

## 15. ENVIRONMENT

Along side development, environment related issues are increasingly coming to the fore. Hence the credo is Growth with sustainability. Further there is a growing realization that traditionally what were considered to be free goods such as air and water are no longer free and globally this issue is being recognised both at policy formulation and implementation levels. Development strategy has to encompass International Environmental treaty obligations.

Healthy environment and ecological balance are critical to attaining "*sustainable*"<sup>1</sup> economic development. The productivity of an economic system depends in part on the supply and quality of natural and environmental resources. Seen from this perspective, healthy environment is viewed as one of the basic ingredients of economic development. A combination of factors such as market failure (because of open-access property), economic growth, intensification of agriculture, increasing energy use, poverty, technology, growing urbanisation, broad-basing industrial structure and rising population are exerting heavy pressure on fragile environment. For taking care of abatement of incidence of pollution and monitoring the compliance of norms and standard in highly polluting industrial units. The Government of Tamil Nadu established the Tamil Nadu Pollution Control Board, 1982 and the Department of Environment, 1996 to discharge regulatory and supervisory mechanisms.

Environment degradation inter alio occurs in the following forms.

- Spoiling of ambient air quality;
- Deterioration in environmental quality;
- Accumulation of residuals, hazardous and solid wastes;
- Emission of particulate matter;
- Failure of recycling of biodegradable pollution and trade effluents
- Irreversible environmental damages;
- Degradation of marine organisms and other fragile terrestrial creatures;
- Ozone depletion; and
- Harmful effects of ultra-violet radiations.

### **Dimensions of Pollution:**

Environmental degradation is broadly categorised into the following: land and soil degradation, deforestation, diminishing bio-diversity, atmospheric pollution, water, air, and noise pollution, solid wastes and disposal of biomedical wastes and coastal and marine pollution.

The two public sector institutions have been taking both preventive and promotive measures such as conservation of natural resources, prevention and control of pollution, prior Environmental Impact Assessment of industrial and other projects, regeneration of degraded forests with people's participation and environmental awareness campaign. Environmental management is addressed to:

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<sup>1</sup> *Sustainability connotes the idea that development strategy should be such that the long run productive capabilities of natural and environmental resource are safeguarded. In other words, economic growth can be attained without decreasing the effective stock of resources. That is the needs of the presents without compromising the ability of future generations to meet their own needs.*

- Assignment of property rights to open - access properties<sup>2</sup>;
- Setting standards and norms for ambience, emission, effluents, etc.
- Levy of emission charges and green taxes;
- Water quality monitoring;
- Imposition of controls over hazardous and toxic substances;
- Air quality monitoring;
- Ground water protection;
- Disposal of medical wastes management;
- Conservation of marine organism;
- Waste management and
- Effective enforcement of environmental measures.

Tamil Nadu accords a high priority for environmental conservation and abatement of pollution in order to ensure sustainable economic development. The objective is to foster economic growth with sustainable use of resources, in close coordination with various agencies to ensure healthy environment in development process, besides promoting environmental awareness.

### **1.1. Pollution Abatement in 5 Stretches of Cauvery River:**

The Centrally-sponsored Scheme viz., Abatement of Pollution in five polluted stretches of river Cauvery in Tamil Nadu, at a cost of Rs.38.20 crores is being implemented. The scheme has been in implementation in Erode, Trichirapalli, Kumarapalayam, Bhavani and Pallipalayam since 1996-97. The Department of Environment is acting as a Nodal Agency roping in TWAD Board and Local Bodies concerned into the implementation process. This programme is split into two components, viz., core scheme and non-core scheme.

In the core scheme the focus is on interception and diversion of sewage lines as well as sewage treatment works which are being implemented by the TWAD Board. So far 90 per cent of the interception and diversion works in Kumarapalayam and Erode had been completed and the remaining works are at different stages of implementation. The non-core scheme relates to low cost sanitation facilities, river front development, etc. These works had been finished to the extent of 90 per cent as on 2002-03.

### **1.2. Centrally-Sponsored Chennai City River Conservation Project:**

In Chennai city, water ways such as Cooum, Buckingham Canal, Adayar, Otteri Nullah, Captain Cook canal and Mambalan Channel city have become polluted due to the discharge of industrial toxins or household wastes. In order to clean the Chennai city river source, the Government of India has approved this scheme. Under this scheme, 400 sewage outfalls would be intercepted and developed through twelve technical packages. Chennai Metropolitan Water Supply and Sewage Board (CMWSSB) has been implementing the schemes. A sum of Rs.1700 crores has been allotted out of which Rs.491 crores (28.91%) would be the grant of Government of India.

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<sup>2</sup> Open - Access property gives rise to market failure which in turn involves Government interventions to internalise the external cost.

### 1.3. New integrated Scheme for Pollution Abatement:

This is a four year project which envisages cleaning of sacred rivers like Cauvery, Vaigai and Tamirabarani along seven towns at a total cost of Rs 575.30 crores of which 282.15 crores will be grant from GOI and rest is shared by the State Government, Local bodies and Private participants. Another scheme for abatement of pollution in coastal towns of Rameswaram and Thiruchendur has been continued during 2002-03.

**Table -1: Scope and Coverage**

Town	Name of River	MLD	Est. cost (Rs.crs)
Trichy	Cauvery	86	132.00
Madurai	Vaigai	87	165.00
Tirunelveli	Tamiraparani	40	66.00
Karur	Amaravathi	21	38.50
Thanjavur	Cauvery	15	77.00
Kumbakonam	Cauvery	22.5	50.60
Mayiladuthurai	Cauvery	14	46.20
Pollution abatement in coastal towns			
Rameswaram		3	9.00
Tiruchendur		3	9.00

*Source: Department of Environment.*

### 1.4. Preparation of Environmental Profile:

Sustainable development calls for judicious management of all scarce resources. Towards this goal exhaustive environmental information and reporting systems are imperative for evolving policy framework for any Government. The Department is mapping up the district environment profiles. These district profiles identify gaps in the present management of resources, provide environmental information system for planners and administrators.

### 1.5. Environmental Awareness:

Creation of environmental awareness on the importance of preservation of environment is a prerequisite for conservation of ecology. The people's perception and mind set has to be changed for absorbing the import of the concept of environmental sustainability and its relevance to livelihood. This requires creation of environmental awareness on a universal basis. Therefore specific target groups such as college and school children and teachers, NGOs and research institutions for this mission of sensitisation of the contents of the schemes are mobilised. Newsletters and Environmental Publications were supplied among the people through the student community and the NGOs.

In 1995-96 Eco-Clubs were started in 170 schools and ten colleges at Erode, Namakkal and Trichirapally districts. Subsequently, 90 Eco-clubs was in vogue. In the aggregate, there are 700 Eco-clubs existing in the State. These Eco-clubs are endeavouring to sensitise the people the importance and significance of environmental ambience.

## **1.6. Coastal Regulation Zone Notification:**

This Notification was issued in 1991 under the Environmental Protection Act, 1986 which seeks to regulate the human activities in the coastal stretches viz., seas, bays, estuaries, creeks, rivers and backwaters.

This Notification aims at the conservation of environment and ecology in the coastal lines. Environmental Impact Notification, 1994 had issued guidelines for conducting public hearing in cases relating to environmental pollution. Hence a whole range of issues having a bearing on environmental concerns such as land use, solid waste management, water resources management, coastal zone environmental management, Environment Impact Assessment and audit continue to receive priority.

## **II. Tamil Nadu Pollution Control Board (TNPCB) - Review of Achievements:**

Following the establishment of the Central Pollution Control Board, the Tamil Nadu Pollution Control Board (TNPCB) was set up in 1982. The Board enforces various pollution control laws/rules relating to environmental protection in the State of Tamil Nadu. The functions of the Board cover a wide spectrum of activities like monitoring of water, air and noise pollution, management of hazardous wastes, bio-medical waste, plastic wastes and municipal solid wastes and creating environmental awareness. Its major role is to ensure sustainable economic development by checking the incidence of pollution to a great extent. The progress and the achievements of the Board are given below.

### **2.1 Water Pollution Control:**

The Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 aims to prevent and control water pollution and to preserve or maintain or restore the quality of water. Industries generating trade effluent are required to provide effluent treatment plant to treat their trade effluent to satisfy the standards prescribed for. The Board monitors industries constantly regarding the functioning of their effluent treatment plants and the quality of effluent let out.

Consent is issued to industrial units under the Water and Air Acts in two stages. 'Consent to Establish' is issued depending upon the suitability of the site before the industry takes up the construction activity. 'Consent to Operate' is issued after the installation of suitable and adequate effluent treatment plant and air pollution control measures. In 2002-2003, the Board has granted 493 consent orders for establishment of industries and 1125 consent orders to operate under the Water Act.

Industries are categorized into red, orange and green based on degree of incidence of pollution. There are 192 industries identified under 17 categories of highly polluting industries. The industrial activities of the highly polluting industries are kept under constant surveillance by the Board.

**Table - 2: 17 Categories of Highly Polluting Industries as on 31.3.2003**

Sl. No.	Category	No. of Industries
1	Aluminium	1
2	Caustic Soda	3
3	Cement*	16
4	Copper Smelter	1
5	Distillery	15
6	Dyes & Dye Intermediate	1
7	Fertilizer	8
8	Integrated Iron & Steel	1
9	Tanneries	62
10	Pesticide	1
11	Petrochemicals	6
12	Basic Drugs & Pharmaceutical	16
13	Pulp & Paper**	5
14	Oil Refinery	2
15	Sugar	38
16	Thermal Power Plant	16
17	Zinc Smelter	0
	<b>Total</b>	<b>192</b>

\* 200 Tonnes per day & above ; \*\* 30 Tonnes per day & above

## 2.2. Water Quality Monitoring:

The Board is monitoring the inland water quality through two major programmes namely Monitoring of Indian National Aquatic Resources System (MINARS) and Global Environmental Monitoring System (GEMS). Under the MINARS, the water quality of Cauvery, Thamiraparani, Palar, Vaigai and lakes of Uthagamandalam, Kodaikannal and Yercard are being monitored. The GEMS covers the water quality monitoring in the Cauvery basin at Mettur, Pallipalayam, Musiri and ground water monitoring at Musiri.

## 2.3. Common Effluent Treatment Plants (CETPs):

In industrial clusters, CETPs are becoming increasingly relevant not only to comply with legal requirements, but also for their survival and sustainability. CETPs have emerged as solutions to control pollution for clusters of small polluting industries. So far, CETP schemes have been evolved for tanneries, textile dyeing and hotels and lodges. Out of 50 CETP schemes have been formulated, 32 CETP schemes are under operation and the remaining CETP schemes are under various stages of implementation.

**Table - 3: Establishment of CETPs in different sectors**

Sl. No.	Sector	No. of CETPs formed	No. of CETPs under operation
1	Tanneries	24 Schemes	13 Schemes
2	Textile Dyeing	25 Schemes	18 Schemes
3	Hotels & Lodges	1 Scheme	1 Scheme
	<b>Total</b>	<b>50 Schemes</b>	<b>32 Schemes</b>

The CETPs are entitled to get 25 per cent of the project cost as a State subsidy, 25 per cent as Central subsidy, 20 per cent by way of share capital collection and 30 percent by way of loans from financial institution such as IDBI. The Board so far received Rs 25.90 crores from the State Government towards subsidy for 48 CETPs as on 31.01.2003. Government of India sanctioned Rs. 20.60 crores as Central subsidy to 48 CETPs in Tamilnadu as on 31.01.2003.

#### **2.4 Air Pollution Control:**

The Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 aims to prevent and control air pollution and preserve the air quality. As per the provisions of the Act, the State of Tamil Nadu is declared as an 'Air Pollution Control Area'. The Board monitors industrial emissions through regular inspections of the air pollution control measures provided by the industries. Ambient air quality survey/ stack emission survey are conducted to assess the quality of the emissions let out. In 2002-03, Ambient Air Quality surveys are conducted in 606 industries. The Board has granted 490 consent orders for establishment of industries and 1101 consent orders to operate under the Air Act during the year 2002 -03.

#### **2.5. Air Quality Monitoring:**

Air quality is being monitored by the Board to assess the concentration of air pollutants arising out of emissions from industries as well as increasing vehicular population. In Chennai alone, ambient air quality is being monitored at three locations under National Air Quality Monitoring Programme (NAMP) and at five locations under Chennai Ambient Air Quality Monitoring Programme (CAAQM). Apart from Chennai, monitoring of ambient air quality is carried out at Thoothukudi, Coimbatore, Madurai, Salem and Trichirapalli. Besides, six continuous ambient air quality monitoring stations are established at Cuddalore, Tuticorin, Ranipet, Manali- Chennai, Royapuram-Chennai, Kottivakkam-Chennai to evaluate the levels of pollution.

#### **2.6. Vehicular Emission Monitoring:**

There has been a rapid increase in the number of vehicles, as a result of urbanization, economic growth and easy availability of finance. Apart from new vehicles, old vehicles also exist often with outdated technology and non observance of emission norms. The quality of fuel supplied has also compounded the problem of vehicular pollution.

The Board is monitoring vehicular emission since 1992. In Chennai city, three vehicular monitoring stations located at Guindy, Ambattur and Vyasarpadi conduct monitoring of the vehicular emission from goods and transport vehicles on a continuous basis. In addition to this, vehicular emission is being monitored at Dindigul, Palani, Ooty, Chengalpattu and Katteri. The Board tested 50774 vehicles in 2002 -2003. It is found that 14710 vehicles exceeded the threshold limit during the first test. After rectification of defects, 2260 vehicles did not satisfy the emission standards. In order to reduce emission from vehicles, cleaner fuels like unleaded petrol, 3 per cent benzene level, low sulphur fuel have been introduced in Chennai. Auto manufacturers are also incorporating technological changes towards this end.

## **2.7. Hazardous Substance Management:**

For the management of hazardous chemicals and hazardous wastes in an environmentally friendly safe manner, effective steps have been taken. The Board has identified 1516 units generating hazardous wastes as on 31.3.2003 for which 1450 authorizations under the Hazardous Wastes (Management and Handling) Rules, 1989 as amended were issued. For the establishment of secure land fill facility for the disposal of sludges generated from the treatment of textile dyeing effluents, sites at Tiruppur and Karur have been identified. In addition, a site at Kancheepuram district has been identified for establishing a common hazardous waste treatment, storage and disposal facility through a private operator.

## **2.8. Bio-medical Waste Management:**

Bio-medical Waste (Management and Handling) Rules, 1998 as amended seeks to address the problem of bio-medical waste management. So far, the Board has inventorised 317 Government hospitals and 1835 private hospitals. The health care units are insisted on the need for taking necessary steps for safe disposal of bio-medical waste through choice of common bio-medical waste treatment and disposal facility having autoclave, shredder, compactor, incinerator and disposal facilities. There are 10 sites identified for setting up of common facility for private sector health care units.

## **2.9. Municipal Solid Waste Management:**

The management of municipal solid wastes is being dealt with under the Municipal Solid Wastes (Management and Handling) Rules, 2000. The concept of segregation at source, reduction, recycle and reuse of waste is being encouraged for the management of municipal solid wastes.

## **2.10. Environmental Standards:**

The Ambient Air Quality Standards and Emission Standards are prescribed for polluting industries. So far the Board issued show cause notices to 24159 industries and closure orders to 4117 industries for not complying with the conditions prescribed. The respective figure for 2002-2003 are 3830 and 512.

## **2.11. Plastic Waste Management:**

Indiscriminate use and disposal of throw away plastic items cause environmental problem. Hence, necessary steps to implement Recycled Plastic Manufacture and Usage Rules, 1999 are being taken. In 2001, a programme known as 'Children Against Plastics' was launched in the districts all over Tamil Nadu to sensitise the people to avoid use of plastics and consequential environmental impact. Regular awareness programmes are being conducted by the Board to illustrate the ill-effects of throw away plastics and eco friendly alternative to throw away plastics.

### **2.12. Land / Soil Degradation:**

Controlling land/soil degradation is a sine qua non for ensuring food security, sustainable forestry, agricultural and rural development. India possesses wide variety of biomass and over 75000 species of fauna and 45000 species of flora. Many of them are endangered because there is a constant threat to the survival of the species. The forest wealth is dwindling owing to overgrazing, over-exploitation beyond "carrying capacity" of forests, encroachments and unsustainable practices. Bio-diversity is disturbed by overexploitation. Marine ecosystem in the form of mangroves, coral reefs, salt lakes and mud flats which are the habitat for endangered species got lost stabilization. Pollution along the coastline is threatening marine life. Hence suitable measures to minimize the land and forest degradation are being taken.

### **2.13. Cleaner Technology:**

Technologies adopted by industrial units are one of the sources from which the pollution of various types stems. In order to motivate the highly polluting industrial units to go in for cleaner technologies options, the Board has been taken various steps towards achieving the objectives. With active support and encouragement, industrial units in Tamilnadu have switched over to cleaner technologies such as adoption of membrane cell instead of mercury cell in caustic soda manufacturing, adoption of dry process instead of wet process to reduce air pollution in cement factories, adoption of double conversion and double absorption technology in sulphuric acid manufacturing, gas carburizing instead of cyanide salt in heat treatment and cyanide free electroplating. The distillery units have responded to move towards zero effluent discharge by adopting bio-composting of effluents with press mud of sugar industry

### **2.14. Other activities:**

In addition to the above measures taken, the Board is conducting Applied Research and Development Environment Training, Environment Awareness campaign, Green belt Scheme, etc. Green Awards are being awarded to district collectors, who are most involved in promotion of environment and ecology with a view to obtaining sustainable economic development.