

The rapid increase in economy and world population along with the expectations of a luxurious lifestyle has expanded the municipal waste generation, causing its management to be a leading worldwide problem. The issue is considerably more alarming in the urban areas as ill-advised waste management prompts disintegrating the quality of soil, water, and environment, which make general health hazards. These issues of waste removal and management were generally surveyed by conventional techniques, which require heaps of data. General health of occupants has been influenced by the expansion of unstable waste management in the urban areas of agricultural nations. Solid waste management has become a broad consideration from the municipalities. A reasonable arrangement and plan of solid waste management of a city require precise forecasting of the solid waste generated and gathered by the city experts in the landfill for conclusive removal and other environmentally friendly power alternatives.

Urbanization has taken forward a few illnesses enduring to mankind, other than getting economic and social development its crease. Due to weight of urbanization, the vast majority of the urban community zones are developing quickly. Modernization and progress have had a lot of inconveniences and one of the primary concerns is the contamination it is causing to the earth be it land, air or water. In the non-industrial nations, the deficiency of fundamental waste data is a critical impediment for municipal solid waste management. To assess a powerful waste management plan, recognizable proof of affecting financial elements and projection of municipal solid waste generation (MSWG) assumes an essential role. However, a few forecasting techniques have been used to measure future MSWG.

The recent development in the new software technologies and internet along with the introduction of gradually more compact and dependable hardware products have presented the ability to accurately deal with these procedures more easily than tedious field experiments. This work presents an outline of the utilization of different scientific models in solving the environmental problems of municipal waste disposal.

The investigation of past literature survey divulged that frequently optimization of models were used to identify the solution of “Better way to disposal” under a clear arrangement of environment key indicators, while simulation models were usually supportive to find the answer for “What if” because of their predictive fitness. A sign of the municipal waste removal issues and its management close by the consequences of the examination is given. In addition to this, the reasoning and background of the waste removal issues are represented. The utilization of improvement displaying, multi-target approach, multi-criteria decision analysis, and artificial neural networks in waste management are introduced and uses of these demonstrating strategies in different contextual analyses are described.

The characteristic data in the current investigation comprises of value of the materials used, durability of the frequently used materials, solid waste age rates, ground water levels, ground accessibility data and ground water quality data procured from different government associations like Tamil Nadu Pollution Control Board (TNPCB), Central Ground Water Board, Bureau of Economics and Statistics (BES), Erode municipality Corporation (EMC).

In view of the zone perceptive population, the assessed amount of solid waste generated in the Erode region is around 250 tons/day. It is being unloaded at the dumping yard Vendipalayam and Vairapalayam situated in the midst of local villages. The per capita waste age rates in Erode are 0.372 kg/day in 2018 and 0.424kg/day in 2018. In Erode, the solid waste removal site Vendipalayam is on the western side of the city with a normal separation of 1km from the city. As of now, they are not rehearsing any logical handling and removal of solid waste. The solid waste gathered is being shipped to the Vendipalayam removal site where the waste are dumped within any suitable procedure.

The amount of waste generated in the city is as of now 260 tons for each day and it is expected to rise 493 tons/day continuously 2025. The satellite sensors of ETM+ (Enhanced Thematic Mapper) sensors of 8-band LANDSAT-7 satellite data are utilized

for the age of topical layers. The significant settlements in the current investigation zone involve the territories of Kongapalayam, Ellappalayam, Gangapuram, Manammankovil, Nasiyanur, Chithode, Sellappampalayam, Settupalayam, Karundevenpalayam, Nanjanapuram, Koorapalayam, Kanjikoli and Suriyampalayam zones.

The developed model has been developed to find the optimum route for disposal waste from residents to dump site. It can be used for finding the shortest path, demographic and ecological condition for site suitability. The result of the proposed model shows that, it saves the travelling time from collection point to disposal site up to 32.5%. The outcome shows that the innovative proposed method of landfill territory assessment by SMCE and last removal strategies can be utilized then again that helps for better arranging and management of the landfill site.

In the study, an Artificial Neural Network (ANN) surrogate model was used to predict solid waste collected from the five years in Erode municipality. In the last few months, solid waste quantity and vehicle trip number getting from weighbridge were used as input data into the model. Seventy five per cent of the data was used for the model training, 15% of the data was used for validation and 10% of that was used for testing. The shortest path of disposal site was obtained as a result of the developed model. The ANN based route optimizing model performed to be promising using the previous data and available weighbridge data with the coefficient of determination (R^2) for training and testing values are 0.91 and 0.92 respectively.

The study recommended that, the Erode municipal corporation should take the following actions for better solid waste management. The municipal corporation of Erode should take actions to implement segregation of waste in all four zones, door to door collection should be implemented, replacement of existing handcarts for collection of waste by containerized handcarts and to increase the number of collection system vehicles and increase the facility of trash bins by providing an adequate number on most of the tracks and composting and vermin composting plant should be provided.