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Logistic and Solid Waste Management In Tiruvarur Town

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ABSTRACT

Municipal Solid Waste Management is one of the major environmental problem of Indian towns.Improper management of municipal solid waste causes hazards to inhabitants. Change in lifestyle and social activities has increased the generation of solid wastes in the Tiruvarur Town. Though solid wastes management is a worldwide phenomenon, but the improper management of solid waste leads to disturbance in the city area and peoples. The problem of solid waste management is prevailing in the city environment of Tiruvarur Townalso. Therefore, there is an urgent need for the improved planning and implementation of comprehensive solid waste management systems for upgrading the environmental scenario of the city. It requires detailed information on the quantity and character of solid waste generated and their effects on environment. This present study is to investigate the problems and effects of solid waste in theTiruvarur Town. The investigation includes the methods of practices associated with sources, characteristics, quantity generated, collection, transportation, storage, treatment technologies and disposal of solid waste in the Tiruvarur Town. In this work, it is intended to collect the data using the field visit, and interaction with inhabitants and the city authorities. This work will evolved appropriate solid waste management strategy based on the principles of refuse, reduce, reuse and recycle. The study pertaining to evaluate the current status and identify the major problems.

KEYWORDS: Muncipal solid waste, Reuse, Recycle, and recovery.

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INTRODUCTION

Solid waste can be defined as any solid or semi-solid substance or object arises from human or animalactivities, discarded as useless or unwanted. It is mixed mass of wastes, which may generate from household, commercial, industrial or agricultural activities. Solid waste is a broad term, which includes all kinds of waste such as Municipal Solid Waste, Industrial Waste, Hazardous Waste, Bio-Medical Waste and Electronic waste depending on their source & composition. It consists of organic and inorganic constituents which may or may not bebiodegradable. Some of its toxic and harmful constituents may cause a danger if not handled properly. Sourcereduction, recycling and composting, waste-to-energy conversion facilities, and land filling are the four basic things of waste management.

The civic services in the town of Tiruvarur are managed by Municipal Corporation of the town of Tiruvarur. Solid waste generation is a continually growing problem in Tiruvarur Town at local level due to continuously growing population. The increase in population and urbanization was also largely responsible for increase in wastes in Tiruvarur Town. Waste is the unwanted or useless solid &liquid materials generated from combined residential, industrial and commercial activities in a given area. Solid wastes are those organic and inorganic waste material generated by various activities of the society, which have lost their value to the first user. Improper disposal of solid wastes pollutes all the vital components of the living environment at local and global levels. It may be change according to its origin.

Solid wastes are those organic and inorganic waste materials produced by various activities of the society,which have lost their value to the first user. Improper disposal of solid wastes pollutes all the imporant components of the living environment at local and global levels. The problem is more in developing nations than in developed nations, as their economic growth as well as urbanization is more rapid. This is largely because of rapid population growth and economic development in the country. Due to rapid growth of urban population, as well as constraint inresources, the management of solid waste poses a difficult and complex problem for the society and its improper management affects the public health and degrades environment.

Quantification and characterization of MSW is one of the vital formulations of its management strategy. These data are normally collected on a daily basis, which provides a rational basis for planning and executing waste management operations.

Area of the Study

The study was conducted in Tiruvarur town, the headquater of Tiruvarur district. It is a historically renowned town in the district. The town has population of about and our areas at 10.47 square kilometers as per the municipal records. It is a busy town with agricultural and

business activities. It has a large number of educational institutions, offices, Nationalized and scheduled banks. Different peoples different religions and castes live in this town.Paddy is the most important food grains produced in the district. Banana, sugar cane, gingili, sunflower, form the bulk of the important commercial crops of the district.

SOURCES OF SOLID WASTE IN AMBAJOGAI CITY

Domestic waste

Agriculture waste

Slaughter house waste

Food processing waste

Biomedical waste

Street waste

Waste from Bus station

Waste from Temples

Construction & Demolition Waste

Vegetable market Waste

GENERATION OF MSW:

Municipal solid waste (MSW), also called Urban Solid Waste, and is a waste type that includespredominantly household waste (domestic waste) with the addition of commercial wastes, construction and demolition debris, sanitation residue, and waste from streets collected by a municipality within a given area. Theyare in either solid or semisolid form and exclude industrial hazardous wastes. Maximum amount of solid waste was generated in Sadar Bazar, while the minimum was produced in Yogeshwari.

Table :1 Per capita MSW generation rates

Year	Per capita MSW generation (gm/day)
2017	250
2018	400

Table: 2 Sources of solid waste generation

Sr no.	**Sources of solid waste generation**	**Composition**
1	House	12MT
2	Shops	1MT
3	Hotels	2MT
4	Hospitals	2MT
5	Construction material	1MT
6	Slaughter house	1MT

COLLECTION OF MSW

Door-to-door collection of waste was introduced in four out of the seven zones of Tiruvarur Town. Thestorage of MSW at the source is substantially good throughout the Tiruvarur Town. The collection and transportation of solid waste in Tiruvarur is done in two shifts. In the first shift that starts at around 5A.M early in the morning, the conservancy workers sweep the streets,clean the drains and collects the waste and transport the waste by ghantagadi to disposal site. At some parts of the city, tippers go along with the sweepers and collect the waste which is being transported to transfer stations. Then from transfer station the waste is being collected and transported to the disposal site by open trucks. The bins are common for both decomposable and non decomposable(no seperation of waste is performed).

Lack of storage and collection practical was seen in Tiruvarur Townexcept some colonies. It was seen thatsweepers are doing their road sweeping duties regularly and sincerely. But peoples of Tiruvarur Town were alsofound less awared to through the waste into at the fixed or movable bins. The condition of steel and cemented bins were very bad as well as were broken.

Total generation of municipal waste is more. Out of that only 19MT/day is being collected through tractorsdeputed by municipality. However in Tiruvarur, collection capacity provided is generally less than the actual wastegenerated and is one of the biggest problem in SWM. The result of this gap is visible in the form of open dumps. Municipal systems are generally designed on the basis of underestimated generation rates. The collection of MSW is the responsibility of corporations/municipalities.

TRANSPORTATION OF SOLID WASTE

Transportation of waste is done with the help of vehicles such as three-wheelers, tractors and trucks. Thetransport vehicles are loaded manually. Inadequate number of transport vehicles is major problem. The transportation system does not synchronize with the system of primary collection and bulk waste storage facilities. Multiple manual landing of waste becomes necessary. During study period it was observed that vehicles transporting waste were not covered with the tarpaulin/plastic sheets. Municipal agencies use their own vehicles for MSW transportation although they are hired from private contractors. Sanitary landfilling is an acceptable and recommended method for ultimate disposal of MSW. It is a necessary component of MSWM, since all other options produce some residue that must be disposed of through landfilling.

Table:3 Transportation facilities

Sr no.	Types of vehicles	No. of vehicles
1	Ghantagadi	1
2	Dumper placer	1
3	Tractor	2

DISPOSAL OF MSW

There is sanitary landfill dumping site in Tiruvarur Town. The city does not have even controlled dumps.Waste is simply dumped at the designated sites (without compaction) where no soil cover is used, no visual or environmental barriers and no provision for leachate checking is available. As the soil strata is hard and the waste received from the city is normally dry, so leachate generation quantity is very less.

The MSW of Tiruvarur Townwas being dumped on authorized sites or used to fill up the low lying areas.Dumping site is situated on Panangal road. The waste processing site is also situated here and having its own municipal open dumping site of 10 acres.

TREATMENT

There is treatment facility for treatment of municipal solid waste in Tiruvarur. A compost plant with acapacity of 200 tonnes of compost per day was set up in 2008 but the plant closed after some year of operation due to high presence of inert materials in the waste and lack of technical and management skills. To make the composting plant sustainable, there is a need to strictly maintain the quality of compost, which requires segregation of waste at generation stage and a market demand for the same. For biomedical wastes, there is incinerator installed in government hospitals, but is not in operation.

Waste treatment techniques seek to transform the waste into a form that is more manageable which reducethe volume or reduce the toxicity of the waste and easy to dispose. Treatment methods are selected based on thecomposition, quantity, and form of the waste material.

RECOMMENDATIONS

1. To develop sanitary landfill sites as per guidelines of MoEF.
2. To provide sufficient community garbage storage facilities in the crowded area is a pre-requisite to better management of MSW.
3. To stop and prevent open burning of tree leaves and other waste by sweepers on the roadside and direct them to take all the waste to the communal waste storage bins/sites only.

4. 4. To avoid throwing waste in the open drains to prevent drain choking. To clean the drains in regular basis to permit free flow of wastewater.
5. To assess the pollution load, monitoring facility should to be developed at processing plant area.
6. To spread mass awareness through messages like “Keep Clean Your City” or “Keep your waste unmixed”etc. and cartoons related to MSW management.
7. To spread awareness through cable TV and local channels as these are very powerful media to create awareness for public about solid waste management in the city.
8. 8. Ward committees should use their good offices for public involvement to make their wards litter free and clean. Corporation may also announce rewards to the employees contributing to the cleanliness of city.
9. Waste recycling leads to less utilization of raw materials, saves on landfill space, reduces the amount ofenergy required to manufacture new products. In fact recycling can prevent the creation of waste at the source.
10. 10. Promoting/motivating citizens to start segregation of waste at source involving NGO’s, co-operatives, private, Commercial & industrial sectors for appropriate mass awareness campaigns.
11. Dry waste consisting of cans, aluminium foils, plastics, metal, glass, and paper could be recycled.
12. The least technically complex and most cost-effective solution should be chosen.

CONCLUSIONS

Rapid urbanization and population growth of Tiruvarur Townis bound to bring an increase in the total wastegeneration in the coming years. The existing status of waste management and the littered streets all over the city clearly speak about the poor environmental health of the town.There is unawareness about the management of waste .The existing SWM system in the city is totally inefficient. The informal waste-recycling sector, despite its importance, is ignored by the Local Authority. There is therefore, an urgent need to improvise the situation to stop further decay and deterioration of the city. It is observed that present facilities for management of solid waste for Tiruvarur Townare falling short to cope with increasing population and increased waste generation. The Municipal Solid Waste Management at Tiruvarur Townas managed by AMC needed to be improved by adopting various. The present system of MSWM in Tiruvarur Townis not satisfactory based on MSW(M & H) Rule 2000.There is need to implement MSW (M & H) Rule 2000 in an integrated manner. Segregation of recyclable material wouldalso leads to reduction in quantity of solid waste for final disposal. More emphasis needs to be laid on

segregationand collection of waste at door step. Segregation of recyclable material from mixed waste not only is tedious but also wasteful, therefore the residents should be sensitized towards the importance of segregation of wastes at source. The aforesaid policies, if implemented, have the potential to bring an improvement in the SWM system in the city, which shall lead to healthier life in the town.

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