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3. EFFECTIVENESS OF MUNICIPAL SOLID WASTE MANAGEMENT IN TAMIL NADU WITH SPECIAL REFERENCE TO THIRUVALLUR DISTRICT

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ABSTRACT

The study is aimed to identify the effectiveness of solid waste management in Tamil Nadu with special reference to Thiruvallur District. "In recent times, the continuous increase of solid waste is a serious problem with the urban and rural areas. The rapid growth of population and increasing per-capita income has resulted in the generation of enormous solid waste posing a serious threat to environmental quality and human health. Improper disposal of waste often results in spread of diseases and contamination of water bodies and soils. The impacts on these wastes on the economy cannot be ignored and managing them has become a major problem. Municipal solid waste management continues to be a major challenge to local governments in both urban and rural areas across the world, and one of the key issues is their financial constraints". [9] "In Tamil Nadu there are 12 Corporations, 124 Municipalities and 528 Town Panchayats. In total the solid waste generation is 14,600 Tons per day. The Greater Chennai Corporation generates 5000 TPD, 11 Corporation and all Municipalities generate about 7600 TPD and all the town panchayat generates 2000 TPD. The board is advocating the concept of waste segregation at source, waste reduction, recycle and reuse to avoid any environmental issues during handling".

KEYWORDS: Municipal Solid Waste Management, Solid Waste Management in Thiruvallur, Effectiveness of Solid Waste Management in Tamilnadu

INTRODUCTION

The managing of municipal solid waste is a foremost function of all urban local bodies of Tamil Nadu. "All urban local bodies are required to meticulously plan, implement and monitor all systems of urban service delivery especially that of municipal solid waste. With limited financial resources, technical capacities and land availability, urban local bodies are constantly striving to meet this challenge.

With the launch of the flagship programme by the Government of India, Swachh Bharat Mission in 2014 that aims to provide basic infrastructural and service delivery with respect

to sanitation facilities to every family, including toilets and adopting the scientific methods to collect, process and disposal of municipal solid waste. The mission focuses on quality and sustainability of the service provision as well as emphasizing on the commitment on every stakeholder to bring about a visible change in society.

The Ministry of Environment, Forest and Climate Change, Government of India has notified the solid waste management rules, 2016. As per the rules, solid waste means solids or semi solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities. As per the rules, the local bodies are responsible for the collection, treatment and disposal of solid wastes. The board is the monitoring authority on the said rules and is responsible for granting authorization to local bodies of processing and disposal of solid waste".

At present most of the municipal solid waste in the Tamil Nadu is disposing unscientifically. "This has adverse impacts on not only the ecosystem but also on the human environment. Unscientific disposal practices leave waste unattended at the disposal sites, which attract birds, rodents, fleas etc., to the waste and create unhygienic conditions like odor, release of airborne pathogens, etc. The plastic content of the municipal waste is picked up by the rag pickers for recycling either at primary collection centers or at dumpsters. Plastic are recycled mostly in factories, which do not have adequate technologies to process them in a safe manner".

REVIEW OF LITERATURE

Pandian, Ramanathan and Rawat (2010) "growing waste generation is mainly due to population growth, economic development and changing lifestyles. Primarily responsible for waste management, municipalities and

local agencies have been ineffective in tackling the waste problem. Some issues related to municipal solid waste management are low priority for safe disposal, lack of appropriate organization, insufficient financial and technical resources, a limited number of disposal sites and inadequate knowledge of disposal methodology.”

Census (2011) “India is rapidly shifting from agricultural-based nation to industrial and services-oriented country. About 31.2% population is now living in urban areas. Over 377 million urban people are living in 7,935 towns/cities. India is a vast country divided into 29 States and 7 Union Territories. There are three mega cities—Greater Mumbai, Delhi, and Kolkata—having population of more than 10 million, 53 cities have more than 1 million population, and 415 cities having population 100,000 or more.”

Sridhar and Kashyap (2012) “the solid waste collection efficiency in the city is 97 per cent, which is slightly less than the Ministry of Urban Development’s benchmark of 100 per cent efficiency.”

Kumar, Venkata and Rao (2013) “municipal solid waste is simply collected, transported and dumped without treatment or processing. A substantial amount of waste remains unattended at collection centers, roadsides and riverbanks. Most often cows and other stray animals feed on waste dumped in these places. Open dumping of garbage facilitates the breeding of disease vectors and unsanitary dumpsites increase the risk of groundwater contamination.”

Sivaraman (2013) “it is as if someone’s house is set on fire—he does not wait for the authorities, but quickly makes efforts to stop a disaster. Similarly, people assumed immediate responsibility for cleaning up their neighborhoods as a way to deal with the ineffective waste management system. The Chennai Corporation, in spite of having high waste collection rates, does not have a proper workable plan for solid waste management.”

Ahluwalia, Kanbur and Mohanty (2014) “however, in spite of street sweeping, roads remain dirty, spoiling the aesthetic beauty of cities and towns. It is common to see people throw their rubbish onto the street. The prevailing thought is cleaning up is always somebody else’s responsibility. The Government of India issued Municipal Solid Waste (Management and Handling) Rules, 2000 to improve waste management. The rules promised environmental sustainability in solid waste management by promoting waste separation, recycling, and use of

disposal techniques such as composting and incineration. Government agencies believed privatization to be the panacea for solid waste problems. Under the impetus of Municipal Solid Waste Rules and the privatization drive, Chennai became first city to contract out municipal solid waste management services to a foreign agency, the French company Onyx.”

Nandi (2014) “the impoverished rag pickers comprise a social group that resorts to waste picking for meager incomes and some merely for every day survival. Without them, rubbish would not be collected, sorted or recycled. The rag pickers spend their days sorting the endless trash in search of non-biodegradable items they can sell. The landfills are the last point for trash collection, as most recyclables have already been removed by other waste collectors who pick up bags of garbage directly from homes. The activities of the rag pickers are not systematic and they scavenge from one locality to another. They can earn US \$2.5 to US \$3.5 daily by selling metal, paper, plastic and bricks.”

OBJECTIVES OF THE STUDY

→ To study the existing solid waste management system of Tamil Nadu with special reference to Thiruvallur District.

→ To study the physical and chemical characteristics of solid wastes of the study area.

→ To study and compare different methods of waste processing, recovery and to determine their suitability for the waste of the study area.

RESEARCH METHODOLOGY

The present study will be based on secondary data. Data and information will be obtained from published papers, books, periodical, journals, internet websites and official sources. Study of existing system of solid waste management, generation of waste, storage and handling, collection, transfer and transport, processing and recovery, disposal, physical characteristics of waste, and different methods of waste processing, recovery and to determine their suitability for the waste of the study area.

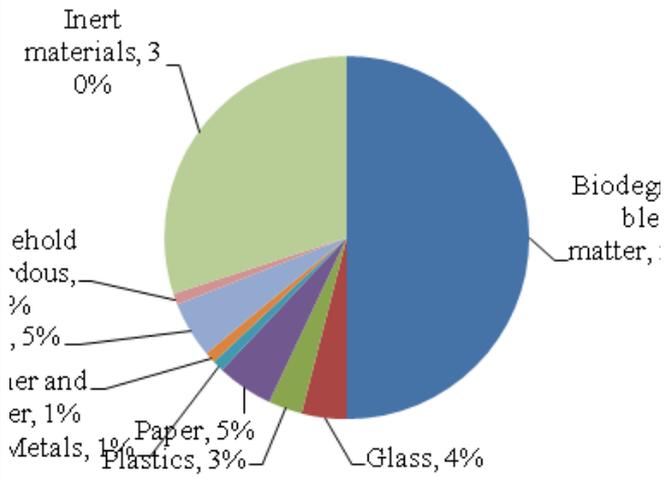
DATA ANALYSIS AND DISCUSSION

“Municipal solid waste consists of household waste, construction and demolition debris, sanitation residue, and waste from streets. This garbage is generated mainly from residential and commercial complexes. In Tamil Nadu due to urbanization and change into lifestyle and food habits, the amount of municipal solid waste has been increasing rapidly and its composition changing”.

“In Tamil Nadu, the un-segregated municipal solid wastes generated are collected and are

Table 1 - The Type of Litter Generated and the Approximate Time It Takes To Degenerate

Type of litter	Approximate Time it Takes to Degenerate
Organic Waste (Vegetable and Fruit Peels, Leftover Foodstuff, etc.)	A week or two.
Paper	10-30 days
Cotton cloth	2-5 months
Wood	10-15 years
Woolen items	1 year
Tin, aluminum, and other metal items such as cans	100 to 500 years
Plastic bags	One million years?
Glass bottles	Undetermined



either disposed to low-lying areas or water bodies or disposed to the roadside and are set on fire causing air pollution. The leachate from the dumped solid wastes has caused water pollution, odor and nuisance are mainly caused due to the putrefaction of the organic matter present in the un-segregated municipal solid wastes. Kodungaiyur and Pallikaranai in Chennai are the standing example for municipal solid waste dumping sites”.

Table 2 - General Composition of the Municipal Solid Wastes

Biodegradable matter	50%
Glass	4%
Plastics	3%
Paper	5%
Metals	1%
Leather and rubber	1%
Rags	5%
Household hazardous	1%
Inert materials	30%

“Government of Tamil Nadu has issued instructions in all urban local bodies to establish waste processing and disposal facilities. In addition to this, the Honorable

Supreme Court has directed cities with one million plus population to file an action plan for solid waste management and all the cities in Tamil Nadu having million plus population namely, Chennai, Madurai and Coimbatore Corporations have filed their action plans before the Honorable Court. The commissioner of municipal administration has taken initiatives in facilitating the preparation of similar Action Plans by all other urban local bodies in order to comply with the municipal solid waste in a time bound manner. The main requirements in this regard are the identification of suitable land for locating disposal facilities”.The problem of odor nuisances, fly nuisances, water pollution and air pollution can be eliminated.

All the Municipal authorities as well as the district collectors who are responsible for the implementation of the municipal solid waste management and handling rules, 2000 have been instructed to identify a site away from habitations and water bodies for the composting of compostable wastes and land filling of inert wastes. Tiruppur Municipality has identified a site for composting of segregated wastes. Tiruppur Municipality has engaged a private firm for composting of the segregated wastes. The private facility has also been issued authorization at Madurai to process the municipal solid wastes generated from Madurai Corporation. The facility is yet to be commissioned. All other local bodies are in the process of identification of site for composting and secure landfill. All the municipal commissioners have been instructed to take action to stop the disposal of un-segregated municipal solid wastes into low lying areas and water bodies in order to prevent water pollution. Door to door collection of segregated wastes and two-bin system is being implemented in Udthagamandalam municipality. Municipalities have started the source segregation of municipal solid wastes generated in their limits partially or fully.

→ Stop dumping of garbage at Kodungaiyur and Pallikaranai dump yards

→ Start segregation at the transfer points by using conveyor belt system

→ Take action to put up waste processing facilities at the earliest

The environment problems arising due to indiscriminate use and disposal of throw away plastic items have been recognized and the Tamil Nadu pollution control board has embarked upon an intensive awareness campaign. The awareness campaign has focused on preventing the use of throw away plastics as well as eco friendly substitutes to plastic items. Billboards educating the people about the ill effects of throwaway plastics were displayed on metropolitan transport corporation buses in Chennai. Besides, regular awareness programmes are conducted in tourist and pilgrim centers and also the girivalam path of Thriuvannamalai temple. Training has been imparted to self help groups for production of palm leaf plates, cups in Salem, Vellore and Cuddalore districts through the central palmgur and palm products institute of village industries commission. The products are eco friendly alternatives to throw away plastics items like cups, plates etc. The Nilgiris district, Hogenakkal, Kodaikannal, Rameshwaram, Valparai, Yelagiri, Yercaud and Thirumoorthy falls etc. have been declared as throwing away plastic free zones. The Government of India, Ministry of Environment and Forests notified the Recycled Plastics Manufacture and Usage Rules, 1999 under the Environment (Protection) Act, 1986 to ensure that carry bags and containers used for packing food stuff are not made of recycled plastics. As per the provision of the rules, only virgin plastics, permitted additives and colour are to be used in plastic items shall use for packaging food stuff. The board has identified 1159 plastic products manufacturing units".¹³ "In Thiruvallur district the solid waste generation is the highest in Ambattur among municipalities and in Porur among town panchayats. The overall collection efficiency is 88 % with of 344 persons engaged in solid waste management. The primary component of the waste is compostable matter constituting 90% in the total waste".

The total solid waste generated per day in town is 32 metric tons and the total solid waste cleared per day is 2 metric tons. Number of compost yards available and extent in the town is 2. Number and type of vehicles are 1 lorry and 3 tractors. The carrying capacity of lorry is 2.5 metric tons and tractor is 2 metric tons per trip. Average number of trips per day is lorry with 2 trips, tractor with 2 trips and agro tractor 3 trips. Privatization done to collect the solid waste in all the wards with 2 tractors and 6 tricycles.

CONCLUSION

This study has found the municipal solid wastes management system in Thiruvallur district has increase in waste generation. The general public should be responsive of the separation at the disposal level itself. The administrative body of the study area is not able to solve the mounting problems of throw away and hygiene with its available infrastructural facilities and also with the negligence. They should be given proper training to store wet throw away and dry throw away separately. The separated dry throw away and wet throw away should be collected from the houses individually in order to enhance the efficiency of management. In the study area it is difficult in the recent years because of the rapid urbanization. In the stations the collected dry throw away and wet throw away should be separated again. Natural method should be used for the biodegradable throw away. The waste plastic and polyethylene plastics should be sent to the plastic recycle centers, waste papers should be moved to the pulp factory and printing presses and collected waste cloths should be properly used as required. The necessary suggestions will be given based on the study and observation made in the study area.

Total Solid Waste Generated per Day in the Town	32 Metric Tons
Total Solid Waste Cleared per Day	2 Metric Tons
Number of Compost Yards Available and Extent	2
Number and Type of Vehicle used Lorry / Tractor / Compactor	Lorry - 1 Tractor -3
Carrying Capacity of all Vehicles per Trip	Lorry - 2.5 Metric Tons Tractor - 2 Metric Tons

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