International Journal of Applied Social Science
(An International Double Blind Peer Reviewed / Refereed Research Journal of Social Science)
Volume 11 (5 & 6), May & June (2024) : 193-195
Received : 10.04.2024; Revised : 24.04.2024; Accepted : 10.05.2024

RESEARCH PAPER
ISSN : 2394-1405 (Print)
DOI: 10.36537/IJASS/11.5&6/193-195

Study on Current Scenario of Solid Waste Management in Sikar City

PREM*[1] AND SABIHA KHAN[2]
[1]Research Scholar and [2]Assistant Professor
Department of Geography, Mohanlal Sukhadia University, Udaipur (Rajasthan) India

ABSTRACT

Solid waste management is a huge issue that affects people all over the world. This global issue is equally prevalent in Sikar. Sikar is in Rajasthan's north-eastern region. According to the 2011 census, the city has a population of around 26,77,737 people. It is Rajasthan's sixth most populous city. Solid Waste management is a critical concern for everyone all over the world. Inadequate treatment and solid waste pose a major hazard to both the environment and human health. Things that are alive. This is a worldwide issue; it is in the city of Sikar. The sociological survey is carried out to identify the challenges and opportunities for solid waste management in Sikar. Implemented a large-scale investigation, on the current study focused on the collection, transportation, management, storage, disposal, and treatment of solid waste generated in the city of Sikar. The data acquired related to SWM was collected Sikar Municipal Corporation

Keywords : Solid waste management, Solid waste, Municipal Solid waste management

INTRODUCTION

As population increased rapidly urbanization, industrialization and solid waste management are the major problem we are facing today. Waste is generated continuously in every single way from our daily activities. Solid waste is generated from domestic, agriculture, commercial and industrial activities in the city. MSW is classified into several categories, including food waste, trash, commercial garbage, institutional waste, street sweeping waste, industrial waste, building and demolition waste, and sanitation waste (Rao, 1988). MSW contains recyclables (paper, plastic, glass, metals, and so on) as well as dangerous chemicals (paints, pesticides, old batteries, and medications), compostable organic matter (fruit and vegetable peels, food waste), and dirty trash (blood-stained cotton, sanitary napkins, and disposable syringes) (Jha *et al.,* 2003; Reddy and Galab, 1998; Khan, 1994; Singh, 2001). A large number of wastes are dumped openly, around homes, market places, by the road side and on any piece of open land. These wastes find their way into drainage system and other water sources and this has resulted a serious pollution in the city. Solid waste management and disposal is a pressing issue facing us today, 90% of waste currently disposed of by open dumping (Schafer, 1976).

According to the CAG report, the Govt. of Rajasthan released Rs. 292.81 crores for SBM (Swachh Bharat Mission) in Rajasthan to ULB (Urban Local Bodies) in 2020-21 but ULB could use only 21% of it and the rest was unused. Shekdar (1999) has reviewed municipal solid waste management (SWM) in Indian context and noted that the Indian municipalities, responsible for variety of public services, offer low priority to SWM system. If SWM is disrupted, it has a potential threat to public health (Solid Waste Management Rules, 2016).

The average per capita solid waste generation of 0.35 kg per person per day has been reported for cities and towns having a population of 2-5 million (Shekdar 1999; Board, 2008). Kripalani *et al.* (2005) MSW is classified into several categories, including food waste, trash, commercial garbage, institutional waste, street

How to cite this Article: Prem and Khan, Sabiha (2024). Study on Current Scenario of Solid Waste Management in Sikar City. *Internat. J. Appl. Soc. Sci.,* **11** (5&6) : 193-195.

sweeping waste, industrial waste, building and demolition waste, and sanitation waste. MSW contains recyclables (paper, plastic, glass, metals, and so on) as well as dangerous chemicals (paints, pesticides, old batteries, and medications), compostable organic matter (fruit and vegetable peels, food waste), and dirty trash (blood-stained cotton, sanitary napkins, and disposable syringes) (Jha *et al.*, 2003; Reddy and Galab, 1998; Khan, 1994).

The Sikar city has some small-scale industries, many educational institutions and commercial establishments. Sikar Municipal Corporation is responsible for community solid waste management system of the city. The present paper deals with the characterisation of solid waste and its management system in the city.

METHODOLOGY

Secondary data regarding the solid waste generation collection system and disposal methods were collected from Sikar Municipal Corporation (SMC).

RESULTS AND DISCUSSION

Sikar Municipal Corporation is responsible for the management of solid waste generated in the city.

According to SMC, 138 tons per day (TPD) waste is generated in the city. Major sources of solid waste generation are given in Table 1. Waste generation rate works out to be 0.30kg per capita per day.

The various waste generating places in Sikar city are mainly households, vegetable markets, food grain markets, shops and commercial establishments, industrial waste, construction waste, hotels and nursing homes, and butcher houses besides the individual homes.

Collection system:

The solid waste is collected from different sources/ establishments by various methods. The domestic and trade waste is being collected through street sweepings. SMC has placed 150 dust bins of 30-L capacity and 100 containers of 1 m^3 capacity in the city for collection of solid waste. The city has government and private hospitals, nursing homes and clinics. SMC has setup a waste disposal system based on common treatment facility for management of the biomedical waste (BMW).

Transportation:

Transportation of solid waste is carried out partially by SMC and partially by private contractors. SMC is responsible for transportation of about 30-35% of solid waste generated, while the private contractors are responsible for the rest 65-70% waste. The solid waste is collected temporarily in dust bins and then transported to disposal sites. Types of vehicles used for transportation of solid waste are as follows:

Tractor tippers	20
Tractor trailers	2
Refuse collectors	5
Dumper places	5
Front end Loaders	10
Excavator loaders	2

Source: Sikar Municipal Corporation

Lifting of garbage is done manually as well as by loaders. The waste collected from the roads and other places is directly transported to the final dumping site. The refuse vehicles have to travel through the city to carry waste up to the landfill sites. The tractors and dumpers carrying the waste are not covered during the journey and waste tend to spill on roads. Most often the workers are not provided with hand gloves and shoes so they are directly exposed to the wastes. Protective measures are necessary to avoid different skin and respiratory diseases. The unloading of waste is done through mechanical system so there is no direct contact of workers with waste.

Disposal of waste:

Disposal sites for waste are out of the city at Palwas Road and Nearby Railway Station. Sewage farm site is being used as dumping ground. The site is not provided with any fencing facility (Table 1 and 2).

Table 1 : Sources of Solid Waste generation in the Sikar

Sr. No.	Sources of Solid Waste Generation	WG per day (TPD)
1.	House Holds	60
2.	Grain and vegetable markets	25
3.	Shops and Commercial Establishment	15
4.	Industrial Waste	10
5.	Construction and Demolition Waste	15
6.	Hotels and Restaurants	13
Total		138(TPD)

Source: Reports Sikar Municipal Corporation

Municipal solid waste management in Sikar city:

An attempt was made to project the quantity of solid

Table 2 : Composition of Solid Waste in Sikar

Sr. No.	Constituent	Share (in %)
1.	Plastics	7.15
2.	Food waste	46.40
3.	Paper products	9.13
4.	Wood	1.14
5.	Rubbers	1.26
6.	Foliage	5.78
7.	Textiles	5.75
8.	Inert Material	23.39
Total		100.00

Source: Reports Sikar Municipal Corporation

waste generated in the city up to year 2021 and land required for disposal by landfills based on the assumptions that there is an increase in MSW generation rate of 1.7% per annum with an average depth of filling of 3 m in land fill and 1 MT of compact waste occupying 1 m^3 volume. The results are presented in Table 3.

Table 3: Estimated MSW generation and area required for disposal in future

Year	Expected population	Expected (kg/capita/day)	MSW tones/day	Are required in (hecture)
2001	2287788	0.25	98	10
2011	2677333	0.28	120	13
2021	3060000	0.30	138	20

Municipal solid waste (MSW), projected scenario:

The 2001 census population of Sikar is 22.87 lakh and it is expected to rise to about 30.60 lakh by year 2021. At present 138 MT solid waste is generated with per capita waste generation rate 0.30 kg per day.

Conclusion:

Based on the Secondary data, it can be concluded that 138 TPD SW generated by the people of Sikar. The present work reveals that there is no proper way for the management of SW in the city. No procedure used for the segregation of solid waste. When the waste is not separated properly it leads to less recycling because it is not easy to remove materials later for recycling. All the SW dumped at open dumping ground by open dumping method. Bio-medical waste and municipal waste dumped together. Which is a very serious health hazard. Bio-medical waste needs to be collected and treated separately. There is no scientific method adopted during the handling of SW. The authorities should monitor the whole process and take necessary steps to streamline it so that it can be used to generate electricity.

REFERENCES

Board, C.P. (2008). Status of MSW Collection, Treatment & Disposal in and around Ajmer city.

Central Pollution Control Board (2017). "Consolidated Annual Review Report on Implementation of Solid Wastes Management Rules, 2016.".

Jha, M.K., Sondhi, O.A.K. and Pansare, M. (2003). Solid waste management a case study. *Indian J. Environmental Protection,* **23** (10), 11531160.

Khan, R.R. (1994). Environmental management of municipal solid wastes. *Indian J. Environmental Protection,* **14** (1) : 2630.

Kripalani, C., Jain, N. and Bassin, J.K. (2005). Municipal and solid waste management in Jaipur city: An overview. *Nature Environment & Pollution Technology*, **4**(1) : 143-148.

Rao, G.K. (1998). "Recycle and Reuse of Municipal Solid Waste: An Economic proposition for a developing Nation India", *Journal of Environmental Protection*, **8**(1) : 57-59.

Reddy, S. and Galab, S. (1998). An Integrated Economic and EnvironmentalAssessment of Solid Waste Management in India – the Case ofHyderabad, India.

Schafer, B.M. (1976). Disposing of the Municipal Solid Waste by pyrolysis process, *Environmental Science & Technology*, **9**(2): 71-78.

Shekdar, A.V. (1999). Municipal solid waste management. The Indian perspective. *Journal of MEM*, **27**: 100-108.

Singh, Amit (2001). "Municipal Solid Waste Management in current Status and way" .

Solid Waste Management Rules (2016). Ministry of Environment, Forest and Climate Change, Govt. of India.

****