ABSTRACT

Urbanization takes place rapidly all over the world due to many reasons. Population increases in urban areas due to two major reasons: migration of rural population to urban areas and increase in population by birth. As a result, the boundaries of any urban area expands by encroaching the nearby rural areas. Pudukkottai is no exception to this urban growth. Urbanization without proper planning, leads to environmental degradation in many forms.

Pudukkottai was the capital of the only princely state of Tamilnadu during the British time (1686 to 1948) and presently is district headquarters. It is one of the planned towns of India, home of one among the earliest cave temples (about 1300 years old) with a continuous traditions till date. It was a notable centre for arts and temple architecture during the period of royalty.

The Government Museum, the Palace and impressive public buildings are a few other attractions. This town is located on Tiruchirappalli - Rameswaram NH 210, about 50 km south-east of Tiruchirappalli and about 60 km south of Thanjavur. It is situated in the valley of the Vellaru - 6½ km to the north of the river. It stands on a ridge that slopes gradually towards the south.

In this present study the impact of urbanization in Pudukkottai on air environment, water environment, soil environment, biotic environment and socio-economic environment was determined and assessed.

In order to assess the impact on air environment, air samples were collected at selected places for one year at different seasons and the concentration of SPM, SO$_2$ and NO$_2$ were estimated.

Urban growth in Pudukkottai has deteriorated air quality to a reasonable extent. SPM, SO$_2$ and NO$_2$ and noise levels exceeded the standards. Increased vehicular traffic due to urbanization was attributed to the deterioration of air quality.
In order to assess the impact on water environment, surface water and ground water samples were collected at selected places for one year at different seasons. In surface water turbidity and fluoride levels exceeded the standards. The discharge of domestic wastes and sewage was found to be the major cause for deterioration of surface water quality. Ground water was found to be unpolluted except with *E.Coli*. Poor sanitation facilities and open defecation were attributed for this.

In order to assess the impact on soil environment, soil samples were collected at selected places for one year at different seasons. The results suggested that urbanization did not pose any effect on soil quality.

In order to assess the impact on biotic environment, flora and fauna were identified and quantified at selected places for one year at different seasons. The biotic assessment revealed that diversity of flora and fauna was less in urban area when compared to the surrounding suburban area of Pudukkottai. It suggests that urban growth in Pudukkottai had cast out several organisms hence poor in biodiversity.

Biodegradable wastes constitutes more than 50% in MSW generated in Pudukkottai. On average 30-35 tonnes of MSW has been generated in Pudukkottai. The present population of Pudukkottai is about 1 lakh. As the town is expanding in its area and in its population, the amount of MSW is likely to increase accordingly. In this present study, samples of biodegradable solid wastes were subjected to composting using micro organisms.

The biocompost thus produced were used for the growth of Palmarosa plant. Biocompost had positive effect on the growth of the plant. That is, the biocompost is rich in nutrients. Hence, it is suggested that, Municipality can adopt composting for disposal of biodegradable waste, which can reduce the amounts of MSW considerably.
Waste water generated was found rich in nutrients. Hence the waste water was used for plant growth after treatment with Lemna sp. The treated water was used for the growth of Buffalo grass in a separate field. Positive improvements were seen in plant growth with treated waste water.

In order to assess the impact on socio-economic environment random sampling was carried out. The results revealed that urbanization had improved the quality of life of people in terms of education, employment and income.

In nutshell, it may be stated that urban growth in Pudukkottai had caused deterioration of air quality and decrease in biodiversity, while improving the socio-economic status of the people.