectionism and trade wars are a serious threat. Yet at a time when multilateral institutions, and rules, are more than ever necessary, they have been devalued. And the notion of an international responsibility for development has virtually disappeared. The trend is towards a decline in multilateralism and an assertion of national dominance.

Courtesy :
Our Common Future

Published by : World Commission
on Environment and Development

Environmental Protection in Tamil Nadu

As the twentieth century draws to a close, mankind has come to face with a rude reality. Not because of anything nature has done but because of everything human beings are doing to destroy its base. The biological wealth and the potential of land are getting slowly diminished or destroyed. The fresh water resources are getting depleted. The oceans are getting polluted. The gaseous composition of the atmosphere is being altered and significant changes may occur in temperature and precipitation. The ozone shield in the upper atmosphere is being damaged to an extent that the earth may experience higher levels of ultraviolet radiation to a greater incidence of unknown effects on biological productivity.

The Environmental movement in India for all practical purposes had its beginning in 1972, the year when United Nations Organisation held its Conference on Human Environment at Stockholm

25 years ago. In this Conference the developed countries visualised environmental problems as an application of industrialisation and suggested "no growth" policy as the only viable means of protecting the environment. However, the developing countries, shared the view that their environmental problems are mostly due to lack of development rather than excessive developments. As a followup of Stockholm Conference, the Constitution was amended in order to insert direct provisions for the protection of environment. The following legislations have been enacted by the Government of India to preserve the environmental quality.

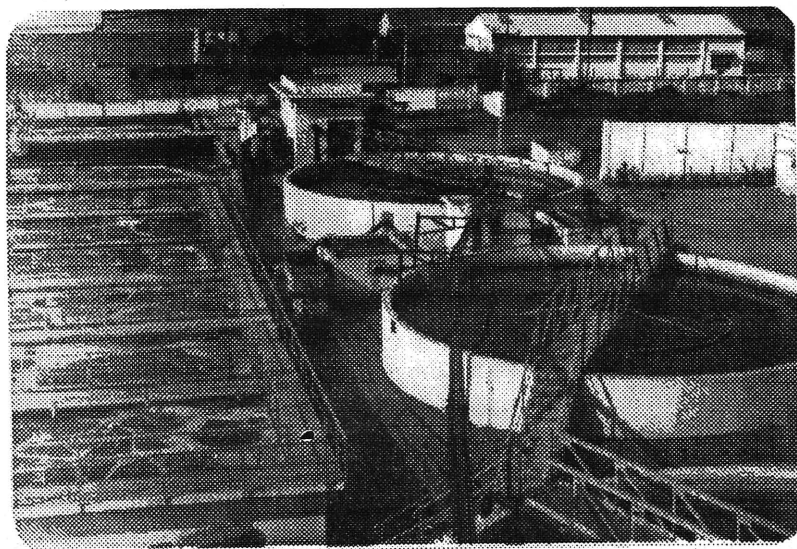
1. The Water (P&CP) Act, 1974 as amended in 1978 and 1988.
2. The Air (P&CP) Act, 1981 as amended in 1987.
3. The Water (P&CP) Cess Act, 1977 as amended in 1991.

4. The Environment (Protection) Act, 1986.

5. The Hazardous Wastes (Management and Handling) Rules, 1989.

6. Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.

Tamil Nadu Pollution Control Board established in 1982 enforces the provisions of the above Acts/Rules. Tamil



Nadu is one among the industrialised States in the country. As per the inventory of the Tamil Nadu Pollution Control Board, as on 31.12.'96, there are 7806 Red category (Polluting industries), 7937 Orange Category (Medium Polluting) and 1877 Green Category (Non Polluting) industries in Tamil Nadu. Out of the above 17620 units, 716, 2380 and 14524 units fall under Large, Medium, Small Scale sector of industries. There are a few sectors of industries unique to Tamil Nadu and peculiar in being cited as major sources of pollution of Water, Air and Land. Urbanisation has been rampant during the past decades. The major Cities and Towns expanded beyond proportion with the existing basic facilities like water supply and sanitation, transport, communication, parks and recreational spaces, etc.

75% of tanneries in India are found in Tamil Nadu. There are 895 tanneries in Tamil Nadu. Most of them are located in North Arcot Ambedkar District. Textile industries are concentrated in Coimbatore District. Mineral processing industries are in Salem. Bleaching and dyeing units are located in Tiruppur and Karur. Cluster of starch industries are there in Salem District. Chemical Industries are located in Manali, Ranipet, Cuddalore, Mettur and Tuticorin areas. Sugar, Distilleries, Pulp and Paper industries are located near the water bodies. Aqua culture units of recent development are found in Nagai-Quaid-E-Milleth District. The impairment in quality of water at such points where concentration of industries is largely attributed to indiscriminate discharge of trade effluent without proper treatment. The parched lands and the rivers remaining dry several months tend to absorb the waste water immediately and the water table available is further hit by a wide range of pollutants found in the effluents discharged by the industries.

The Government is seized of pollution of rivers

of the State caused by the discharges of effluent from the industries located on or near the river banks and sewage discharged by urban local bodies. Tamil Nadu Pollution Control Board has prescribed standards for effluents depending upon the mode of disposal. All the industries generating trade effluent have to provide effluent treatment plant to treat the trade effluent to satisfy the standards prescribed by the Board. Industries are constantly monitored regarding the functioning of their effluent treatment plants and samples of treated trade effluent are collected regularly to assess the quality of effluent discharged and also to assess the efficiency and adequacy of the effluent treatment plants provided. Government of India have identified 17 categories of highly polluting industries like Distilleries, Tanneries, Fertilizers, Petro chemicals, Power Plants, Cement etc. There are 142 units of these 17 category of highly polluting industries in Tamil Nadu. Out of this 142 units two units are non-complying units and the remaining 140 units have achieved the standards prescribed by the Board. The effluents generated by the Tanneries, Bleaching and Dyeing Units have been causing serious environmental problems. Since a large number of these units are in clusters and also in the small scale sector, the Tamil Nadu Pollution Control Board has launched a massive programme of setting up of Common Effluent Treatment Plants (CETPs) establishing the principles of "Polluter Pays" by which the beneficiary units themselves have to accept full responsibility to set up, operate and maintain the treatment facilities. Common Effluent Treatment Plants are put up under the guidance of Tamil Nadu Pollution Control Board.

28 CETPs for Tanneries, 25 CETPs for Bleaching and Dyeing Units, are being implemented. CETPs for Tanneries at Pammal,

SIDCO-Ranipet, Vaniyambadi, Udayendiram, Ranipet, Ambur (Thuthipet), Melvisharam, Peranambut (Bakkalapalli) and Dindigul have been commissioned. CETP for Bleaching and Dyeing units at Ayyampet-Muthialpet (Anna District), Karur and Tiruppur are under progress.

As a part of the Global Environmental Monitoring Schemes (GEMS), the quality of water in Cauvery Basin at Mettur, Pallipalayam, Musiri and ground water quality at Musiri is monitored. Similarly Cauvery, Tamiraparani, Vaigai and Palar are being monitored under the programme of India National Aquatic Resources (MINARS).

The water quality of city waterways namely, the Cooum, Adyar, Buckingham Canal and Otteri Nullah is also monitored.

Under the National River Action Plan, pollution abatement proposals have been approved by Government of India for five highly polluting stretches of Cauvery river at Bhavani, Komarapalayam, Erode, Pallipalayam and Trichy towns at a cost of Rs.38.20 crores. The project covers the following components.

1. Interception and diversion of sewage.
2. Providing/upgrading sewage treatment plants.
3. Improvements to Crematoria.
4. Provision of low cost sanitation.
5. River front and bathing ghat developments.
6. Afforestation and
7. Solid Waste disposal by providing compost yard.

Atmospheric pollution in Tamil Nadu is no way less than water pollution. Coal-based Thermal Power Plants, Cement industries, Nitrogenous and Phosphatic Fertilizer, Petrochemical and Refineries are major sources of air pollution. These

units emit gases like SO_2 , NO_x , CO etc. The dust fall-out at the nearer distances are inevitable and it has had their unique impact on health of humans, plants and animals.

With the increased industrial activity in the vicinity of major Cities/Towns, the need for keeping the Ambient Air Quality within the limits prescribed by the Board is increasingly felt. Under the National Ambient Air Quality Monitoring Programme (NAAQM), 9 Ambient Air Quality Monitoring Stations have been established at Chennai, Coimbatore and Tuticorin. In addition to the above, Chennai Ambient Air Quality Monitoring Programme is proposed to be commissioned at a cost of Rs.10.23 lakhs covering 8 monitoring stations at traffic inter sections, residential and commercial areas of Chennai city.

Industrial complexes located at Ranipet, Mettur, Cuddalore and Tuticorin house chemical, fertilizer and petrochemical industries. These industries emit pollutants like suspended particulate matter, Sulphur di-oxide, oxides of Nitrogen, Hydrogen, Hydrogen sulphide, Ammonia, Acid fumes, etc. It is proposed to establish continuous air quality monitoring systems at Tuticorin and Cuddalore.

Tamil Nadu with its 1000 Km long Coast Line offers a rich diversity in terms of marine life and social infrastructure along the coast. The Coastal Line is endowed with a variety of habitats like rocky zone, coral reefs, oil fields, salt pans, ports, fishing harbours, mangroves, sand dunes and beach resorts. There is increasing pressure from industries to locate their facilities along the shoreline and thus acquire easy access for discharging their effluent. The activities along the coast are diverse and economically compelling that it is necessary to examine the whole range of issues in totality and the inter-relationships that co-exist

with one another. The Coastal Water Quality is monitored at 32 Coastal Stations under 5 sectors identified along the coast of Tamil Nadu starting from Ennore to Kanniyakumari. In order to protect the coastal areas from over exploitation, taking into consideration the features of ecologically sensitive areas, developed areas and relatively undisturbed areas, the coastal stretch has been classified as Coastal Regulation Zone-II and Coastal Regulation Zone-III, restricting certain activities in these areas.

Urbanisation and Industrialisation have resulted in increased vehicular traffic in Chennai City, resulting in appreciable increase in automobile emission. Goods Transport vehicles are being tested for emissions at 3 monitoring stations in Chennai City. The vehicles are issued 'fitness certificate' by the Transport Department only on production of the emission under control certificate of Tamil Nadu Pollution Control Board.

Under the Hazardous Waste (Management and Handling) Rules, 1989, the Tamil Nadu Pollution Control Board is effectively monitoring collection, transport, storage, receipt, treatment and disposal of 18 categories of Hazardous Wastes. Establishment of the proposed Common Hazardous Waste Management and Disposal facility at Manallur (MGR District) and Siruseri (Anna District) for treatment and disposal of Hazardous waste from industries in these areas is a significant development.

Tamil Nadu Pollution Control Board is setting up an Emergency Response Centre at Manali (MGR District) to provide prompt relief in the event of accidents in handling hazardous chemicals.

Government of Tamil Nadu has created a new Department viz. Department of Environment and it is functioning from March '96. This Department

is in charge of implementing pollution abatement in Cauvery river and coastal stretches of Chennai City; improvement of Kodaikanal and Udhagai lakes under National Lakes Conservation Programme.

No movement or effort in the field of Pollution Control and Environment Protection would succeed unless adequate awareness is inculcated among the community and a climate of acceptance is created. The Tamil Nadu Pollution Control Board propagates environmental awareness through the Environmental Pavilion set up at Periyar Science and Technology Centre, Chennai, a Non-Governmental Organisation Cell, as well as by conducting Painting, Essay writing and Elocution contests on Environmental issues, screening of Video and Film shows, etc.

Man power is not only a precious asset, but its effective contribution to the organisation can always be enhanced through appropriate training and skill development measures. An Environmental Training Institute has been set up with assistance of DANIDA at a cost of Rs. 3.93 crores with a view to make the staff of the Tamil Nadu Pollution Control Board, Personnel from Industries, Government Organisations competent and capable of controlling and guiding industries on pollution abatement and prevention techniques suitable to their needs.

The world is a God-given heritage and it is the responsibility of the society to curtail the exploitation of our natural resources. Indicators that awareness of the environment and its protection are evident from the fact, 'World Environment Day', 'Earth Day' and 'World Forestry Day', are being observed to remind us that Mother Nature is precious and should be protected and conserved. ★

Courtesy : Tamil Nadu Pollution Control Board

ANTIMICROBIAL DRUGS FAIL

Resistance by disease-causing organisms to antimicrobial drugs and other agents is a major public health problem world-wide. It is making a growing number of infections virtually untreatable.

Antimicrobial resistance is not a new problem, but it has worsened dramatically in the last decade. During that time, the pace of development of new antimicrobials has slowed down while the prevalence of resistance has grown at an alarming rate. The increase in the number of drug-resistant bacteria is no longer matched by a parallel expansion in the arsenal of agents used to treat infections.

All bacteria possess an inherent flexibility that enables them, sooner or later, to evolve genes that render them resistant to any antimicrobial. By killing susceptible bacteria, an antimicrobial provides selective pressures that favour overgrowth of bacteria carrying a gene that confers resistance. The continuous use of antimicrobial agents encourages the multiplication and spread of resistant strains.

There is strong evidence that a major cause of the current crisis in antimicrobial resistance is the uncontrolled and inappropriate use of antibiotic drugs, in both industrialized and developing countries. They are used by too many people to treat the wrong kind of infection, in the wrong dosage and for the wrong period of time.

Awesome implications

The implications are awesome: drugs that cost tens of millions of dollars to produce, and take perhaps 10 years to reach the market, have only a limited life-span in which they are effective. As resistance spreads, the life-span shrinks; as fewer new drugs appear, the gulf widens between infection and control. So far, the pattern of

excessive or inappropriate use and the development of resistance has been repeated after the introduction of each new antimicrobial.

The overuse of expensive drugs designed to cover a range of infections is a particularly serious problem in industrialized countries. In developing countries, the problem is compounded by the ready availability of over the counter drugs. This allows patients to treat themselves, either with the wrong medicine, or in quantities that are too small to be effective. Substandard and counterfeit drugs which lack adequate amounts of active ingredients further exacerbate the resistance problem.



Resistance has no natural barriers; its development in the most remote locations can lead rapidly to a worldwide impact, aided by international air travel.

Furthermore, enormous amounts of medical antimicrobials are used for the production of animal food around the world. Some 170 billion

tons of animal meat are produced worldwide every year. More than half the total production of all antimicrobial is used in farm animals, either for disease prevention or for growth promotion. Drug-resistant bacteria are passed through the food chain to the consumer, where they may cause disease or transfer the resistance to human pathogens.

Examples of bacterial resistance

Enterococci contribute to some of the most common infections acquired in hospitals, causing intra-abdominal abscesses, endocarditis, and infections of the urinary tract and soft tissues. In some countries, infections resulting from strains resistant to the main groups of antibiotics, such as the beta-lactams and the aminoglycosides, can only be treated with vancomycin, an expensive intravenous drug. Even resistance to vancomycin has developed in the last 10 years or so. In the United States in 1994, 14% of enterococci isolated from patients in intensive care units were resistant to vancomycin.

Staphylococci, which can contribute to skin infections, endocarditis, osteomyelitis, food poisoning and other serious disorders, have developed resistance to all antibiotics except vancomycin. If vancomycin-resistant strains were to emerge, some of the most prevalent hospital-acquired infections would become virtually untreatable.

Streptococci have become increasingly resistant to some antibiotics in the last 25 years. They are among the most common disease-causing bacteria, responsible for infections of the throat, middle ear, skin and wounds, and also necrotizing fascitis and gangrene.

Pneumococci and *Haemophilus influenzae* are the most common bacteria causing acute respiratory infections in children, particularly pneumonia. Both of these organisms are becoming

more and more resistant to drugs. Strains of pneumococci, once uniformly susceptible to penicillin, are currently resistant to it in upto 18% of cases in the United States and 40% in South Africa. In addition, they are becoming resistant to many other commonly used antibiotics, including cotrimoxazole, the drug recommended by WHO for treatment of pneumonia. The most virulent type of *Haemophilus influenzae* is today frequently resistant to ampicillin, and strains have been identified that are resistant to other drugs, including cotrimoxazole. In brief, doctors worldwide are losing some of the most useful and affordable antibiotics against the two bacteria which are the major cause of death in children.

Neisseria gonorrhoeae, cause of one of the most common sexually transmitted diseases, has acquired such resistance to penicillin and tetracyclines in most countries that the use of these antibiotics to treat it has become unacceptable and this infection now requires the use of much more expensive drugs which are often unavailable.

Shigella dysenteriae has been causing outbreaks of severe diarrhoeal disease in central and southern Africa in recent years, including those in refugee camps, with the epidemic strain acquiring increasing resistance to standard antibiotics. Epidemic dysentery caused by this strain results in the death of upto 15% of those infected.

Salmonella typhi, the bacterium responsible for typhoid fever, has developed resistance to antibiotics commonly used in the past for treatment. Resistant strains have caused outbreaks of the disease in India and Pakistan in recent years. Without effective antibiotic treatment, typhoid fever kills almost 10% of those infected. In South-East Asia, 50% or more of the strains of the bacteria may already be resistant to several antibiotics.

More than half of the antibiotics produced worldwide are used in animals, largely in subtherapeutic concentrations which favour the onset of drug resistance. As a result, two important human pathogens of animal origin, *E. coli* and salmonellae, are today highly resistant to antibiotics in both industrialized and developing countries. For instance, in the United Kingdom, the increase of multidrug-resistant strains of *Salmonella typhimurium* isolated from cattle is paralleled by increasing resistance among strains of human origin. In Thailand, salmonellae isolated from food animals are also highly resistant to the common antibiotics. These bacteria cause diarrhoeal disease and can lead to life-threatening complications. Due to the globalization of food supply and international travel, antimicrobial resistance among animal bacteria can affect consumers anywhere in the world.

Strains of *M. tuberculosis* resistant to antituberculosis drugs are widespread, although attention has recently focused on the alarming outbreaks of tuberculosis caused by multidrug-resistant strains in the United States. Drug resistance is the result of poor prescribing practices, or poor patient compliance with treatment. It is low in the few countries with effective tuberculosis programmes. The most dangerous form of the multidrug-resistant disease occurs when cases become virtually incurable and doctors face situations similar to those of the pre-antibiotic era.

Malaria presents a double resistance problem; resistance of the *Plasmodium* parasites, which cause the disease; to antimalarial drugs; and resistance of the *Anopheles* mosquitoes, the vectors of the disease, to insecticides. The arsenal of antimalarial drugs is limited. Most of them act by killing parasites when they are multiplying in the bloodstream of the human host. Unfortunately,

due to inadequate regimens, poor drug supply, and poor quality and misuse of drugs, rapid development of drug resistance has occurred in most areas of the world. Drug resistance is particularly important in falciparum malaria, the most severe form of the disease. Resistance to chloroquine, the most commonly used drug, has been found in all endemic countries except those of central America and the Caribbean. Resistance to multiple drugs is common in South-East Asia.

This serious obstacle to malaria control efforts is further complicated by mosquito resistance to insecticides. Many mosquitos are reported to be resistant to the three classes of insecticides available for public health use, and some are becoming resistant to pyrethroids, widely promoted for bednet and curtain impregnation.

Dim outlook

The next few years are certain to be critical for the future of antimicrobial drugs. Antimicrobial resistance will increase, if present trends continue. Doctors in many parts of the world could find themselves resorting to methods that date back to before the antibiotic era. For instance, in New York city patients with multidrug-resistant tuberculosis who will not voluntarily comply with recommended treatment are sometimes isolated on a former prison island, used much as sanatoria were in the past.

Disease control strategies will be seriously threatened by mounting drug resistance levels among bacteria which cause the most important and frequent diseases worldwide. Developing countries, where the burden of infectious diseases is the highest, will be facing the impossible task of controlling diseases with only scarce expensive drugs which will not be affordable for all sick persons.

Courtesy: 'Health Action'

Addiction - A Disease

World over, there is an increasing tendency to study both alcoholism and drug addiction as 'chemical dependency'. The term 'addiction' has been used to refer to both addiction to alcohol and to other drugs. Nevertheless, while elaborating, we have chosen to make a differentiation between the two.

ADDICTION TO ALCOHOL (ALCOHOLISM)

The common man sees 'alcoholism' as a weakness of character. The moralist looks at it as a vice. Law finds the consequential acts of alcoholism as a crime. The clergyman considers it a sin.

After extensive research, in the year 1956, American Medical Association came to the conclusion that it is a DISEASE.

Before elaborating on the disease concept of alcoholism, let us clearly understand who an alcoholic is, and in what respects he is different from the social drinker.

Who is a 'social drinker'?

A social drinker is one who drinks the way his social group permits. He never oversteps their unwritten, unspoken, but clearly understood boundaries. He either drinks occasionally, or drinks regularly in moderate quantities. His intake of alcohol does not cause any problem whatsoever in his life.

Who is an 'alcoholic'?

"An alcoholic is one, whose drinking causes continuing problems in one or more areas of his life (family-relationship, financial position, occupation, etc)" - Marty Mann. In spite of these problems, he will keep on drinking. Here, 'continuing' is the key word. This is what differentiates him from a social drinker.

An 'alcoholic' will not be able to take note of his problems and stop drinking totally. He tries, but

never succeeds on a long-term basis. He develops a physical and psychological dependance on alcohol. He will have no control over his drinking, and even if he stops drinking for a short duration, he will definitely go back to obsessive drinking.

Out of the ten people who start drinking for the pleasure associated with it, two become alcoholics. Unfortunately, the cause is still not known.

Why is alcoholism classified as a disease?

Clinically, a disease is confirmed if the following are present:

- a) The aetiological agent (that which causes the disease)
 - i) How the agent comes in contact with the patient (Epidemiology)
 - ii) What happens when the contact is made (Pathogenesis)
- c) The lesion-the focus of damage and its consequences-(Structural, biochemical, physiological and behavioural)
- d) The syndrome. (A collection of **symptoms** complained by the patient and '**signs**' observable to others that regularly occur together)



In 'Alcoholism', the

- a) The aetiological agent is Ethyl Alcohol or Ethanol.
- b) i) Epidemiology-a clearly seen, but complex process.
ii) Pathogenesis-numerous effects in the body.
- c) The lesion-quite clear cut in the liver.
- d) Syndrome-well defined and stereotyped reaction.

Now we realise that the alcoholic is a sick person-a person with a disease.

What is alcoholism?

The most widely accepted definition of alcoholism, is the one offered by Keller and Effron: "Alcoholism is a chronic illness, psychic, somatic or psychosomatic, which manifests itself as a disorder of behaviour. It is characterised by the repeated drinking of alcoholic beverages, to an extent that exceeds customary, dietary use or compliance with the social customs of the community and that interferes with the drinker's health or the social or economic functioning"

Alcohol dependence can be both physical and psychological.



Physical dependence is a state wherein the body has adapted itself to the presence of alcohol. If its use is suddenly stopped, withdrawal symptoms occur. These symptoms range from sleep disturbances, nervousness, and tremors to convulsions, hallucinations, disorientation, delirium tremors (DTs) and possibly death.

Psychological dependence exists when alcohol becomes so central to a person's thoughts, emotions and activities, that it becomes practically impossible to stop taking it. The ethos of this condition, is a compelling need or craving for alcohol.

The characteristics of alcoholism are as follows:

It is a primary disease

Initially, alcoholism was considered a symptom of some psychological disorder. Now it has been understood that alcoholism *per se* is a disease which causes mental, emotional and physical problems. These associated problems cannot be effectively dealt with, unless alcoholism is treated first.

It is a progressive disease

If it is not treated, the disease progresses from bad to worse. Sometimes there may be intermittent periods where one feels there is improvement; but over a period of time, the course of the disease will only be towards deterioration.

It will be a terminal disease, if not treated

A person drinking excessively, may die due to some medical complication like cirrhosis or pancreatitis. But on close scrutiny, it will be found that the complication itself was induced by alcohol. Thus alcohol is the real agent behind the person's death.

It is a treatable disease

The disease cannot be cured; but it can be successfully arrested, with the help of timely, appropriate and comprehensive treatment. Treatment aims of total abstinence from alcohol. Ingestion of even a very small amount of alcohol

will lead the person to obsessive drinking within a few days and he will lose control. In other words, an alcoholic can never go back to social drinking, even if he has remained sober for quite a number of years. Hence alcoholism is considered a permanent disease.

There are three distinctly noticeable phases in the disease of alcoholism.

Early phase

Increased tolerance

'Physical tolerance' is the body's ability to overcome the usual effect of a drug, so that an increased dosage is needed to experience the same effect as before.

The first warning sign for many who later develop alcoholism, is a need for higher amounts of alcohol to produce 'the desired effect'.

For instance, initially he may have taken a peg or two of whisky to experience a 'warm glow' - that relaxed and pleasant feeling. Now, it takes four to five pegs for him to experience the same effect.

As tolerance for alcohol increases, the individual starts gulping his first few drinks, so that the desired effect is felt immediately.

Black-out

This is a period of temporary amnesia which occurs during the drinking days. 'Black-out' should not be confused with 'passing out' which means unconsciousness. During a 'black-out', the person may go through many activities, without being able to recall even trace of them later on. The person walks, even drives "apparently normally"; but has no recollection of it afterwards.

People who are not alcoholics, may also occasionally have black-outs. However, in people progressing towards alcoholism, repeated episodes of black-out occur.

35 years old Rakesh hails from an orthodox, religious family. He had been drinking for over ten years. His drinking, however, gradually



became excessive. He always arrived home late, totally drunk.

One day, as usual, Rakesh came home in an intoxicated state. He complained that the food was not to his liking; he shouted at his wife; aggressively got up and smashed all the pictures in the pooja room, and then fell asleep.

Next morning, when Rakesh got up, he was surprised to see his mother and wife sulking in a corner. Nobody spoke to him.

Rakesh asked his mother,

"What happened? How is it that you are not busy with the usual pooja?"

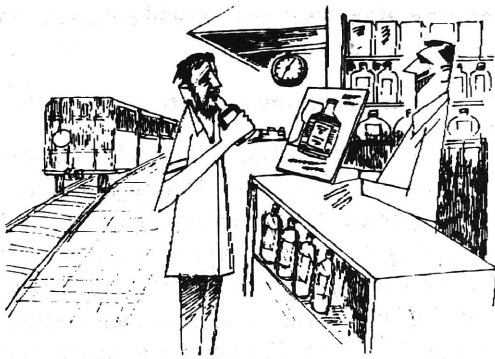
His wife got angry and went away without speaking a single word. His mother narrated what he had done the previous night.

Rakesh was taken aback.

He was totally shaken; for he did not remember anything-not even a trace of it.

Preoccupation with drinking

Even when the alcoholic is not drinking, he is always preoccupied with thoughts of how, when and where he could get the next drink. While at work, he may be thinking about and waiting to get



his drinks at noon, during lunch break. When going to a party, he somehow finds out if there will be alcohol. Drinking is synonymous with having a good time. If drinking is not going to be part of any activity, his response will be, "Count me out".

Avoiding any talk about alcohol

This is a result of his feelings of guilt. Formerly he had been formerly boasting about how much he could drink; but now he does not want to talk about it at all. If someone else brings up the subject, he totally diverts the topic, for fear that they will talk about his drinking. He does not want to talk about, listen to, or even read anything which has reference to drinking.

MIDDLE PHASE

Loss of control

Initially, there is a loss of control over the quantity of alcohol consumed. That is, the person is not able to predict what will happen after the first drink. Intending to have one or two pegs on his way back home from the office, he enters a bar; but he is still drinking till the bar closes.

As alcoholism progresses, the patient will lose control over the time and place of drinking (comes drunk early in the morning to the office).

He now reaches a point when he literally cannot keep away from drinking, or control the amount

consumed. Drinking becomes compulsive. Now he is totally powerless over alcohol. Loss of control is a clear-cut sign that alcoholism has now developed. The warning signs are gone. It may get worse; but he is not likely to get better without help.

Satish had been drinking alcohol for quite a number of years. His family wanted to go to Tirupati and he had agreed to take them. In all earnestness, he stopped drinking 2 or 3 days prior to the trip. On the appointed day of travel, Satish and his family boarded the train as planned.

At one of the stations, Satish got down to fill his water bottle. As he was filling the bottle, he spotted an arrack shop just outside the platform. He was tempted. He knew that the train would stop there for a few minutes, and there would be time for him to have one drink. He thought, "Let me have only one drink..nothing more!"

He started with only one drink...wanted to have one more quick one. He had another...one more...one more...etc.

When he came out, it was too late; the train had left the station long ago.

Justifying his drinking

He feels guilty and depressed. He begins to rationalise. He develops an elaborate defence system of reasons and excuses to reduce his guilt feelings. He will keep on explaining as to why he drinks a little too much, and gets a little too drunk.

Grandiose behaviour

Another way by which an alcoholic avoids the truth about himself and his condition, is by exhibiting grandiose behaviour which is inconsistent with his financial and professional capabilities. For example, he buys things he does not need, gives lavish gifts and pays others' bills at the bar.

Mohan had been drinking excessively for three years. He had borrowed money from various people and his debts had mounted up.

One day, a shop-keeper came, stood outside his house and shouted;

"You have not yet paid my dues which you promised to pay last month itself. I want the money right away! I will return in the evening to collect it from you. If you fail to repay, I will drag you to the police station!"

Mohan's wife felt extremely ashamed, and was terribly annoyed. Mohan told her, "Don't worry! Today I will take a loan from my salary. We can pay him back this evening itself".

Mohan went to the office. On his way back home, he bought five packets of cigarettes and happily distributed them to his friends. They smoked and drank together. Mohan called for a taxi, and when he came back home, he had no money left to pay the taxi driver.

Aggression

Since he believes that others are the cause for his problems, he strikes out against them with verbal abuse, sometimes even with physical abuse. Such abuses are only an expression of self-hatred directed towards someone else.

Guilt and remorse

Now he slowly becomes aware of what he had been doing to himself and to others. He is unable to throw it off as easily as before. He feels a deep sense of personal guilt and this guilt and remorse often lead him back to the bottle. But when the alcohol is gone, his guilt remains. These feelings now become as much a part of his alcoholism as drinking and getting drunk.

Abstaining from alcohol

He attempts to quit on his own-to give up alcohol-not for ever, but for a definite period of time. He feels this will 'prove' that he can give up drinking whenever he wants to. He may stay away from alcohol for a period of time he has set- a week, a month, or whatever-but then his compulsion for alcohol may make him either shorten the period of time he has set for himself, or

he may be able to abstain for the set period; in either case, after this stretch, he will inevitably go back to obsessive drinking.

Changing the drinking pattern

After trying to abstain, he now takes another precaution. He changes his drinking pattern to show that he can start drinking again without experiencing the same old problems. He changes drinks-from whisky to beer, or shifts the place and time of drinking. But no matter how many changes he makes, if it is alcohol he is drinking, he will soon be immersed in the same problems which haunted him before.

Decaying of social relationships

As he continues to drink, he becomes aggressive. This is the time his friends start moving away. He may start establishing new friendships, where people are in tune with his drinking pattern. When he comes out of his problem of addiction, it is a painful discovery for him to realise that his 'so called friends' were nothing more than 'mere drinking friends'.

Problems on the job

Until now, his job may not have been affected. But he can no longer hide his hangover, his absenteeism and low quality of work. Everyone becomes aware that he is drinking too much. He is now being watched. He receives memos, suspension orders. He may even lose his job.

Family problems

Now he is unable to keep the family together in peace. The major problems begin to weigh heavily on his wife and children. They suffer due to unmanageable problems.

Morning drink

Physical dependence is very apparent. The morning drink takes care of the hangover, the jitters, the guilt, the remorse and the depression.

He needs it to start the day. This initiates the cycle of continuous drinking and speeds up the progression of alcoholism.

Seeks help

Problems with the family and on the job mount up. These motivate him to seek help. But even now, he will not seek help for his alcoholism. He wants help only to put the rest of his life back in order.

Chronic phase

Now he is getting close to the bottom. Other alcoholic complications like gastritis, liver dysfunction and polyneuritis occur.

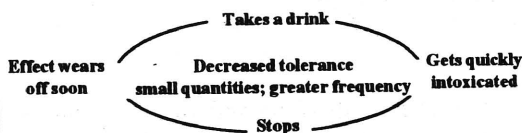
He has a total breakdown in his relationship with the family. There is considerable confusion and mental deterioration.

Binge drinking

Now the alcoholic has absolutely lost control and goes on drinking continuously for several days, and this is referred to as a binge. He is utterly helpless. There is a total disregard for the family, job, everything. At the end of such as 'binge', he is left in a shaking, frightened, guilt-ridden condition. He promises never to drink again. But it happens over and over and again.

Decreased tolerance

Initially, the alcoholic needed more and more alcohol to experience the 'desired effects'; or in other words he had 'increased tolerance'. Due to severe physical deterioration, the alcoholic now gets 'drunk' even with very small quantities of alcohol. Drinking smaller amounts results in higher degree of blood alcohol concentration than in the past.



Ethical breakdown

The alcoholic is so dependent on alcohol that he will lie, borrow or even steal in order to maintain his supply of alcohol.

John, 42 years-married with two children. He had been drinking excessively for a few years, as a result of which he was facing a financial crisis.

He was totally broke.

He had no money to pay his children's school fees.

Many of his bills remained unpaid.

In spite of his financial problems, he could not stop drinking. He desperately needed money to buy alcohol.

He went to the church one day. The plate for collecting mass-offering came round. Without any hesitation, he put a fifty paise coin in the plate, and took away a five rupee note.

He immediately went to the arrack shop and spent his money on alcohol.

Paranoia

At this stage, the alcoholic is suspicious that everyone is watching him, talking about him or even plotting against him. He is a victim of circumstances over which he has no control.

He becomes jealous of everyone-of his friends, of neighbours, even of his own family. With a male alcoholic, there is a loss of sexual desire/functioning at this stage. This results in him



becoming suspicious of his wife having affairs with other men. This is an extension of his inability to perform as a marital partner.

Indefinable fear

He is frightened by nameless fears. Now he is afraid even to cross a road, enter a dark room, etc-frightened of all kinds of things which are in no way related to reality.

Hallucinosis

Auditory (imagining voices speaking), visual (seeing non-existent things) and tactile (feeling as though something is moving on the skin) hallucinations are experienced.

Bhajan Singh had been drinking for nearly 30 years. His family and friends had been requesting him to either stop or reduce his alcohol consumption. He did neither.

One night, Bhajan Singh was behaving in a very strange manner.

He said that he saw Rajiv and Sonia Gandhi entering his house. He ran, woke up his wife and asked her to prepare tea for the eminent visitors.

He could hear several people shouting, "Long live Sonia Gandhi! Long Live Rajive Gandhi!" To him, these voices were clear and distinct. He started repeating the slogans and asked his wife also to join in.

His wife got terribly scared. She felt he was mad. She did not know that he was experiencing visual and auditory hallucinations.

Lack of motor co-ordination

At this point, he loses most of his motor co-ordination. He is unable to tie his shoes, or button his shirt, until he 'steadies' himself with a few drinks. His legs and arms do not respond automatically. He experiences shakes and tremors. This is not the first time he is experiencing tremors. But formerly he could control them by taking 'more alcohol'. Now the 'shakes' are more



pronounced, and alcohol does not help in 'quietening them'.

Turning to God

He becomes desperate. He is unable to face the reality of his situation and turns to God for help. Even now, he does not ask God to remove his desire for alcohol. He pleads with God to help him to maintain a supply so that he can manage his drinking. His entire being is nearly destroyed by addiction at this stage.

Finally, the inevitable vicious circle begins. He gets sick, drinks to feel better and becomes ill again. This continues endlessly. He drinks just for the sake of drinking; he drinks only to stay alive.

When he reaches this stage, two things may happen to him. He continues to take alcohol and becomes mentally ill.

or

He continues drinking and dies a premature, painful death.

The only solution to this problem is to stop drinking totally for life.

*Courtesy : Alcoholism and Drug Dependency
- The Professionals Master Guide
Published by : TTK Hospital, Chennai.*

Invaluable artefacts of 2400 years old unearthed from Alagankulam and Kodumanal

Tamil Nadu State Department of Archaeology had unearthed a number of interesting artefacts from Alagankulam in Ramnad District. When the first phase of excavation was carried out during the month of February and March of this year by the Archaeologists Messrs D. Tulasiraman, S. Selvaraj, K. Kalaivanan V. Ganesan and Tmt.S. Vasanthi, it had yielded a considerable number of inscribed pottery written in Archaic Tamil character datable to 4th century B.C. to 2nd century B.C., three copper and one silver coins, beads of different materials like semi precious stone, paste, glass and terracotta in various shapes and some iron, copper and gold objects.

Of the above antiquities the coins are more significant as far as dating of the above objects are concerned. About the three copper coins two are of Roman issue and the other is of Pandya of Sangam age. The two Roman coins are the issues of Glory Aroma Norum who ruled during 5th century A.D. while the Pandya coin is of 2nd century B.C. as it is found in more corroded form. On the adverse of the Roman coins the portraits of the emperors are seen. The reverse of them are very much defaced. The adverse of the Pandya coin bears the figure of an elephant whereas the reverse bears the design of a fish, the royal crest of Pandyas.

The silver coin is the most outstanding discovery as it is a Punch marked coin. According to Thiru R.Krishnamurthy, the renowned numismatist, this coin is the issue of Nandas who were ruling Gangetic region of North India during 5th century B.C. and it should have come into

prevalence in Tamil Nadu after a period of approximately one hundred years. Hence it is to be dated to 3rd Century B.C.

Other equally interesting find is of a few N.B.P. sherds of Mauryan period assignable to 4th - 3rd century B.C.

Totally three trenches namely AGM-10, AGM-11, and AGM-12 were laid bare. All these trenches have yielded very valuable antiquities. In AGM-10, the occurrence of a channel and in AGM-11 post holes probably for planting the wooden posts for bearing the superstructure had been noticed.

At Kodumanal in Periyar District also, this



Department in collaboration with the Tamil University, Thanjavur has undertaken excavation during the same period.

This excavation was carried out by the archaeologists namely Messrs. K. Sridhar, Pungunram, Gautamaputtiram, Subramanian under the guidance of Dr. Y. Subbarayalu,

Professor, Tamil University, Thanjavur and Dr.K. Rajan, Senior Lecturer of the Tamil University, Thanjavur.

This excavation also had yielded more significant artefacts such as inscribed pot sherds, graffiti bearing pot sherds, semi precious stone beads, spindle beads, deer horns, bone arrow heads, crystal sickle, etc. These further attest the fact that Kodumanal had played vital role in Sangam age in exporting the stone beads and deer horns to different parts of India as well as to abroad.



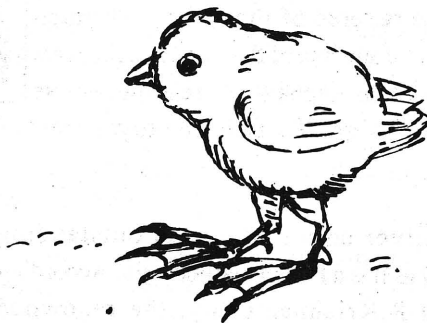
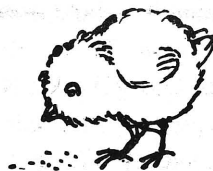
The above invaluable artefacts of both the sites clearly indicates that the cultural history of Tamil

Nadu has to be written from 4th century B.C and make us to understand that during those period the Tamil civilization was in highly evolved stage.

CHICK OR DUCK?

How about a chick being transformed into a duck! Ever heard of that? This startling discovery was announced by the researchers at New York's Memorial Sloan-Kettering Cancer Centre and Cornell University Medical College.

On injecting a mutant gene for bone morphogenetic protein (BMP, a growth factor involved in bone and cartilage formation) into the right legs of two day old chicken embryo's, the chicks developed webbed toes on their feet. This explains the mystery of cell demise in webs that joins our digits inside the womb. Researchers claim that we emerge without webbing because the cells in the webs die due to BMP. Interesting right! Otherwise all of us will be going around with webbed feet.



Source: Down to Earth



◆
PURE
silk

PURE
zari
◆

◆
Royal purples...
daring reds...
bright yellows...
exquisite silks
in almost every
imaginable hue.
From Co-optex.

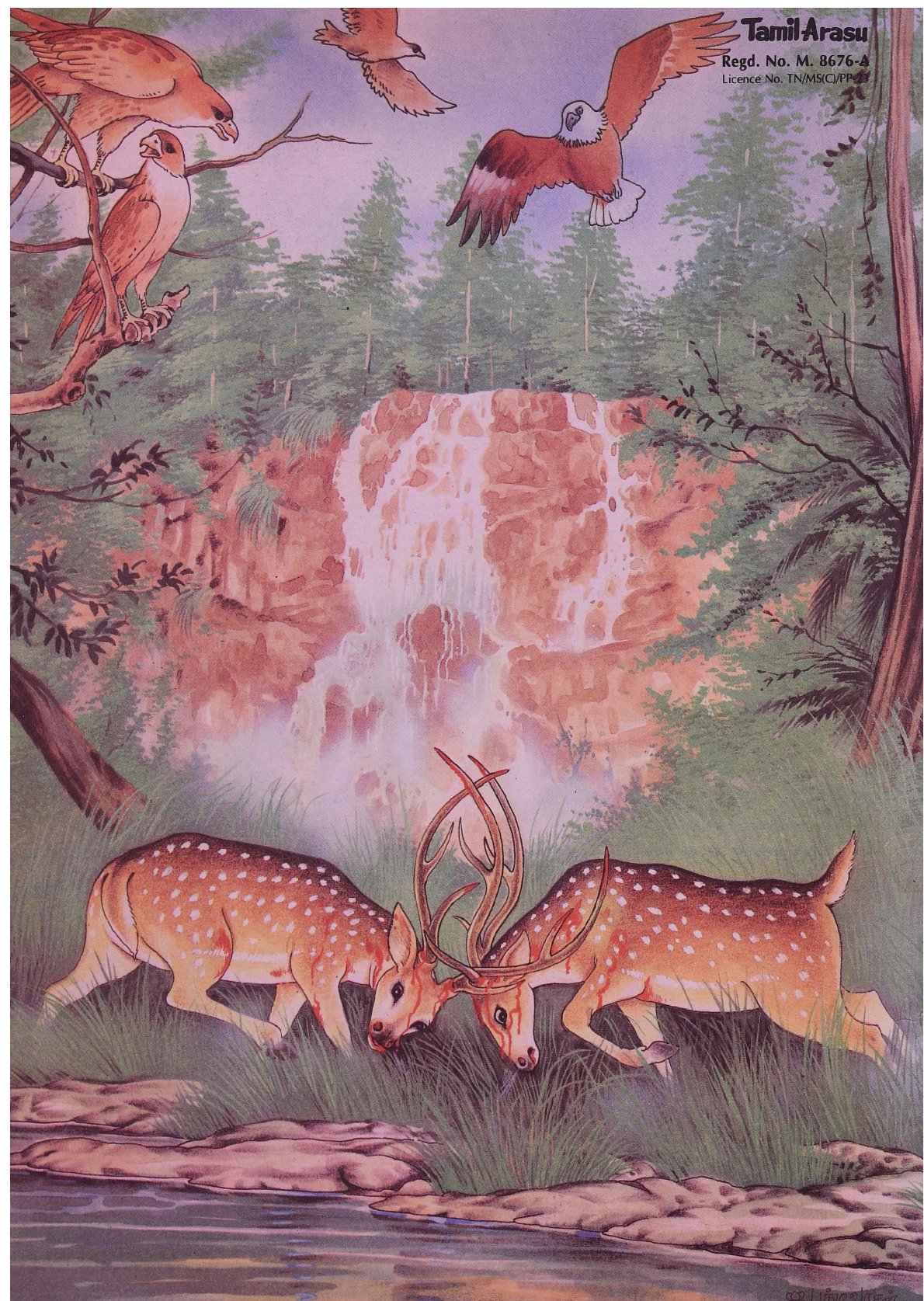


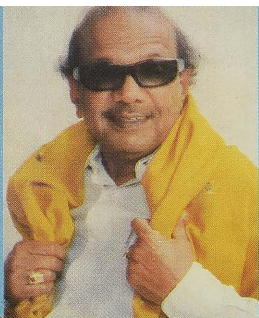
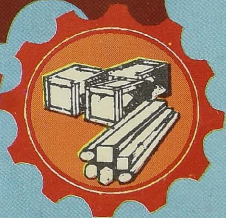
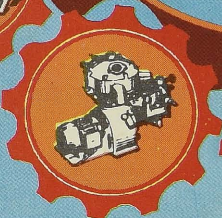
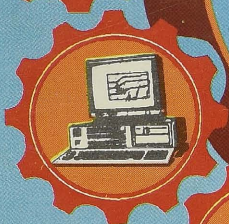
HTA.7556.95

Tamil Arasu

Regd. No. M. 8676-A

Licence No. TN/MS(C)/PP-33





TAMILNADU ON THE MOVE





TAMIL NADU ON THE MOVE

Hon'ble Chief Minister's reply to the debate
on the demand of Industries Department
in the Tamil Nadu Legislative Assembly
held on 23.4.1997

Information and Public Relations Department
Government of Tamil Nadu

Tamil Nadu on the Move

Special Publication

June - 1997

Published by :

V. IRAI ANBU, I.A.S,
Director of Information & Public Relations,
Government of Tamil Nadu.

PREFACE

Tamil Nadu has traditionally been in the vanguard of industrialisation in India. Being endowed with a very diversified industrial base and comparatively strong infrastructural facilities, the State recorded commendable industrial progress in the past. But in recent years, the lack of farsighted and sincere approach and the pursuit of wrong policies and goals plunged the State into the backwoods of Industrial Development.

Now, opportunity is again knocking at our doors. The Government of Tamil Nadu have announced their intention to give the maximum importance to industrial development, with a view to reduce unemployment and to develop our backward areas. Tamil Nadu would like to make use of this opportunity and encourage investments in our State by all - Foreign multinational companies, Non-resident Indians, Indian companies, Co-operative Societies, Small entrepreneurs and even by small artisans. We wish to simplify our rules and regulations and speed up our decision making process and make their task easy and smooth. Thus, the basic objectives of the new policy will be to :

- ☐ Regain for Tamil Nadu its days of glory as the most industrialised State in India;
- ☐ Market Tamil Nadu as the preferred destination for investment in India and abroad;
- ☐ Plan, create and offer world-class infrastructure for industrial entrepreneurs;
- ☐ Dismantle barriers to investment and simplify rules and procedures;
- ☐ Set in motion a process of development which is ecologically sustainable;

- ❑ Ensure a transparent and investor-friendly administration;
- ❑ Harness the vast human-resource capital in the State.

The Government believes that competing with other States by offering more and more incentives alone will be not useful. Instead, we would concentrate on strengthening of the power generation capacity and the transmission and distribution arrangements, improving our road network, bringing in the most technologically advanced Telecom facilities, opening new ports and developing the existing ports, strengthening the technical training facilities and speeding up the broadguage conversion of our rail lines.

As soon as this Government came to power, it reviewed the situation and it was disappointed to find that even after 1991 when the Government of India liberalised the Industrial licensing regulation and decentralised many sectors of industry, Tamil Nadu could not attract as much investment as many other States in the Country were able to do. The reasons were analysed and it was found that the State Government had omitted to strengthen the infrastructure facilities (for example, no new major power projects was taken up for construction after the previous DMK Government took up the North Madras Power Station) and to convince investors that their policies were transparent. The Government therefore declared that all decisions would be taken in the most transparent ways, that this Government would follow industry-friendly policies, that decisions would be fast and that strengthening of infrastructure would be the area of extreme focus.

In tune with this policy, the Government set about implementing a vigorous plan of action. The area taken up first was strengthening of the Infrastructure. The Department of

Industries decided to assist the Tamil Nadu Electricity Board in its efforts to create additional power generating capacity, at the earliest. It was noticed that no new generating station was likely to be commissioned during the next 3 years. At the same time, the demand for electricity would steeply increase. Will there be a power famine? A string of liquid fuel based power stations which can be commissioned in 2 years' time was the answer. TIDCO promptly floated global tenders for 20 short gestation power projects. In the private power project scenario, where the signing of MOU's without any transparency was the order of the day during the previous regime. This tender was a refreshing instance which demonstrated that the Government was committed to total transparency. Eleven of these projects were already awarded strictly according to the norms and nine of them have been tendered again.

We realised that providing developed land, with all infrastructural facilities, is very important, if we are to attract industries to Tamil Nadu. So, we embarked upon an ambitious scheme for developing more Industrial Complexes. The first Industrial Complex taken up was SIPCOT's Irungattukottai Complex. The plan was to acquire about 1750 acres of land on the Madras-Bangalore National Highway and develop it into an Industrial Complex for Automobile Engineering and Auto-component Industries. M/s. Hyundai Motor Company from Korea agreed to establish their car manufacturing facility in a 540 acre plot here. This would be their biggest auto plant after their 1.5 million cars per annum plant at Ulsan, Korea. The Government of Tamil Nadu were able to acquire the land and place the same at their disposal in the incredibly short period of 4 months, after complying with all the land acquisition procedures - perhaps the fastest ever land acquisition job in the 100 year history of the Act.

Other new Industrial complexes are fast getting established at Thiruperumbudur, Sunkuvar Chatram and near Coimbatore, Cheyyar, near Ranipet and near Singaperumalkoil. SIPCOT will acquire about 10,000 acres of land for the various new Industrial Complexes.

TACID, another State Undertaking has identified 1500 acres for acquiring and developing them as Growth Centres. The aim is to provide all these centres with world class infrastructure facilities.

A Petrochem Park over a 7000 acre area near Ennore would be developed by TIDCO. This complex will have a tank terminal which can store the imported petroleum products. The first L.N.G.(Liquefied Natural Gas) terminal in India is also expected to come up here, bringing in 2½ million tonnes of LNG per annum to start with, along with a downstream 2500 MW power station.

Electronics Software and Hardware industry is another thrust area. The Electronic Corporation of Tamil Nadu has on its part come forward to launch a High-Tech Electronics Industrial Complex on a 200 acre plot, south of Chennai. Tenders have already been floated to select the Developers. A techno park in cooperation with the Bharathiyar University at Coimbatore is also being tendered shortly.

Several administrative decisions were taken for cutting out red-tape and speeding up decisions. In the area of mineral policy, the Government abolished the much abused Rule 39 of the Mineral Rules and boldly reintroduced the Tender-cum-auction system, thus highlighting its commitment to pursue policies designed to serve the public interest. A new legislation has been presented by the Chief Minister in the Tamil Nadu Assembly, for ushering in, an effective Single Window Clearance

Mechanism for new industries coming up in the Industrial Complexes in the State. This bill has since been passed by the Assembly.

All these efforts on the part of the Government of Tamil Nadu have attracted new investment proposals both from India and abroad. Apart from M/s.Mahindra Ford and Hyundai, Mitsubishi of Japan, which is setting up a Car plant to manufacture their Lancer model, has also selected Tamil Nadu as its home in India. While competing with each other both M/s.Pilkington of U.K. and Saint Gobain of France have zeroed in on Tamil Nadu sites. Major industrial groups like Matsushita Industries and Fujikura of Japan, Kumho Tyres of Korea, Iveco of Italy in association with Ashok Leyland have also signed up with us.

Today, Tamil Nadu has begun to be looked upon as the most preferred investment location in the country. The two pronged approach - strengthening of Infrastructure and introducing of transparent decision making process - has started paying dividends. The mood is upbeat. The new momentum and dynamism introduced by the new Government during the last few months is sure to take Tamil Nadu again to the frontline!

P.C. CYRIAC, I.A.S.,
Secretary to Government,
Industries Department,
Government of Tamil Nadu.

TAMIL NADU ON THE MOVE

Hon'ble Chief Minister's reply to the debate
on the demand of Industries Department
in the Tamil Nadu Legislative Assembly
held on 23.4.1997

Honourable Mr.Speaker,

On the basis of the Policy Note and the other papers presented by me earlier, in respect of the Budget Demand for Major Industries Department many leading members of the Opposition and the Ruling Party and its allies, have already given their valuable and positive comments. Now, I am on my feet, with a view to explaining the various measures taken by this Government so far, for the growth of Industries in Tamil Nadu. I am gratified to get the opportunity to inform this august Assembly about the new schemes to be taken up by the Government.

But before that, I should refer to the comment made by Thiru.Azhagiri, Member of our Assembly belonging to the Tamil Maanila Congress Party, who initiated the discussions. He began his speech stating that he was speaking with a heavy heart and felt that I too would be sitting with a heavy heart. Perhaps, the word 'heavy' found its way to his mind as we were to speak about heavy industries. As for me, I never like to make my heart heavy, nor have I made it heavy at any time, for it is with the borrowed heart of my mentor, Anna, which was the heart which can bear anything that I am leading my public life, especially my life in the political arena.

In the screenplay of the movie 'Poompuhar', I had written that it was when the conscience fell asleep that the mind would start

wandering. If this is remembered not only by me, but by all, truth will not remain in the dark, for long. It will come out. Just as darkness cannot cover the sun for ever, truth also will certainly triumph.

The two opinions put forth in the speeches of both Thiru. Azhagiri and Thiru. Abdul Latheef, the leader of the Indian National League are acceptable. Though Thiru. Latheef especially was commenting more on politics than on the Industry Demand, one has to concede the points made by him that we all subscribe to the need for forming a secular Government and the need to keep alive the democratic form of Government in India. Therefore, it is my duty to thank the beloved member Thiru. Azhagiri, who began the debate and my dear friend, Thiru. Abdul Lateef, who also expressed some views.

While speaking about the Department of Industries, both Thiru. Mani, who spoke on behalf of the Marxist Communist Party and Thiru. Subbarayan, who spoke on behalf of the C.P.I. emphasized the view that in Tamil Nadu, the public sector undertakings should be further encouraged and wanted Government's action for that. One should not forget the fact that in the Policy Note placed on the Table of the House itself, I have stated that in Tamil Nadu, at present, 13 Central Public Sector Undertakings with a capital investment of over Rs.20,000 crores are already functioning and that the Government of Tamil Nadu will press the Central Government to implement certain expansion schemes in the region like Neyveli Lignite Corporation, Madras Refineries Limited, Salem Steel Limited and Indian Rare Earth Limited at an outlay of Rs.16,000 crores immediately. So, everybody can feel confident that while encouraging the private enterprise in tune with the new economic policies and while nurturing the joint sector and associate sector

industries, which the DMK Government have promoted, we shall certainly give the public sector also a pride of place.

Thiru. Azhagiri said that in respect of exports, we were not in a happy position; in particular, he referred to the figures of newsprint and paper exported by the Tamil Nadu Newsprint and Papers Limited and stated that the export earnings of this Company were less by Rs.10 crores, this year. This is true. As the prices of newsprint and paper in Foreign countries were very low, we had less motivation to export. I would also like to refer to the article published in the leading daily 'The Hindu' dated 19-4-97, which has quoted the World Trade Organisation's statistics; pointing out that the volume of business transacted in the World Import-Export trade had come down during 1996-97. The total value of goods traded in 1995-96 was \$5100 million. This meant that the values of Exports had registered a 5% drop during this year, as against the 14% growth it had shown last year.

In particular, Exports from Asia have come down; the Exports from the developed countries like Japan, Taiwan and South Korea have also come down. According to those figures, India's Exports attained a growth of only 6% as against the goal of 7%. In short, the world Import-Export trade has come down drastically; India's Exports have also not gone up to the extent targeted. But the exports from Tamil Nadu, in general, have not fallen like that. However, I would like to tell Mr. Azhagiri and others that we would strive hard to increase the Exports from Tamil Nadu, in future.

We cannot forget the fact that about 16% of the total exports from India is accounted for by Tamil Nadu; at the same time, the population of Tamil Nadu is only 6% of India's total population.

Our main export products are cotton yarn and textiles, Leather products, hosiery etc.

Thiru. Azhagiri made another charge. It was about SIPCOT. He alleged that it behaved like a 'shylock' and referred to the case of the Cuddalore Company, M/s. Coromandel Polybags. When I enquired about this Company, I was told that SIPCOT had advanced a sum of Rs.45.50 lakhs, which had swelled to the figure of Rs.117 lakhs along with the interest and penal interest, as the loan was not repaid. I don't think SIPCOT acted in a mean fashion, in conducting the sale of the defaulter Unit by tender. The money loaned and the interest on it were not returned. Even the agreements made after discussions were not kept up. In these circumstances only, SIPCOT was forced to take legal action.

I find that a wrong propaganda is being carried out in the Country, questioning whether the Industries Sector in Tamil nadu had grown under the DMK administration, after 1967. The clarifications I give now, about this issue, would not hurt the feelings of anyone, I hope. After 1967, in respect of major projects like the 'Tuticorin Harbour Scheme and Neyveli Lignite Corporation, the DMK Government had pressed the Government of India consistently, to take up their expansion schemes which would increase their turnover/production as well as the employment opportunities. The State Government had also given all necessary assistance for these projects. It is well known that it was the DMK Government which fought with the Centre and managed to get the projects like the Second Mine Cut of Neyveli and the Salem Steel Plant, implemented. None can forget that the Rs.2000 Crore SPIC Fertilizer Plant at Tuticorin, which has grown to world scale, was set up only during the DMK administration.

Similarly, the DMK Government, which believed that the public sector units alone cannot bring about the Industrial Development of Tamil Nadu, recognised the need for encouraging the enterprising private promoters also. For this purpose, the Government decided that Industrial Complexes should be built with all the infrastructural facilities and the developed plots should be allotted to private enterprises at reasonable cost. It also decided to make available term loans and capital subsidies for the private industry. It was the DMK Government, which set up in 1971, the SIPCOT which sought to make available to the Industry all the basic infrastructural facilities and finance at the same counter and which set up several Industrial Complexes. One such complex was the Ranipet Industrial Complex. By 1973, at that Complex, 107 new Industries at a total outlay of Rs.168 crores had come up. When the DMK came to power, we had heard about the land kept vacant at Ranipet. At that time, Thiru S. Madhavan, who was the Industries Minister, told me that this area was acquired during the previous Congress administration for setting up an Industrial Estate and that since the Estate could not be established, they had planned to drop the proposal and sell the land. Subsequently, the then Industries Minister and myself visited the place accompanied by the officers. We then decided not to give away the land, but to set up an Industrial Complex there. The result of this decision is the 730 acre complex and the 107 industries with a total investment of Rs.168 crores.

Again, in Hosur in 1974, during the same DMK administration, a new complex was set up and 186 new industries came up at an outlay of over Rs.500 crores, providing employment for 20,000 people. To improve the employment opportunities in the backward regions of Tamil Nadu, Industrial Complexes were set

up in 225 acres in Manamadurai and in 110 acres in Pudukottai. In addition, the then Government had assisted in setting up private industrial estates in backward areas like Anaikkaranpatti of Ramanathapuram District. In continuation of this, it was again the DMK Government which set up SIDCO in 1971, to provide devoted attention and help to the small scale industries. Though TIDCO was set up during the Congress Administration in 1965 itself, it was during the DMK Government that this organisation set up the Joint Sector Units with 26% Government investment and the Associate Sector Units with 11% Government participation. A large number of new industries came in Tamil Nadu under this approach.

Similarly, it was in 1972 that the nucleus which later developed into ELCOT - Electronic Corporation of Tamil Nadu, was set up; it was an Electronic Cell in the Office of the Directorate of Industries. And in 1975, ELCOT was formally set up. Today, this organisation and its assisted companies have grown into a Rs.200 crores industry. By setting up all these Corporations, it was the DMK administration which paved the way for setting up of many new Industries. Apart from encouraging the entrepreneurs with developed plots and liberal loans, the Government also granted tax exemptions, deferring of sales tax, electricity tariff concessions and subsidies and thus helped many Industries to come up. In 1975, a member of the West Australian Parliament Mr. William Writters visited Tamil Nadu. After his return home, he spoke in the West Australian Parliament:

He spoke of the industrial development in Tamil Nadu. He said, "Tamil Nadu Government have attractive ideas to help industries. The Government apart from taking strenuous efforts to start industries in Tamil Nadu, also provides various

concessions. The concessions include tax exemption for a period of two years to any foreign industry to be started in Tamil Nadu, and concession on power tariffs during the growth period of the newly started industry. I consider this an exemplary work. When we plan for the industrial development of our Country, that is when we plan for the industrial development of West Australia, we should have these points in mind". His open hearted praise was published in news papers at that time.

This shows how there was appreciation, not only in India, but even abroad, of the innovative role played by us here, to promote industrial development. Let me recall here the names of Joint Sector industries promoted by our Government then:-

1. SPIC of Tuticorin.
2. Tuticorin Alkalines and Chemicals Ltd., to manufacture Soda Ash (Ammonium Chloride) using the excess Ammonia available in SPIC.
3. Tamil Nadu Chemical Products Ltd., Karaikudi, to manufacture Sodium Hydrosulphate, required for textile industry.
4. Tamil Nadu Chromates and Chemicals Ltd., Ranipet.
5. Pandian Chemicals Ltd., in Melur Taluk of Madurai District, to manufacture Potassium Chlorate.
6. Tamil Nadu Chloride and Allied Chemicals Ltd., to manufacture Aluminium Chloride.
7. Tamil Nadu Dada Pharmaceuticals Ltd., Pallavaram, to manufacture drugs.

8. Dynavision Ltd., to manufacture T.Vs.,
9. Maruti Crystals and Salts Ltd., Kovalam, Mamallapuram.
10. Asia Tobacco Ltd., Hosur.
11. Great Sea Trawler Co., near Mandapam.
12. Tamil Nadu Alkaline Batteries Ltd., Ambattur.
13. Asian Bearings Ltd., Hosur.
14. Arakonam Castings and Forgings Ltd.
15. Intercontinental Leather Ltd., Ranipet, manufacturing various leather products.

After this, came the dismissal of our Government.

And now, I wish to tell the Honourable Members, the various steps taken by the next DMK Government between 1989 and 1991.

You are all familiar with the North Madras Thermal Power Station. The land for this project was identified earlier. But nothing concrete was done to acquire it. The landowner had taken the matter to the Court. As soon as the DMK Government took over, we called the landowner, talked to him and persuaded him to withdraw the court proceedings and hand over the land. But in the meantime, the cost of the Project originally estimated at Rs.500 crores had gone upto Rs.1200 crores.

The Ranipet Industrial Complex already functioning, was expanded by acquiring more areas and this paved the way for creating 3400 new jobs there. Similarly, the Hosur Industrial Complex was also expanded acquiring 457 acres of land and promoting projects for an outlay of Rs.1000 Crores which generated 6000 new jobs.

The Gummidipoondi Industrial Complex also was planned to be expanded, acquiring an additional extent of 800 acres. The Government had then planned to develop Industrial Growth Centres of 2000 acres in extent, at Perundurai in Periyar District and at Gangaikondan in Nellai-Kattabomman District. But, then came the dismissal. The DMK Government was being dismissed for the second time.

Was anything done subsequently to implement the schemes announced like developing of Perundurai and Gangaikondan? During the same 1989-91 administration only, new initiatives were taken which resulted in the setting up of Asian Paints Factory (Rs.22 Crore outlay), Tamil Nadu Telecommunications Ltd.(Rs.29 crores) and Tiruchi S.S.Sankara Reddy Associates (Rs.10 crores). The Government had also decided then, to set up a Titanium Dioxide Factory through TIDCO, at an outlay of Rs.140 crores.

It was at this juncture, when the Government was systematically planning and initiating action for Industrial Development of Tamil Nadu, that, as I explained earlier, the Ministry was dismissed for the second time. One feels scared to plan systematically for the Industrial development of the State; whenever we draw up our innovative schemes for Industrial development, they are sharpening their knives!

I have also to mention about the sick industries which were nursed back to good health, during this 1989-91 DMK administration. Tamil Nadu Minerals Limited (TAMIN), which was in the red due to administrative lapses was rehabilitated and it made a profit of Rs.4 crores in 1989-90, due to the corrective steps taken by our Government. In respect of the Tamil Nadu Newsprint and papers Ltd., the loss upto 1989 was Rs.49 to

Rs.50 crores. But the DMK Administration revamped the Unit and made it earn a profit of Rs.28 Crores in just one year's time.

I have mentioned about granite policy on several occasions earlier. There was no policy. There was total confusion, and there was planned looting. In 1989, during the DMK administration, we studied the issues and drew up proper policies for systematically exploiting the mineral resource in a rational manner and brought in the system of tenders for allotting Government poramboke areas with potential to develop into granite quarries. In the two years, 1989-90 and 1990-91, in 103 locations quarry tenders were floated, covering an extent of 272 hectares and this fetched an income of Rs.20 crores for the Government. But, what happened during the term of the last Government which came after the dismissal of our administration? I have described it in this forum earlier. So, I don't want to go into the details. The tender system was removed. Everyone knows that decision can be taken in a fair, just and rational way, only through the tender system. That is why everyone praises this system. But as soon as the Government under Ms.Jayalalitha came in, they introduced a new rule, Rule 39, giving the go-by to the tender system. As a result, between 1993 and 1996, in 3 years, the income that the Government got from quarry leases was just Rs.5.12 crores. In 1989-90, the tenders conducted by DMK administration fetched Rs.20 crores. Recently, the Vigilance Commission assessed the loss due to the arbitrary award of quarries, without following the tender system and the failure to fix reasonable lease amounts for the quarries, as between Rs.70 to 95 crores. After taking up the reins of administration again in 1996, the DMK Government promptly removed Rule 39 from the Rule Book and re-introduced the tender-cum-auction system.

Similarly, the previous Government had abused Rule 39 and indulged in malpractices in respect of awarding sand and jelly leases also. Here again, this Government have re-introduced the tender system. I have not yet got full details from all districts. But, the reports from Coimbatore District show that during last year, under the previous Government, the income from sand and jelly quarries in Coimbatore district was Rs.2.88 lakhs. This year, it rose to Rs.26.17 lakhs from the same quarries in the same District. You can imagine how much money was looted. Now, as a result of the new leases given through tenders, Coimbatore District would get an income of Rs.67.32 lakhs from this source.

In addition to the looting described above, there was widespread corruption and it sent negative signals to Industrialists everywhere, about Tamil Nadu. This miserable scene, presented by Tamil Nadu, under the last Government has been graphically described, not by me, but by an Independent Research Unit. They had published a report "India Unaged" in November, 1995. Under the caption "Seeking opportunities in the South", the report said, "If there is any State with a reputation for corruption, it is Tamil Nadu". Tamilnadu has a reputation for corruption. When was this? In 1995. Who says so? No, not Karunanidhi. It is the Research Report, from the Economic Intelligence Unit. The report said, "The going rate for backhanders in the form of commission is said to be about 10 to 15% of even the project cost". They had conducted research into who fixes deals between the Tamil Nadu Government and the Businessmen and how much these fixers were to be paid. The fame of Tamil Nadu had grown to such an extent that these research findings were published as a Research Thesis. No other proof is needed to confirm this dubious fame of the then Government, here.

Because of this only, this Government has announced that the decisions on its tenders would be taken on a totally transparent manner. Only to make sure that no such defect will creep into our decision making process, only to see that our tenders are decided strictly on correct grounds and with a view to avoiding the Government and people of Tamil Nadu getting such a bad name again, we want to create conditions under which all information about the tenders and the decision making process will be made available to all who seek the same. Our Industries Department is now marching forward in a totally transparent way. For advising the Government on the measures to be taken for Industrial development, we have formed a High Level Committee in which experienced industrialists, senior Government Officers and young entrepreneurs are all represented.

The Industry-friendly policies of the present Government:

Due to the Industry-friendly policies and the totally transparent approach, many new industries are now getting attracted to Tamilnadu. I have already mentioned earlier about some of these new projects which have come up during the last 10 months. But, it is my duty to furnish the consolidated list, on this occasion:

- (i) 100% Export oriented Floriculture Project-Hosur-Rs.33 crores. In association with Blooming Meadows Ltd.
- (ii) Rs.35 crore outlay-Project to manufacture products using flyash from the Thermal Power Stations-Ennore.
- (iii) 100% export oriented buffalo meat processing plant near Pollachi-Rs.169 crores.
- (iv) Rs.39 crore scheme for development of Integrated Coconut Processing Plant; near Pollachi.

- (v) Pilkington Company of U.K.-setting up a Rs.450 crores glass project at Singaperumalkoil.
- (vi) Rs.40 crore project of Tamil Nadu Telecommunications Ltd., to manufacture fibre optic cables.
- (vii) Ashok Leyland Ltd., has commissioned at Hosur a new line to make 10,000 cargo trucks, a year-Rs.630 crores.
- (viii) Near Chennai Airport, it is proposed to set up an Air Freight Station, at a 35 acre plot.
- (ix) Kumho Tyres Co., of Korea setting up a tyre factory-Rs.350 crores.
- (x) Hyundai Motor Co., of Korea-setting up a Rs.2450 crore project at the SIPCOT Complex at Iruungattukottai.
- (xi) Rs.115 crore Carbon black project at the SIPCOT complex in Gummidipoondi-Hitech Carbon Ltd.,
- (xii) Rs.320 crore Car project by Mitsubishi of Japan along with Hindustan Motors, Tiruvellore.

About this large scale investments in Industry being made in Tamil Nadu recently, by reputed companies, the famous columnist Mark Nicholson has written in 'Financial Times' of 10th April, 1997. He says "Tamil Nadu's Car industry is perhaps the most spectacular result of the race between States to attract foreign investment and develop new industries".

The article commends the efforts of the present Government of Tamil Nadu in successfully competing with other States and securing investments. The article picturesquely describes the scenario, when it says that 'Tamil Nadu does not yet produce one finished car. But within 3 years, new production lines near

Madras will roll out 2,44,000 cars a year”.

“I don’t think anywhere else in the world at this point offers this level of opportunities to the British Auto-component Industries” says Mr. Bernard Fintlay, International Trade Manager for the British Society of Motor Manufacturers and Traders recently after a reconnaissance in Madras. Since the words of these British experts speak volumes, I need not have to say anything more than just read their statements for proving Tamil nadu’s potential in this field.

Next, I will take up the Tamil Nadu Graphite Limited. Our Member from Sivagangai, Thiru T. Krishnan has always been speaking about setting up of Graphite product manufacturing factories. Another person who is most interested in developing the graphite deposits of Sivagangai is Thiru. Chidambaram, who was the Finance Minister in the Central Government and who is again going to occupy that position. A separate company has been registered and detailed studies for identifying the products that can be manufactured are being made now. According to the present estimates, a quantity of 35.41 lakhs tonnes of graphite deposits only are available. The available ore has 14% graphite content. To beneficiate the ore upto 96% purity was our aim. Efforts are being made to achieve this goal.

Let me now turn to certain announcements which I would like to make before this House.

A legislation for effectively implementing the Single Window Clearance for Industries has already been presented before this House. Once this bill becomes an Act, in all the Industrial Complexes, Industrial Townships will be setup and Executive authorities will be appointed to administer these townships. All

the clearances required to be obtained from the different departments for starting an industry in the Township will be issued by this Executive authority itself.

After the District Collector issues the mining leases for removing sand, jelly (blue-metal) and clay separate transport permits are to be issued for taking away the mined materials. This power to issue the transport permits will be delegated to the local body concerned (Village Panchayat, Town Panchayat or Municipality). The seigniorage fee will be remitted to the local body, who will issue the transport permit. The responsibility to do this will be entrusted to the President of the local body, acting along with the Vice President or another member. It is expected that as the authority is being entrusted with the local body whose functionaries are staying in the local village itself, it would be possible to prevent the smuggling out of sand and jelly and the consequent loss of revenue to the local body.

Very often, new factories which come up find it difficult to get adequately skilled and trained workers in sufficient number. To solve this problem, the Government will liberally allow the setting up many Industrial training Institutes. It is expected that as a result of this, many youngsters will get trained in different skills and secure jobs. I would also like to recall that as soon as this Government took office, it had decided to set up atleast one ITI in each Panchayat Union and that scheme is getting implemented.

The Government have decided to set up in the Associate sector four granite products manufacturing ventures, each of which will be given 50 hectares of quarry land (Total 200 hectares of quarries). To select the Associate sector partners, tenders will be invited soon.

Thiru Subbaraman, MLA, cautioned while participating in the debate today that at the time of setting up of the industry itself, care has to be taken to protect the environment, failing which there could be serious problems later. Just as he said, our industries like leather tanning, textile dyeing, foundry and stone crushing were functioning and releasing their effluents without any concern for the environment. Taking note of this situation only, recently the Courts have issued orders posing problems for the smooth functioning of these industries. To enable these industries to treat their effluents properly and operate normally, this Government have planned to arrange separate areas in suitable Industrial complexes to form Tanning Park, Dyeing Industry Park, Leather Product Industrial Park and Foundry Park separately. Each of these areas will have to be provided with appropriate and specially designed effluent treatment facilities suitable for the particular type of industry.

Electronic Parks-Industrial Parks with high quality telecommunication link-up and other infrastructural facilities will be developed and both hardware and software units will be set up there. These parks will come up at Kelambakkam near Chennai and near Coimbatore. Tenders are being floated now. Two more parks, one near Chennai and one near Madurai will follow.

To generate new employment opportunities for the youth in industry, new industrial complexes are being planned in Chennai suburbs, near the National Highway in Villupuram Ramaswamy Padayachiyar District, in Coimbatore District and in Dharmapuri District.

The future dreams of Tamil Nadu about Electricity are dependent to a great extent on our LNG project (Liquified Natural

Gas). The plan is to set up the LNG terminal at Ennore. LNG will be brought to the terminal by specialised vessels. 2 million tonnes of LNG will be enough to feed the 2500 MW power station to be set up nearby. The LNG received at the terminal will be re-gasified and fed to the Power Station to generate electricity. This project is expected to cost Rs.12000 crores. We are unable to raise the resources for this project to be taken up in the public sector. Therefore, we have to invite experienced and financially strong companies to participate in our tender for this. Already eleven major companies have expressed their desire to participate in the tender:-

1. Mobile LNG, America
2. Shell International Gas, England
3. Coastal Gas Corporation, America
4. Amocco Power Resources Corporation, America
5. Philips Petroleum Co., America
6. Occidental Corporation, America
7. Gas de France, France
8. Total, France
9. Nisho Iwai, Japan
10. Marubeni Corporation, Japan
11. Clough Engg. Group, Australia
12. A Malaysian Company
13. Reliance Power Ltd., Bombay

After the tender is floated, a decision will be taken on the award of the contract to the tenderer who offers to set up all the facilities and supply power at the lowest cost. I am happy to announce that Tamil Nadu is going to get this big project in the near future.

Two satellite cities near Chennai-There is a criticism that all major Industrial Projects are coming up around Chennai only. To avoid congestion in the city, the Government have decided to set up one satellite city on a 2000 acre plot near the Hyundai Car Factory and another satellite city on a 500 acre plot near Singaperumalkoil, near the Ford Car Plant.

You may recall that during the period 1989-91, when the DMK Government was in power, a private sector Hosiery Industrial Complex was planned and promoted at Mudalippalayam, near Tiruppur and completed and commissioned in a short while. In the same way, it is proposed to encourage private sector sponsored Industrial complexes provided with all infrastructural facilities by offering for the industries which come up in these private complexes all the usual incentives applicable for the factories coming up in the SIPCOT/TACID industrial complexes.

The Government have decided to extend special assistance to the industrial units set up to manufacture construction blocks and other products using the fly ash from the Thermal plant sites at Ennore, Neyveli, Mettur and Tuticorin.

Jayamkondam Lignite Project:

This is a long pending issue. Though decided in 1990, due to the inaction of the previous Government this project still remains on paper. The agreements made by the previous Government to award contracts for supply of machinery for the project, without

calling for tenders, have been got cancelled. Now tenders have been floated inviting parties who are experienced in lignite mining and power generation to arrange the mining of 4 million tonnes per year of lignite and generate 500 MW of power and deliver the power at the cheapest possible price. It is expected that this year will see the revival of this scheme.

I am happy to announce that the Singapore Indian Chamber of Commerce & Industry has agreed to function as a window disseminating information to Singaporeans about the potential for business investments in Tamil Nadu. When our delegation, consisting of Government Officers and Industrialists visited Singapore, they conducted discussions on this issue. A Memorandum of understanding is to be signed on this. This move may help in securing more investments from Singapore in Tamil Nadu.

TIDCO's new projects:

In the vicinity of the new Ennore Port, an area about 7000 acres would be acquired for development as a Petrochemical Park.

Reverse Osmosis Plants which will purify the waste water will be set up there to make available the water required by the industries coming up there.

In association with the SKM group, an Egg processing plant (outlay Rs.40 crores) would be set up.

In association with the National Plywood Ltd., and a German Company, a unit to manufacture medium density boards from bagasse would be set up, at an outlay of Rs.150 crores.

Schemes to take up the manufacture of alcohol based chemical products would be taken up.

In association with the Norske Hydro of Norway, a plant to manufacture the PVC resin will be set up. The MOU for this project was signed last month.

At an outlay of Rs.7500 crores, a naphtha cracker and olefin complex would be set up.

In the Chennai Export Processing Zone, at an outlay of Rs.27 crores, a 100% Export Oriented Metal Tube Light fittings manufacturing scheme is under implementation.

To encourage the Floriculture projects coming up in Dharmapuri District a Rs.75 crore project to set up Refrigeration house, auction floors, and arranging refrigerated trucks, would be taken up.

The Rs.1000 crore Sterlite Industries Copper Refinery has already commenced production at Tuticorin. I wish to recall the objections to this factory raised by some sections of population there and the remedial measures taken at the instance of this Government. We want the factory to function, providing employment and production of goods. At the same time, the people at Tuticorin and the environment should not get affected by the effluents coming out of the factory; the fishermen also should not suffer. Now, I understand that all the problems have been sorted out, proper effluent treatment arrangements have been implemented and that no effluent at all is being let out into the sea. Let both the industry and the environment flourish.

In Manali, a Rs.50 crore bulk drug intermediates factory would be set up.

TANCEM (Tamil Nadu Cements Corporation Ltd.,) has planned to set up at Vridhachalam a Rs.1.4 crore project, to produce 1920 tonnes of high grade Alumina refractory bricks per annum.

Our Honourable Members Mani and Moses made special reference to the Kaniyakumari Rubber Factory and wondered how they would be able to return home and face the people there. You may go home confidently. I, too, am trying hard to somehow bring the rubber factory there. But, the time limit set for it goes on stretching, perhaps because we are speaking about the elastic rubber! However, this year, I shall make earnest attempts; that will be my first priority, let me tell the people and members of Kaniyakumari District.

In the same vein, Tmt. Kanchana Kamalanathan complained that I was giving away largesses only for the people in the first row and that she was getting bypassed as she was sitting behind. I can console her and assure her that though she may be sitting behind, her demands would not be pushed behind. She can go with the hope and confidence that a mango juice plant will come up in Krishnagiri.

Now, let me conclude my speech congratulating and thanking the Honourable Members who participated in the discussions giving their valuable comments and views; Let me request all the members to withdraw their cut-motions and vote the amount required under this demand.



Printed at :
Government Central Press,
Chennai - 600 079.