

Evaluation of current Waste Collection Practices in Saharanpur City

Arvind Kumar Arora

Research Scholar

School of Agriculture & Sciences,

Shobhit University, Gangoh,

Saharanpur

Email: arvindarora.sre@gmail.com

Dr. Mohd. Vaseem

Assistant Professor

School of Agriculture & Sciences,

Shobhit University, Gangoh,

Saharanpur

Abstract

The composition of Municipal Solid Waste varies greatly from place to place and from time to time, it predominately includes food waste, household waste market waste, packaging materials, and products which are no longer use full. The sources can be residential, commercial, institutional, and industrial waste, In the definition of municipal waste, industrial waste, agricultural waste, medical waste, radioactive waste, or sewage sludge is not included.

Keywords: *ULB, Waste Composition, Quantification, Street Sweeping, Waste Mixing Segregation, SMC Saharanpur Municipal Corporation, MSW.*

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**Arvind Kumar Arora,
Dr. Mohd. Vaseem**

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Introduction

Saharanpur is a Nagar Nigam in Saharanpur district in the state of Uttar Pradesh and it is also the administrative headquarters of Saharanpur District and spread over an area of 3,689 sq. Km with a total population of 7,05,478 out of which 371,714 are males while 333,738 are females, as per report released by Census 2011. The Nagar Nigam is divided into 70 wards, for which elections are held every 5 years.

The earliest habitats were found as early as 2000 B.C. Traces of Indus Valley civilization and even earlier are available and now it can be definitely established that this region is connected with Indus valley civilization. Ambakheri, Bargain, Naseerpur, and Hulas were the centers of Harappa culture because many things similar to Harappan civilization were found in these areas. From the days of the Aryans, The history of this region is traceable in a logical manner but it is difficult at present to trace out the history and administration of the local kings without further exploration and excavations. The history of the area goes back to ages. With the passage of time, its name changed rapidly. During the region of Iltutmish Saharanpur became a part of the Slave Dynasty. Muhammad Tughlag reached northern doab to crush the rebellion of Shiwalik Kings in 1340. There he came to know about the presence of a Sufi saint on the banks of the 'Paondhoi' river. He went to see him there and ordered that henceforth the place should be known as 'Shah-Harunpur' by the name of Saint Shah Harun Chisti.

Akbar was the first Mughal ruler who established civil administration in Saharanpur and made it 'Saharanpur-Sarkar' under Delhi province and appointed a Governor. The Jagir of Saharanpur was honored to Raja Sah Ranveer Singh who founded the city of Saharanpur. At that time Saharanpur was a small village and served as an army Cantt area. The nearest settlements at that time were Shekhpura and Malhipur. Most of the part of Saharanpur was covered by forests and 'Paondhoi' 'Dhamola' and 'Ganda Nala' (Kregi Nala) were Swampy/Marshy. The climate was humid hence it was prone to malaria.

The city which Sah Ranveer Singh founded was surrounded by 'Nakhasa', 'Rani Bajar', 'Shah Bahlol' and 'Lakhi Gate' along the 'Paondhoi' River. Saharanpur was a walled city and had four gates:

1. Sarai Gate
2. Mali Gate
3. Buria Gate
4. Lakhi Gate

when we survey and enter Chaudarianmohalla (locality). The ruins of the fort of Sah Ranveer Singh can still be seen in the Chaudharian locality. Saharanpur passed to the British in 1803. The founders of DarulUloom Deoband, actively participated in the rebellion, Organized the masses outside Delhi, and, for a while, were successful in ousting the British authority from the area of their operation. The center of their activities was Shamli, a small town in the present District of Muzaffarnagar.

After 1857, The cultural and political history of Muslims revolved around Aligarh and Deoband. Kasim Nanautavi represented Deoband. Deoband represented opposition to the British, Favoured Indian Nationalism, Hindu Muslim unity, and united India. Deoband supported the revolutionary ideas of Shah Waliullah that were responsible for social and political awakening. Maulana Nanautavi and Maulana Rashid Ahmad Gangohi established a school in Deoband in 1867. It became popular by the name of DarulUloom. They wanted to achieve religious and social consciousness through peaceful methods. Deoband Madarsa was making efforts for the Muslims awakening and was promoting nationalism. Thus the district became the center of activity of Deoband School Ulama. The school played an important role in the revolutionary activities organized to turn out the British from India. The spirit showed in the Mutiny of 1857 continued unabated. The famous revolutionary Maulana Mahmudul Hasan was the first student of the Madarsa. The Socio-Economic Development And Environmental Degradation have become inseparable entities' of modern lifestyle, newly invented plastics, alloys, agrochemicals, and scores of other materials that provide comfort and means of coping with the pressure of our daily life has been responsible for the generation of a variety of pollutants and wastes, no wonder management of wastes has become a priority issue in all over the world. All major cities have witnessed, in the last two or three decades. An enormous rise in the generation of solid waste, a mixture of all imaginable constituents inserts relative toxics.

Saharanpur city has both an open drainage system and as well as underground drainage system most of the open drains are new, sludge also flows in these open drains. Due to a lack of awareness and uncaring attitude on part of citizens, solid waste is being dumped in drains that generally results in blockage of the drains. The underground system is very old. It covers only 35 percent of the city having overall functioning efficiency of 30 percent. Waste collection and processing are performed by the Urban local body ULB/Local Authority LA in the area under its jurisdiction, Waste disposal needs scientific standards otherwise it is seriously detrimental efforts

on human health and the environment. Improper waste management is one of the main causes of environmental pollution. The World Health Organization (WHO) has observed 22 types of diseases are associated with improper management of municipal solid waste. In India 3.35% annual growth in the Urban population. Due to fast Urbanization, 94 percent of the total waste collected is disposed of Unscientifically (Zhu et.al. 2008).

Present MSW Collection System In Smc

There are approximately 140000 households at present in Saharanpur and approx. 300 MT tons of waste generated daily. To dispose of household waste safely and cost-effectively. SMC launched a working model with the help of some NGO's and private collectors. The working model of the Project has developed a model that reduces the burden of landfilling and helps in recycling/ recusing of biodegradable and recyclable waste. The Project covers nearly 60,000 households in Saharanpur. The model is one of the doors to door collection of waste, six days a week. Each waste collector covers 225-250 households daily in the morning session. They move around in a Rickshaw trolley carrying two plastic bags- one for recyclable waste and the other for biodegradable and non-reliable waste. Thus, primary segregation of the waste is lone at the household level. Households are made aware of the importance and process of primary segregation.

To separate the non-recyclable and biodegradable waste, secondary segregation is done at the waste management site. The biodegradable waste is then processed to make organic compost. The recyclable waste is sold to private vendors and non-recyclable waste is transported to landfills. Therefore, nearly 85% of the total waste is recycled or reused and only 15% none recyclable goes to landfills.

Working on the Principle of treatment closer to the generator or decentralized waste management system, two-piece of land sites have been developed close to the collection points to reduce the large expenditure on transportation. The collection, segregation, and transportation of waste not only reduced the cost for MC but also reduce its workload. The project program is being scaled up to cover the entire city, with the municipal corporation's support. It now plays the role of a facilitator instead of the service provider.

The self-sustaining nature of the program makes it viable in the long term. The success of this initiative lies in the fact that the elected Municipal Councillors Contribute by creating awareness among people and motivating them to pay the user charges. Moreover, it is involved the community and local government bodies by following the people's Public-Private Partnership model ensuring the achieved

participation of people and civil society representatives and accountability of the implementing agency is maintaining cleanliness.

Principal Deficiencies in SWM Services of Saharanpur city

Some of the key deficiencies found in solid waste management in the city are as follows. At present, the entire system in practice in the greater part of the city is unscientific and unhygienic causing serious problems of health and environmental degradation through air, land, and water contamination.

- a) Negligible storage of waste at source.
- b) Minimal segregation of recyclables.
- c) Partial primary collection from the doorstep.
- d) Street sweeping is carried out on an irregular basis.
- e) Waste storage depots are open and unhygienic.
- f) Transportation of waste is mostly carried out manually in open tractors and/or truck.
- g) Minimal processing of municipal solid waste is carried out.

Disposal of waste is done in an unscientific manner at a dumping ground where waste is allowed to decay and burn. The waste is neither spread nor covered.

Functional Elements of the Waste Management System

There are six functional components of the waste management system as outlined below:

1. Waste generation refers to activities involved in identifying materials that are no longer usable and are either gathered for systematic disposal or thrown away.
2. Onsite handling, storage, and processing are the activities at the point of waste generation which facilitate easier collection. For example, waste bins are placed at the sites which generate sufficient waste.
3. Waste collection, a crucial phase of waste management, includes activities such as placing waste collection bins, collecting waste from those bins, and accumulating trash in the location where the collection vehicles are emptied. Although the collection phase involves transportation, this is typically not the main stage of waste transportation.
4. Waste transfer and transport are the activities involved in moving the waste from the local waste collection locations to the regional waste disposal site in large waste transport vehicles.

5. Waste processing and recovery refer to the facilities, equipment, and techniques employed both to recover reusable or recyclable materials from the waste stream and to improve the effectiveness of other functional elements of waste management’;
6. Disposal is the final stage of waste management. It involves the activities aimed at the systematic disposal of waste materials in locations such as landfills or waste-to-energy facilities. Some of the issues which are applicable to the existing solid waste management system are highlighted below:
 - Absence of any systematic waste collection and segregation process with complete coverage.
 - Absence of any waste processing and treatment facility
 - Open disposal of waste near to the roads and in open drains
 - Generation of bulk quantity of waste during festive seasons and uncontrolled disposal of waste at the source of generation itself
 - Absence of sufficient manpower and suitable infrastructural facilities for waste management
 - No waste management practices for waste
 - Lack of awareness among people towards waste management
 - Based upon this above condition, a need for the development of an Integrated/Regional Solid Waste Management Facility has been recognized. The paper will comprise of a proper collection, transportation, treatment, and disposal facility for the Saharanpur cluster.

Reasons for Inefficient SWM Services

In our country, some of the key reasons attributed to inefficient SWM services in a small town (e.g. Saharanpur) are a result of lack of community participation, the apathy of the political leadership and municipal officer, low productivity of labor, strong labor union having political patronage, indiscipline among the workforce, inept handling of labor issue, virtual lack of supervision and control, and lack of human and financial resources. Saharanpur Nagar Nigam (SNN) is not able to raise adequate financial resources through taxation or levy of user fees. The recovery mechanism is inefficient and a large number of properties within a municipal boundary are presently not accounted for in the record book, the financial resources are, therefore, limited and often not utilized judiciously for the improvement of essential SWM services. It is evident from the survey that only 18 percent of the latrines are connected to sewer and 53 percent to septic tank. In all the socio-economic groups existence of a dry pit,

the latrine was found and the overall percentage was as high as almost 20. Some were found to polluting water bodies in LIG and slum locations. There are a few public/community toilets in the city as reported by 4 HHs. But only 40 percent were satisfied with the facilities.

Traditional SWM Model: Saharanpur

Saharanpur city has 70 wards and the city divided into four different zones, Zone No 1 has 17 wards, Zone No. 2 has 24 wards, Zone No. 3 has 15 Wards and Zone No. 4 has 14 wards. Zone system for easier management and planning of MSW with one supervisor in charge of each zone. For segregation of household waste indicative bins are placed at various places of the city. For Wet waste green bins and Dry waste blue bins with different classifications of waste.

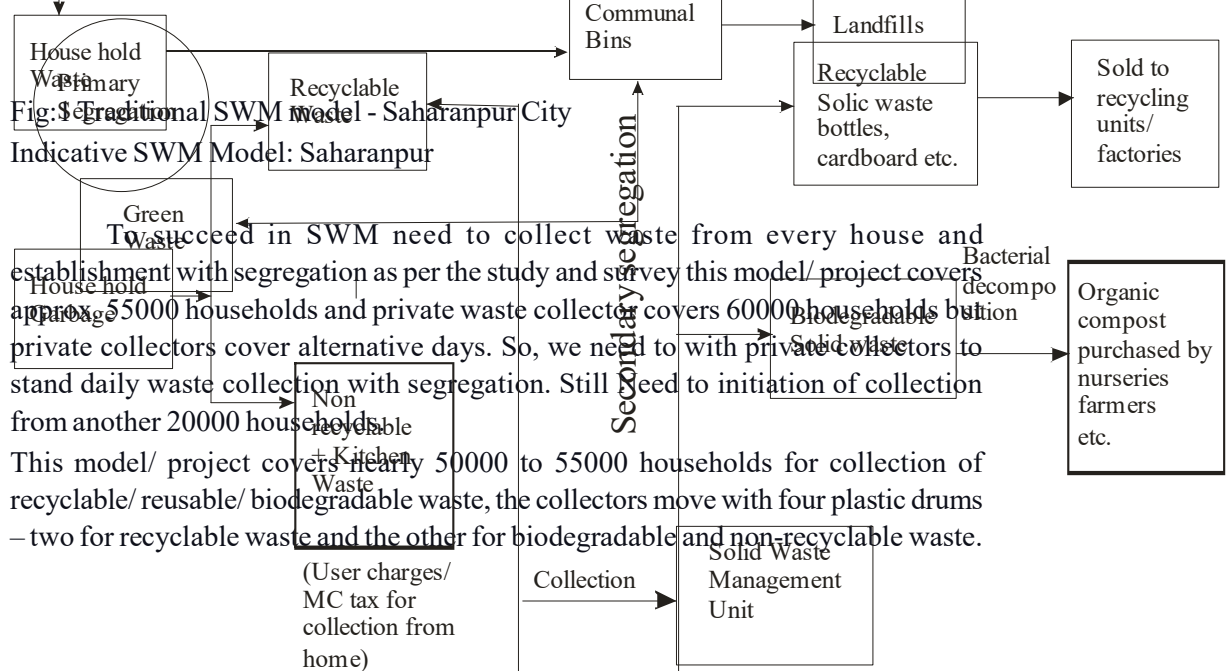


Fig:2 Indicative SWM model - Saharanpur City

Conclusion:

The term segregation in municipal solid waste management system indicates separation and storage of individual contributes to waste material. The main objectives of segregation are (a) Storing of recyclables separately for reuse (b) Storing of organic portions separately for further processing and (c) waste minimization for

final disposal to landfill sites. Above discuss current practices in Saharanpur city based upon the two parameters.

1. Segregation of Source: This option requires waste generators to segregate waste at source into biodegradable (wet) and non-biodegradable (dry) waste and to store waste effectively in appropriate containers, also, suitable bins/bags for hazardous waste.
2. Segregation at processing/disposal facility: In this option waste is not segregated at source and all wastes are collected through the common waste collection system. The waste is segregated at treatment/ disposal facility for Pre-sorting of waste for appropriate treatment, recover recyclable materials, and reduce, the burden on landfill facility.

Segregation at source has advantages are help channelizing different waste streams for reuse, recycling processing or disposal, and reduces cross-contamination of waste and its disadvantages are, increase in manpower and cost for infrastructure, requires significant community participation/ effort, and segregation will require significant education. Segregation at processing/ disposal facility has advantages are reduced manpower and infrastructure cost, easy to implement, and increased efficiency through reduced handling and logistical requirement and its main disadvantages is the recovery of recyclable material is significantly less.

In both options, some factors and issues to be considered are mainly, cost-effectiveness, health, and safety, environmental appropriateness, effectiveness, public acceptance, efficiency.

Segregation of waste at source must be accorded the highest priority. However, it requires significant community participation efforts and behavioral change in the citizens of Saharanpur city to successfully implement it. To effective such changes within the society takes a long time and it is difficult to implement segregation of waste of source from day one. It is also observed that recyclable materials with significant value normally do not reach the waste stream and one collected separately through the already existing informal recycling system. It is therefore recommended to adopt more practices about the focus on awareness generation and community participation for the total coverage of city areas.

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