



WATER MANAGEMENT AND ENVIRONMENTAL SAFETY MANAGEMENT AT COIMBATORE WITH SPECIAL REFERENCE TO SIRUTHULI AN N.G.O – A CASE STUDY

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Abstract:

Coimbatore the 'Manchester of South India' (population 1.25 million) the second largest city in Tamil Nadu is now under the threat of water mismanagement and environment abuse. Siruthuli and NGO initiates effective steps by adopting scientific methods to solve the drinking water scarcity and environmental safety. Siruthuli has identified a viable German technology on decentralized waste water treatment system and utilized the same for clean water. Siruthuli has become a people's movement by enthusiastic participation and contribution of people from all walks of life in Coimbatore.

Key Words: *Siruthuli:* a Non Government Organization, DEWWTS: De-Centralised waste water Treatment Systems, BORDA: A German NGO, COINDIA Coimbatore Industrial Infrastructure Association, *Thanneer pandhal:* free water supply campaign.

Methodology:

By employing both primary and secondary sources this paper has been attempted. Environmental Science, Engineering and *Ecological Diversity* are the major and authentic source materials for writing this paper and it is supplemented by Recent Project Reports. The methodology adopted in this study is descriptive and analytical.

Introduction:

Coimbatore (Population – 1.25 million), the second largest city in Tamil Nadu, earned its reputation as the 'Manchester of South India' in the 1930's, when the nearby *Pykara* falls, a hydro-electricity project was built to provide power for its huge textile mills and spin of industries. It is also referred to as the "Detroit of the South". The city today houses engineering pumps, auto ancillary and foundry establishment. Coimbatore city popularly called as cotton city lies in the *Noyyal* River basin and spreads out 105 Sq. kms with 1.5 million populations. For any growing city like Coimbatore the most important and acute need to be clean and safe drinking water.

Water is the most important natural resource on the surface of the earth. It functions as a habitat for a number of organisms or serves as a resource. It is also the external of all aquatic life forms and can function as a resource condition and habitat. (P.B., Jayaraju, G.D.V, Prasadrao, and S.V. Sharma, 1994)¹. The problem of freshwater is becoming more acute day by day. Fresh water has become a scare commodity, due to over exploitation and pollution of water. Due to the steady increase in the population, (P.K. Gupta, 2000)², urbanization, (Sunil Sharma and Mahendra Pratap Choudry 2007)³, Industrialization, (T.Damodharan, and S.Suresh, 2005) deforestation etc., the water resources has been adversely affected both qualitatively and quantitatively. (S.C.Sati and P.C. Paliwal.2008). This paper explore the problems of water contamination and other environmental abuses, the aims and objectives of *Siruthuli*, an NGO, the steps taken by *Siruthuli* towards environmental protection and water conservation, and how for *Siruthuli* an NGO minimize the aforesaid in considerable ways and means in and around Coimbatore.

Problems and Discussion:

The Siruvani and Pillur resources, which are supply the drinking water becoming insufficient and undependable due to monsoon failures. Velankulam and Selva chintamani tanks are covered with water hyacinth mainly due to the sewage water contamination. Water hyacinth has been proved to be an ideal breeding for mosquitoes. Since it has 80% water content it is also a potential threat for depletion for water level in the tank.

The water hyacinth removed from Velankulam and Selvachinthamani tanks was made as manure by using the EM Technology. The manure obtained from the water hyacinth was tested and proved as a good bio-manure for agricultural crops. (H.J. Oosting, 1958 and E.A. Philips, 1958)⁴. Now Coimbatore under threat from water mismanagement and environmental abuse. What we witness today is instead of river water, rain water flowing into tanks. Due to the less rainfall, there is no sufficient water coming into the tanks. The sewage and waste water being let out by the residential areas are entering into the tanks. Invariably, all the tanks receive sewage, sulage, effluents and waste water. After desalting such kind of inflow would contaminate the land and the ground water.

Sewage (S.Binu Kumari, A.Kavitha Kirubavathy and Rajammal Thirumalnesan 2006) and effluents fill and contaminate the quality of water.' The 500 MT of garbage generated by the city every day, mostly dumped into the canals and tank beds, making less storage capacity and thereby contaminating land and water. (A.E. Magurran, 1988)⁵. The sewage generated by the city's population is finding its way into the tanks of Coimbatore polluting the acquires conforming to globally accepted norms.

The small and marginal farmers, who alone through increased agricultural production offer the country really an everlasting freedom from hunger, are facing acute water problems for their agricultural process. (H.J.Oosting, 1958)⁶. As a result agriculture has come to a standstill. The effluent from dyeing factory and other industries are also let into the tanks in certain areas.

The rapid growth in population, together with extension of irrigated agriculture and industrial, (W.H.D. Daniels, L.R. Abramo, and L.D.Parseval, 1992)⁷. development in and around Coimbatore and Tirupur resulted in depletion of ground water table more than 1000ft thereby ground water become contaminated. Therefore Coimbatore's heritage was once abundant water tanks and canals, its sweet *Siruvani* water, salubrious climate and its reputation as the 'poor man's Ooty' are now under threat from water mismanagement and environmental abuses. This has resulted in climatic variations and an acute shortage of once abundant rainfall.

Siruthuli an N.G.O:

Siruthuli meaning "tiny drops", The age-old usage, 'small drops make a might ocean', It is an N.G.O. formed by a few conscientious corporate houses as a trust in June, 2003, in order to provide a better green *covai* (Coimbatore) to increase ground water levels and to enhance clean environment in the enterprising city of Coimbatore. The success of *Siruthuli* can be attributed to the involvement of the people of Coimbatore, and support of the government. *Siruthuli* is a trust managed by trustees and apex body and supported by volunteers drawn from a wide cross section of the society.

Aims and Objectives of Siruthuli an NGO:

The specific Aims of *Siruthuli* are: revamping of water management systems; rain water harvesting and ground water recharge; deepening and drifting ponds, and canals; cleaning the water ways and reinforcing the banks; removal of encroachment on water tanks; initiating projects for a green environment; spread messages and save nature for

prosperity; beautification of water bodies around Coimbatore; sewage water management and treatment; encouraging community participation and social solidarity.

Objectives of *Siruthuli* are: to keep the environment free from pollution by taking all necessary steps towards environmental protection including water conservation; forestation, Prevention of Deforestation, Desalting of tanks, Canals, Lakes, Ponds, etc., and pursue any activity in the direction of environmental protection; to take up projects and works towards the goal of Environmental protection, Water Conservation, Forestation, Prevention of Deforestation, Desalting of tanks, canals, lakes, ponds etc; to take active steps for maintain good sanitation of the town; to educate people in maintain cleanliness in public places etc., and to promote awareness to the students by conduct seminars, conference etc. for implementing the objects of the trust.

Siruthuli addressing the above essential needs of the hour and it has taken up the following steps as its primary objectives: Large scale rain water harvesting and artificial recharging. To receive the *Noyyal* River to its normal river system, bring back the lost glory of Coimbatore (S.Binu Kumari, A.Kavitha Kirubavathy and Rajammal Thirumalnesan 2006), and to solve the water mismanagement and environmental abuse, By joining hands with pioneers and experts in the field of water management and environmental safety management.

Siruthuli has identified a viable German technology on DEWATS at Bangalore. BORDA a German N.G.O., has expressed their concurrence for providing technical knowledge to the schemes implemented by *siruthuli*. In this regard, a project proposal for treating I lakh liters per day of waste water (50,000 x 2 Nos) has been submitted to Coimbatore Corporation. *Siruthuli*, along with COINDIA has submitted a proposal to the government for setting up a successful waste water treatment plant and the same can be extended to all water bodies of Coimbatore.

Located in the heart of the city, Velankulam is the main arterial tank that recharges the ground water of the sizeable area of the city. Over the years serious encroachments and blocking of the water inlet states that a rapid depletion of underground water (APHA, 1985)⁸ and in a 20km radius of the city. *Siruthuli* in its endeavour to preserve the water in Velankulam and Selvachintamani tanks, undertook the massive project of removing the water hyacinth from the water bodies. *Siruthuli* plans to set up low cost sewage water treatment plants in the tanks themselves thereby improving the quality of the ground water. *Siruthuli* wanted to address the industrial effluent issue to treat the sewage waste before letting it into the tanks. Through a comprehensive study it has been identified that the total outlet Coimbatore sewage is 10 million liters per day. It is proposed to set up the pilot sewage treatment plant of Ammankulam to treat I million liters per day. The treated water may either be utilized for agriculture purpose or to recharge ground water.

Siruthuli is a people's movement. The people of Coimbatore have given their cooperation and involvement. Many corporate houses and individuals have contributed generously monetary and support. Contribution of the public are grouped in the following ways: Spreading Awareness; Monetary Contribution; Sponsorship Activities; Physical and Technical Support.

Siruthuli organizes various events from time to time, for the interest and benefit of the society. Additionally, this community invites *Siruthuli* to participate in activities and programmes that help to further the environment or community related causes. In order to carry out the message of *Siruthuli* to the citizens of Coimbatore, the following events were organized from the years 2003 to 2008. *Siruthuli* propagates environment

values and mission to get clean drinking water through constant educational programmes both the students and public.

Student Awareness through Educational Programmes:

To create an awareness among the school students a rally was organized and it attracted more than 15,000 students. Besides, *Siruthuli* conducted an Eco-painting competition for the school students. It attracted more than 4000 students and could spread the message of *Siruthuli* among the student community. The Expo conducted at the Codissia Trade Fair helped the students to choose their career. Dr. Balaguruswamy, then Vice Chancellor of Anna University inaugurated this mega fair. The Expo had a very good response as it could reach to nearly 60,000 students in and around Coimbatore and more than 125 Educational Institutions from various parts of the country.

Siruthuli organized a national level debate on the topic "Rain Water Harvesting" to the students from IX to XII standard. The programme was organized at J. Matriculation school, Avarampalayam, Coimbatore on 15th October, 2004. To create awareness among the school children, *Siruthuli* members visited GRD School and Ramnagar suburban Metric School. Thus the *Siruthuli* is carrying on its activities like creating awareness among the Children for water conservation, planting of more trees, non use of plastics and eco-consciousness. To impart eco-awareness among the students, *Siruthuli* took the initiative to start eco-forums in schools and colleges in 2005. So far 17 schools and 3 colleges have commenced work under *Siruthuli*. Eco forum banner placed in the areas of Forestation and water harvesting. Schools were allotted the trees for plantation. About 540 student from 30 schools participated in this programmes. The faculty members of the Department of Botany of PSGR Krishnammal College evaluated the 162 projects. The prize distribution was held at PSGR Krishnammal College in Chandra Seminar hall on the 14th of March 2007, to encourage the youngsters and efforts.

Siruthuli conducted the second summer camp for school students from 16th to 21st of April, 2007. The students are given training in segregation of water, preparation of pits, and afforestation activities at Mettupalayam Road on the first day. On the second day, they were taken for a visit to the tanks from Kooduthurai to Chithirai Chavadi to study air pollution and water contamination. On the third day they were taught to make a compost pit at the PSG Hospital complex and at two residential apartment complexes. The next day they visited residential houses and shops, and interacted with the public to make them aware of the evils of disposable plastic bags and need for urban afforestation and conservation of water.

On September 29, 2007, the *Noyyal* seminar was organized by the Zoology Department of PSGR Krishnammal College to create awareness among the public. On the other hand researches had painted out the picture of the river especially from Tirupur, into which multiple dyeing effluents are discharged causing irreparable damage of life of public and environment.

Social Awareness Programmes:

As soon as the Desalting of the first tank was over, the tank was filled with rain water after two days. Hence *Siruthuli* celebrated Aadiperukku in Krishnampathy and more than 25,000 people participated in the event. *Siruthuli*, also celebrated the world water day by opening 25 '*Thanneer Pandhal*' at various places of the city and it also opened an 'Water Saving Account' for Coimbatore. The '*Thanneer pandhal*' not only quenched the thirsty coimbatoreans, but also gave them tips on how to conserve water by displaying different ways.

Siruthuli Velanmmmai Kuzhu (Farmers Cell) was formed in July 2004. Three hundred members were enrolled. Everyone has agreed upon the Restoration of River *Noyyal*. *Siruthuli* is also educating farmers in various methods in saving water in agricultural practices. The importance of maintaining canals, tanks, anicuts, sluice and river *Noyyal* was also enlightened to the farmers.

Valankulam tank is one of the largest tanks in the city and can aptly be called the pearl of Coimbatore water resources. In order to initiate the restoration Process, *Siruthuli* Made a clarion call on 26th January 2006, by organizing an awareness drive through a signature campaign and act as canvass campaign. The general public, students and teachers from all the educational institutions, service organizations industrial establishments and associations joined this campaign and pledged their solidarity for the noble cause water conservation.

In order to invite people's attention, involvement and constitution *Siruthuli* launched "*Noyyalukku Nooru*", to persuade every citizen of Coimbatore and contribute and Rs. 100/- for the restoration of *Noyyal* river. The programme was launched by the cine artist Surya on July 14th, 2006. The event was a day long program which culminated with a music concert by Lakshman Sruthi of Chennai, at the PSG College ground. Many people came forward to contribute for the noble cause of *Noyyal* River restoration.

Siruthuli celebrated world water day on 22nd March 2007. Twenty five *Thaneer Pandhals* were put up in different location within the city. The public was served with water, buttermilk, etc. Besides notices were distributed to stressing on the need to save water, the elixir of life. *Siruthuli*, by the grace of Almighty, the government and the gracious citizens of Coimbatore, is slowly but steadily marching towards achieving its objective of clean *Kovai* and green *Kovai*. As a result of the Rain water Harvesting and Forestation of *Siruthuli*, there has been a considerable increase in the ground water levels in Coimbatore and also a rise in water levels in the water bodies in and around the city.

Conclusion:

To conclude *Siruthuli* an N.G.O. has become a people's movement. The enthusiastic participation and contribution of people from all walks of life. *Siruthuli* has accomplished much in a short span of time water Pollution can be prevented to a certain extent by adopting scientific methods. Certain pollutant from industrial effluents can be removed by filtration and selective absorption. Sewage can be used for irrigation and fish culture after treatment in oxidation pond. Excessive use of pesticides herbicides should be avoided. At the Government level, legislations should be framed to control water pollution.

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