

Environment Problems and Sustainable Development: with Special Reference to Thoothukudi District of Tamil Nadu

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I. INTRODUCTION

Productive resources, which are vital for economic development of nations, are primarily scarce among nations. Capital being an important productive resource is abundant in industrialized economics. Structural adjustments in developing economics due to the introduction of globalization, since 1991, enabled Indian economy to attract these productive resources in a massive scale. Being the second largest populated nations of the world, India is unable to exploit its labour resources fully, due to the scarce availability of capital. This is one of the main reasons, why India had not achieved the desired level of economic growth, as expected. However the flow of capital movements to India during the post reform period is encouraging. As a result, India has achieved the growth rate of GDP at 7.2% per annum recently. But due to the uncontrolled growth of urbanization and industrialization, expansion and massive intensification of agriculture and the destruction of forests has created heavy pressure on land, forests, water and biodiversity. In the era of globalization, water has considered as an economic goods due to the higher demand. Water quality problem arises due to the extractive industries as well as from various manufacturing and agricultural production processes. Various pollutants are generated as the by product in the production of Pesticides, leather goods, detergent, plastic, pulp and paper. These pollutants have led to major environmental issues such as Forest and Agricultural land degradation, Resource depletion (water, mineral, forest, sand, rocks etc.), Environmental degradation, Public Health, Loss of Biodiversity, Loss of resilience in ecosystems, Livelihood Security for the Poor.

In recent years there has been growing concern about degradation and pollution of environment and climate change as they impact on future development of both the developing and developed countries. In 1992, representatives of over 150 countries met at Rio in Brazil to discuss the environmental issues and their implications for future development of the world. This meeting at Rio is called the Earth summit or the United Nations Conference on Environment and Development (UNCED).

This conference clearly spelled out the linkages between natural environment and development and put forward the concept of sustainable development. This has produced greater awareness about environmental issues and facilitated the cooperation between different countries to reduce environmental degradation, particularly to reduce emission of greenhouse gasses (GHG) such as carbon dioxide to prevent adverse climate change, that is, global warming in future which if not prevented will have disastrous consequences for the welfare and development of the population, both in developing and developed countries.

There are many environmental issues in India. Air pollution, water pollution, garbage, and pollution of the natural environment are all challenges for India. The situation was worse between 1947 through 1995. According to data collection and environment assessment studies of World Bank experts, between 1995 through 2010, India has made one of the fastest progress in the world, in addressing its environmental issues and improving its environmental quality. Still, India has a long way to go to reach environmental quality similar to those enjoyed in developed economies. Pollution remains a major challenge and opportunity for India.

II. ENVIRONMENTAL PROBLEMS IN STUDY REGION

In India, Tamil Nadu is one of the most preferred states for the industrialists, because it has enormous natural resources. But due to environmental pollution, natural resources such as air, water, and land are severely affected. Compared to the other components, water is severely affected by industrial pollution. It is found that one third of water pollution comes in the form of effluent discharges, solid waste and other hazardous waste. (Seema Sharma, 2003) Industrial sector is the secondary sector in India which provides a lot of employment opportunity to the entire society. But the recent industrialization has negatively affected the Domestic and Agriculture sectors because of pollution.

Thoothukudi is one of the important districts which have a large number of red category industries. It has 49 large scale, 17 medium scale and 193 small scale red industries. (CPCB, 2010) Due to the extreme growth of the industrialisation, the city of Thoothukudi is worst affected by air and water pollution. Along with the growth of industry, environmental problems also have grown in the city and this creates several health hazards. Industries have offered considerable employment opportunities but the waste discharges from these industries threaten the environment, both aquatic and surface. The Central Pollution Control Board (CPCB) report on National Ambient Air Quality Status 2008 reveals that the two air pollution monitoring stations in Thoothukudi Fisheries College and AVM Jewellery Building were ranked fourth and fifth in the country's top ten locations with respect to SO₂ in residential areas, whereas it was in the sixth and seventh position in 2007. Except the three stations of Thoothukudi, all the stations in the State were categorised as low polluting with respect to SO₂ by the TNPCB. (TNPCB, 2010)

III. WATER QUALITY IN THOOTHUKUDI REGION

Pollution of groundwater resources has become a major problem today. The pollution of air, water, and land has an effect on the pollution and contamination of groundwater. The solid, liquid, and the gaseous waste that is generated, if not treated properly, result in pollution of the environment; this affects groundwater too due to the hydraulic connectivity in the hydrological cycle.

There are two Industrial Estates in Thoothukudi district, one at Kovilpatti with 11 units and the other at Thoothukudi with 20 units. The former is managed by SIDCO and the latter by SIPCOT. Small Scale Industries such as match industries, food-based and metal-based industries are generally concentrated in Kovilpatti and Thoothukudi taluks.

Thoothukudi ground water perspectives report pointed out there are a large number of industries in Thoothukudi, but most of them dump their waste into the sea. Thus there is no big ground water pollution in this region. But NEERI report 1998, 2003 and Community Environmental Monitoring 2010 pointed out a series of ground water pollution in the SIPCOT region of Thoothukudi district.

Table 1: Water Quality in Thoothukudi District

Block	Village	TDS	NO ₃	Ca	Mg	Na	K	Cl	SO ₄	CO ₃	HCO ₃	F	pH	EC ₋	TH
Sathankulam	Pudukulam	485	11	38	19	106	13	124	16	1	194	0.5	7.7	810	175
Tiruchendur	Arumuganeri	596	10	76	41	76	6	220	40	0	183	0.3	7.7	1020	360
Tiruchendur	Tiruchendur	1416	5	88	36	451	78	397	82	0	915	1.2	7.5	2800	370
Srivaikundam	Srivaikundam	839	5	52	24	239	31	71	35	0	732	0.3	7.5	1500	230
Pudur	Therkumuthalapuram	1763	62	180	109	248	31	496	298	0	256	0.6	7.4	2850	900
Kayathar	Elavelangal	602	12	60	38	90	31	142	33	0	305	0.4	8.0	1010	305
Kovilpatti	Ettayapuram	2048	4	136	136	414	31	851	250	0	427	0.3	7.2	3600	900
Ottapidaram	Puthiyamputhur	1324	44	92	66	230	70	277	192	0	403	0.6	7.6	2040	500
Alwarthirunagari	Karunkadal	218	8	24	16	30	3	46	9	0	90	0.5	7.6	370	125
Vilathikula	Kaluhachalapur	413	7	62	15	71	10	32	19	2	283	1.0	7.8	700	215



m	am														
Udankudi	Udankudi	6426	3	920	267	966	31	3758	432	0	79	0.2	7.9	10850	3400
Karunkula m	Vallanadu	564	14	80	13	85	31	124	30	0	281	0.2	7.7	930	255

The above table clearly shows that, most of the chemical parameter in the industrial region is exceed the IS parameter level. This water is not fit for drinking and agriculture purposes. If we used this water for drinking purpose it created so many health problems. In this region plenty of people are affected by cancer and spinal problem because of water and air pollution.

IV. HEALTH PROBLEM IN THOOTHUKUDI

According to CPCB, SO₂ has emitted in large quantities from thermal power plants, smelting process of sulphide ores to produce copper, lead and zinc and also from petroleum refining process. This caused respiratory illness, heart and lung diseases. (The Hindu 30/09/2010). The water effluent from the industries created skin diseases and cancer and kidney problems. (Kennath P. Cantor, 1996) The general view of the common people is urban area is polluted than the village area. But in Thoothukudi rural area is severely affected by industrial pollution. Most of the people were severely affected by various pollution caused diseases such as, respiratory illness, skin rashes and related problems, fatigue and severe cough, cancer, breathing problems etc in the industrialized area. The following table shows the number of cancer patient in Thoothukudi district.

Table 2: Cancer patient in Thoothukudi district

Sl. No	Year	No. of. Cancer patient
1.	2006	2,659
2.	2007	3,952
3.	2008	4,539
4.	2009	4,123

Source: Compiled from New Indian Express (20/10/2009) and Dinakaran (25/01/2010)

This datas were registered in Tutucorin Medical College Hospital (TMCH). It clearly shows the number of cancer patient increase over the period of time. But the actual figure much more higher than the table figure, because large number of people went to private hospital for taking the treatment. The environmentalist and activists are blaming the industries of Thoothukudi for the rising level of cancer (The New Indian Express 2009). But the details study regarding the attributability of cancer and industrial pollutions are missing here. The NEERI report suggested an immediate epidemiological study by Tamil Nadu health ministry to confirm or negate evidences of adverse health impact caused to people residing near Industrial area, especially the copper smelting plant area. But there is no proper study taken by the government.

V. CONCLUSION

For analyzing the above information s it founded that regional people surrounding the Thoothukudi area has faced several problems due to the industries. There are number of industries providing employment to people but the externalities from the industry adversely affect the people. Sterlite is a large scale industry located in the SIPCOT area. More than 60% of the SIPCOT region is occupy by this industries alone. The industrialist pointed out they provided lot of employment opportunity, free training courses, free medical facilities, gifts, donation etc and we earn more foreign exchange we actually developed the region. But one of the one of the serious problems of this industry is the disposal of large quantities of waste generated from the industrial processing. Improper disposal of the effluents and toxic air emissions and sludge waste affects environment. Toxicity and environmental effects of industrial wastes particularly for their effect on soil properties and ground water it intern affects agricultural production, ecology, employment, human health etc. Thus we needed sustainable development to overcome these problems.

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