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CONFLICTS BETWEEN NATURAL RESOURCE MANAGEMENT AND PROBLEMS OF ENVIRONMENTAL DEGRADATION IN PALAR RIVER BASIN

Mr. V. Micheal Venish*, Mr. K. Sankaranarayan, Dr. A. Micheal Raj***, Dr.Sivapandi. A ****, Prof.Dr.A.Velanganni Joseph*****,Mr.Pandiyarajan.P******.**

*Assistant Professor, Department of Economics, Arul Anandar College, Karumathur

** Assistant Professor, Department of Economics, Arul Anandar College, Karumathur

***Assistant Professor, Department of Commerce, Arul Anandar College, Karumathur

****Assistant Professor, Department of Management Studies, Sourashtra College ,Madurai-14

*****Professor and Head, Department of Youth Welfare Studies, Madurai Kamaraj University, Madurai-20.

******Assistant Professor, Department of Commerce, Sourashtra College, Madurai-14

Introduction

Now a day's Environmental degradation features as a common characteristics of both developed and developing countries. Environment has changed due to the economic growth, population growth, industrialisation, urbanisation; transportation etc… among which industrialisation played a vital role in the environmental degradation. UN conference on Human Environment held at Stockholm in 1972 give special attention to conservation of Natural resources and Environmental protection. Two decades later Rio summit on Environment and development has identified integration of development and environment concern is essential for achieving the goal of human welfare. Major environmental problems are increases due to urbanization, industrialization and growth of population. Urban migration and industrialization has a great stress on the availability of infrastructure service including water supply, sewerage, Solid waste disposal etc… Over exploitation and abuse of our water resources ultimately reduce the self-purifying capacity of the water resources. As a developing country India had implemented globalization policy to generate growth in the year 1991. It not only opened our economy to attain growth but also for severely degraded the environment. In India Tamil Nadu is one of the preferable states for the

industrialist, because it has enormous natural resources. But due to the environmental pollution all these resources are severely affected. These conflicts are arises because of mismanagement of natural resources.

Conflicts of Natural resource management

If there is a disagreement or disputes over to access, control or use the natural resources creates conflicts. These conflicts are arises because of increasing demand for the natural resources. Public has used the natural resources such as forest, water, land etc… in different ways. If these interests are not taken into the policy or projects it leads conflicts. These conflicts are not control in the entire situation. But if this conflict arises beyond the certain level then it should be addressed. If it is not so then it leads violence, environmental degradation and finally affects the livelihoods of the rural poor. Industrialisation has played a potential role for creating the conflicts, because of discharges of untreated effluent in to the irrigation sources. It is severely affects the agriculture, fishing and drinking water. Therefore water contamination and pollutions are the potential problem associated with the industrial development. Most of the industries are started in the river belt, because of easy access of water and waste disposal. According to the Pollution control board the values of the toxic (pH, DO, BOD, NH_3 ,NO_3 , Cr etc…) substances are crossed the normal level in most of the river basin.

Sustainable development

There is a strong relationship between social and industrial development, and industrialization has played the potential role to promote, directly and indirectly, a variety of social objectives such as employment opportunity, poverty eradication, gender equality, labour standards, and greater access to education and health care. In this regard, the most important policy challenge is to promote the positive impacts at the same time limiting or eradicating the negative impacts of industrial activities on social development. If there is a plenty of natural resources then there is not at all a problems for managing the resources. But the resources are scarce in nature. So there is a need for sustainable development. Sustainable development refers there is an equalization between demand for natural resources and the supply of existing resources. Due to the scarce resources of portable water it is difficult to meat the demand for the different sectors. Over exploitation and effluent discharge in to the water sources worsen the present situation. The effluent emitted by these industries wider the gap between the demand and supply of the portable water. This creates several problems to the society. Due to the unsustainable development conflicts are arises to manage the natural resources.

In the case of Palar River Basin

The Palar River is originates from Kolar in Karnataka. The total length of the Palar River is 350 km and it drains an area of 17871 km^2 lying in three states viz. Karnataka, Andhra Pradesh and Tamil Nadu.

Leather and leather goods industries are one of the biggest small scale industries in India. The main centers of the tanneries are located in West Bengal, Tamil Nadu, Uttra Pradesh, Maharastra, Panjab, Karnataka, Andhra

Pradesh and Rajasthan. Tamil Nadu has contributed 70% of the total export of leather product in India. There are 433 recognized tanneries in Tamil Nadu, out of which 104 units are mechanized. The tanneries units are mainly concentrated in Palar river basin in the places of Vaniyambadi, Ambur, Pemambattu, Mclvisharam and Ranipettai. (S.N Kaul, year unknown)

Tanneries and employment opportunity

Industrial sector has provided lot of employment opportunity to the entire society. The annual output of the tanning industry grew to 1,800 million sq. ft (162 million sq. m) of finished leathers by 1995. Tamil Nadu contributed a major contribution of leather production. 6% of the Global Tanning Factories located in Tamil Nadu. Of the 1,083 tanneries in India, more than half, i.e. 577 are in Tamil Nadu and of the 577, 449 industries are located in Vellore district. The production in Tamil Nadu is 44% of the total all-India production. Over 66% of the total production in Tamil Nadu is from Palar River basin.

Number of Tanneries located in Palar river basin.

Town	Population- 2001	Numner of Tanneries-1998
Vaniyambadi	103,841	138
Ambur	99,855	83
Pemambattu	41,323	18
Mclvisharam	36,675	39
Ranipettai	47,236	228

Tannery is the main industry located in the region. It contributed around 35% of Indian Export earnings of the Indian Leather Sector. It is from 449 tanneries in the Palar River Basin these units generate about Rs.15 billion (or $ 0.3 billion) a year and provides employment to about 50,000 people. Due to widespread employment opportunities created by the tanneries it tremendously reduce the landless agricultural force in the rural village.

Pollution in Palar river basin

The main causes for the pollution in this river basin are number of industries especially number of tanneries located in this region. One of the serious problems of tanneries in this river basin is the disposal of large quantities of waste generated from soaking, washing, pickling and tanning of animal hides. Improper disposal of the effluent affects environment. Toxicity and environmental effects of tannery wastes particularly for their effect on soil properties and ground water it intern affects agricultural production, ecology, employment, human health etc

Tanneries and Agricultural problems in Palar river basin

Palar originates from eastern part of Karnataka. The bulk of the flow in the river takes from northeast monsoon with very little contributes in the southwest monsoon. The Palar is a seasonal river and for the most part of the year it is dry. In this region 64% of the land is used for agricultural purposes. The major crop is paddy in this region. Due to the shortage of water in the riverground water plays a potential role for the agriculture, industry and domestic uses. The massive spread of small and medium size tanneries in the river basin has resulted destruction of ground water quality.

In this region tanneries are discharged about 20 MLD of effluent and over 100,000 Tons of salt (NaCl) per year. It severely affects the groundwater. Due to that ground water is also not fit for drinking or irrigation and over 15,000 ha affected by irrigation with high TDS water. Serious contamination of both surface water and groundwater has reported in this basin as a result of uncontrolled discharge of untreated effluents by the tanning industries. According to the soil chemist in the department of Agriculture, the effluent from the tanneries had severe effects on 3,911 hectare of agriculture in north Arcot and a further 11, 851 hectare are moderately affected. Nearly 11000 hectares area of fertile land has lost their fertility. Total dissolved solids (TDS) concentration in groundwater at some pockets varies from 3000 to 10000 mg/l. the following table shows that the water quality in Palar river basin

Ground water quality in Palar river basin

Palar River used as a supply of good drinking water in to 30 towns on its bank and 50 villages surrounding it. The river water is also used by the villagers to cultivate their land. Now, there are a number of tanneries on the blocks the River Palar. They let out the effluents in to the river. As a result of uncontrolled discharge of effluent from the tanneries affects both surface and ground water. Now the river water has been polluted and it is not useful for drinking or agricultural purposes. Due to pollution, the people are suffering from a number of diseases like asthma, skin disease and stomach ailment, etc. Thousands of acres of fertile land have become wasteland and it is not used for cultivation. So avoiding all these problems they used ground water for drinking and cultivation. But the present situation of this region, ground water is also not suitable for drinking and agricultural. This contaminated water is not suitable for long period so they bought the water from some other places its cost is very high. Hence, poor peoples are affected much more. The following table shows the ground water quality in selected region of Palar river basin it clearly said chemical contamination cross beyond the normal level.

Water quality of ground water in the selected areas of the Palar basin

Serial number of well stations	Name of the well stations	Average value during pre-monsoon (January-June)		Average value during monsoon (Jully-December)	
		EC	TDS	EC	TDS
1	Vaniyambadi	9740	5490	10978	6178
2	Valayampattu	13562	7471	12445	6762
3	Solur	15635	8712	13142	7387
4	Venkatasamudram	15650	8689	14357	7895
5	Periavarigam	17607	9867	17323	9698
6	Chinnavarigam	4807	2667	4933	2768
7	Ranipet	12825	7226	10140	5734
8	Vannivedu	4183	2372	3973	2297

One of the major implications of water contamination creates water scarcity. In the early days water pollution is minimum or peoples are unaware of the pollution they use the ground water it fulfill their requirement. But now they are force to purchase the water this severely affects the rural poor and marginal farmers.

Conflicts of Water resources in Palar

Naturally Palar River is not perennial in nature. Most of the month the river is dried. Ground water plays a potential role for irrigation and drinking. At the initial stage of industrial development in this region it provides lot of benefit to the society but in courses of time the multiple and competing demand for water is increased. The ground water quality is decreased over a period of time due to the effluent from the tanneries. These industries are highly water intensive, each tones of hide/skin tanned required 40,000 liter of water. A small scale industry in this region processed 3 to 4 tones. It took more than 1,00,000 liter of water it is more or less equal to 2500 people requirement forhousehold purposes. The following table shows that the chemical characteristics of the waste water emitted by the tanneries.

Average Tanneries Raw waste water Characteristics

Parameter	Quality
Biological Oxygen Demand(BOD)	95
Total Kajeldahl(ammonia plus organic) Nitogen(TKN)	17
Total suspend Solids(TSS)	140
Total Chromium	4.3
Oils and Grease	19
Sulfides	8.5
pH	1.0-13

Here the conflicts arises, rural peoples are excluded from participating in natural resource management. There is also contradiction between local and introduced management system, misunderstanding and lack of policy, lack of clarity of laws and inequality of resource distribution arise the problems.

Role of Institutions in Natural (water) resource management

To find out the solution for the conflicts variety of actors are involved. They are, local people, community based organization, domestic and multinational business group, government, NGO's etc… among all these things government is the supreme authority to control over the resource management. Each and every group is deals with the conflicts on different ways. For considering all these things the government took feasible decision and implements it.

Discussion

Tanneries are one of the biggest small scale industries in India. Tamil Nadu contributed a major portion of leather production. Six percentages of the Global Tanning Factories located in Tamil Nadu. It contributed 44% of total production in India. Over 66% of the total production in Tamil Nadu is from Palar River basin. There is a strong relationship between social and industrial development in this area. It has played the potential role to promote, directly and indirectly, a variety of social objectives such as employment opportunity, poverty eradication, gender equality, labour standards, and greater access to education. But at the same time the pollution from these industries adversely affects the regional people. One of the serious problems of the growth of industries is the disposal of large quantities of waste generated from the industrial processing like soaking, washing, pickling and tanning of animal hides. The effluent from these industries affected soil properties and ground water, which intern affects agricultural production, ecology, employment, human health etc. Already there is a water conflicts among the three groups, the effluent from the industries reduce the available portable water. This should be worsening the present situation. In India industrial sector took only 3% of water consumption per year. But it emits 55,000-million m^3 wastewater per day among that 68.5-million m^3 wastewater is directly dumped in to the river and streams without the proper treatment. In India 50% of urban pollution in the form of industrial effluent, heavy metals from thermal power, tannery and mining activities (World Bank 1999).In Palar River region tanneries are discharged

about 20 MLD of effluent and over 100,000 Tons of salt (NaCl) per year. It severely affects the groundwater. Due to that ground water has not fit for drinking and irrigation. In this region 15,000 hectares were affected by the polluted water because of higher TDS.

Over exploitation and effluent discharge in to the water sources worsen the present situation in the Palar region. There has been number of petition filed against tanning industries in Pollution control board. But no proper action has taken by the pollution control board. Government orders and rules and regulation laws were neglected by the industries. Thus the government should regulate the uses of water. It is necessary to stress the problem of environmental degradation can be tackled only by concerted efforts by every person, organization and institution and by extremely stringent enforcement of the laws.