

SOLID WASTE MANAGEMENT OF KARNAL TOWN IN HARYANA STATE (INDIA) - A CASE STUDY

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Abstract

The Urban Solid Waste management has been an ever increasing civic problem of the modern world. Modern living standards and better economic conditions of the residents further increase the amount of urban solid waste. Thus, an effort was made to study the problems of solid waste management of Municipal Corporation of Karnal.

Karnal is a district head quarter located at 29.68° N 76.98°E. It has an elevation of 235 to 250 meters above Sea level. Karnal Municipal Corporation has an area of 86.96 sq. km. This town is said to have been founded by Karan, a key figure in the epic Mahabharata. It is mid way between Delhi and Chandigarh on the National Highway No.1 and Delhi-Ambala- Kalka railway line. As per 2011, census population of Karnal is 2,92,084 and average literacy rate is 86.32per cent. Hindi and Punjabi are the major spoken languages.

Karnal is very famous for its internationally known Dairy and Agriculture Research Institutes. The area is also famous for production and export of high quality Basmati Rice. It is prosperous area in Haryana. As per Municipal Corporation sources about 150 metric tons of solid waste is generated daily. The solid waste is dumped at 108 Sites by the residents. In town area individual residents arrange to dump their solid waste. However, in HUDA (Haryana Urban Development Authority) sectors Residents Welfare Associations authorize contractor to collect solid waste from individual houses at a fix monthly rate.

For cleaning the town and lifting the garbage- 298 sweepers are engaged, At present about 100 hand driven carts, 6 tractor trolleys, 2 dumpers and one automatic road cleaner is used. Though municipal authorities claim the efficient lifting of the municipal solid waste (MSW) However, social organizations and residents were not found satisfied. Stinking heaps of M.S.W. near dustbins can be seen at so many

places. A modern solid waste management plant is under construction at Shekhpura Suhana village and it is hoped that it will become functional in near future. Processing of MSW may increase the source of income for the Municipal Corporation and better environment for the residents of Karnal.

In March, 2013 Dera Sacha Sauda, Sirsa volunteers in association with local NGO's and Karnal administration started a one day drive to clean entire Karnal town. It was a very successful campaign. Thus it can be easily visualized that for efficient management of urban / rural areas public participation is an effective tool.

INTRODUCTION

Municipal Solid Waste (MSW) management is major environmental problem all over the world. It is well established that per capita MSW generation of poor people (0.2kg/ day) is much less as compared to rich person (0.6kg/day). In last two decades packaging of all most all consumer products has become common. Thus disposal of such packing materials especially non- bio-degradable polythene have caused serious problems. Diverse nature of the urban garbage is another matter of concern. Urban solid garbage is potential raw material for compost and energy. Part of it can be recycled and reused. Presently apathetic behavior of public and municipal authorities towards MSW disposal is a matter of concern. Limited finance and beaurocratic functioning of municipal corporation authorities further aggravate the problem of garbage management.

STUDY AREA: - KARNAL MUNICIPAL CORPORATION

KARNAL PROFILE

Karnal is said to have been founded by Karna a key figure in the epic Mahabharata. Paddy, wheat, sugarcane and other vegetables and fodder crops are grown by the farmers of this district. Basically, Karnal town is situated between two important canal system of Yamuna, Western Yamuna canal situated on western margin of the town and Yamuna Augmentation canal on the eastern side. Area is known for its lush green fields and **BASMATI** rice, which is exported all over the world. Karnal town is also known for the International Research Organizations like National Dairy Research Institute (NDRI), National Beaur of Animal Genetic Recourses (NBAGR), Central Soil Salinity Research Institute (CSSRI), Directorate of Wheat Research (DWR) and

Regional Stations of Indian Agriculture Research Institute and Sugarcane Breeding Institute etc., are situated here. Economic condition of the residents of Karnal town is better. Agriculture implements and shoes are main industrial products of the town. Present population of the town is 2, 92,084. Total number of households are 63, 280. Literacy rate of town is 86 percent On 17th March, 2010 status of Karnal Municipal Committee was raised to the Corporation level. Now it is known as Municipal Corporation Karnal. Surrounding 15 villages have also been included in it. Corporation is managed by 20 M.C's, and one Mayor selected from them. Presently Mayor's chair has been reserved for ladies.

LOCATION

Karnal town is situated between Delhi and Chandigarh on National Highway –I (NH-1). Delhi – Ambala, Kalka/ Amritsar Railway Line also passes through it. Exactly it is located at 29.68°N76.98° E at an elevation of 235 to 252 meters above mean sea level. Karnal Municipal Corporation is spread over 86.96 sq Km. area.

CLIMATE

Climate of the Karnal town can be classified as sub- tropical continental monsoon type. In study area, the mean monthly temperature ranges from 14⁰C (January) to 33⁰C (June).

RAINFALL

Karnal town receive rainfall from South- Western winds mainly in the months of June to September. July and August are the months during which the highest rainfall as well as maximum continuous rainfall occurs.

OBJECTIVES OF THE STUDY

- i. To find out the general information about Karnal Municipal Corporation and the present system of MSW collection and disposal.
- ii. To study the quantity of MSW generated in the town.
- iii. To know the composition of the solid waste generated in Karnal
- iv. To survey physically the ground status of the MSW lifting and processing in municipal areas.
- v. To know the views of the public.
- vi. To assess the level of understanding of the community/ groups on environmental degradation by municipal solid waste.

METHODOLOGY

Authorities involved in MSW management of Karnal were contacted personally for collection of data. Municipal areas were visited and problems were discussed with social organizations and concerned NGO's.

AGENCIES INVOLVED IN SOLID WASTE MANAGEMENT

SR.	AUTHORITY	AREA OF WORK
1	Haryana Urban Development Authority (HUDA)	All sectors developed by HUDA
2	Research Institutions	Their own residential and office areas .
3	Karnal Municipal Corporation	Entire Karnal town other then 1 and 2 areas

TYPES OF SOLID WASTE

Following types of solid wastes are generated in Karnal town

1. Household waste including kitchen waste.
2. Waste generated by vegetable markets, fish and meat markets.
3. Waste generated by workshop/ garages and electronic shops.
4. Commercial waste (Hotels/ Shops /Institutions).
5. Waste collected by sweeping of roads.
6. Drains sedimentary sludge, silt, plant residues and carcasses of dead animals.
7. Broken glasses, metal pieces and building materials.

PRESENT RESOURCES FOR SOLID WASTE MANAGEMENT

The Municipal Corporation is divided in to 19 beats for roads/ drains cleaning and garbage disposal. A team of 298 sweepers under the supervision of 02 Sanitary Inspectors work for this job. Tractor, trolleys, wheel barrows are used for collecting garbage from households and market areas. For lifting the garbage six tractor trolleys and two dumpers are used, lifting of garbage from dustbins to dumping sites is arranged by contractors.

GARBAGE COLLECTION METHODS

1. Residents themselves and/or municipal staff collects and dispose of household garbage at local dumping sites.
2. In HUDA sectors Residents Welfare Associations engage contractors for collecting garbage from individual houses at a fixed cost. Presently each household is paying Rs. 50/- per month for garbage collection and disposal. Roads garbage is collected & disposed of by contractors.
3. In research institutions individual household owner dispose off their garbage in dustbins, placed at suitable sites. Their staff or contractors further lift the garbage from residential/ office areas for final disposal to a designated site.
4. Sensitive hospitals waste is collected by contractors for incineration.

ROADS CLEANING

In municipal and HUDA areas roads are cleaned by the staff or contractors. Garbage collected from roads is also dumped at nearby dumping sites. One automatic mobile road cleaning machine is in operation in Karnal. Sludge sediment of sewer lines is usually heaped near sewer main holes for drying. Usually it is not lifted in an appropriate manner.

SEGREGATION OF SOLID WASTE

Segregation of the MSW in HUDA areas is done by the sweeper initially at the household level. At household stage, they segregate saleable, recyclable and reusable portions. Remaining garbage is dumped at dumping sites. In Municipal areas segregation is done by the rag- pickers from the dumping ground / dustbins.

SOLID WASTE DUMPING SITES IN THE TOWN

In HUDA areas household garbage is dumped at six open sites, Dustbins are not placed in these areas. In municipal areas garbage is dumped at 102 sites either in open or in dustbins. Dustbins are placed on the sides of the main roads. Residents do not allow municipal authorities to put dustbins near their houses. Non recyclable polythene materials create environmental problems near dumping sites

SOLID WASTE DUMPING SITES/ LAND FILLS

Two major sites have been earmarked one at Shekpura Suhana Village on Meerut road and another near Indira Colony (across the railway line) on Hansi Road where two solid waste processing plants are to be established. One such plant has come up on Meerut road at the cost of rupees 16 crore. But it has not become functional due to administrative reasons. Approximately 55 thousand tons MSW has been deposited near this plant which is causing environmental pollution. During rainy season problem becomes unbearable. Methane, hydrogen dioxide, oxide of nitrogen and sulphur dioxide gases released from the waste are proving health hazards. Toxic chemicals secreted from the deposited MSW are also polluting soil and ground water. Permission

for the sale of compost has not been granted yet. Another such plant is proposed on 9 acre area costing about Rs.33 crores at Hansi Road site.

PUBLIC PARTICIPATION IN MSW MANAGEMENT

- i. Few years back under “Yamuna Action Plan” an awareness campaign was launched in ward No. 20 of Karnal municipal areas by Citizens Grievances Committee, Karnal with the help of district administration. It was executed very successfully. All the areas of ward 20 were cleaned and entire waste was disposed off at proper places. The programme was appreciated by all.
- ii. **In March, 2013 one day cleanliness campaign** was organized by “DERA SACHA SAUDA, SIRSA” volunteers in association with Karnal administration and local social organizations. Entire town was divided into 19 beats. In each beat senior representatives, of all the 3 organizations jointly guided the volunteers to clean and collect garbage from roads, drains, parks and other places where garbage had been thrown. Thousands of volunteers participated in this campaign with their own cleaning devices. In one single day entire town was cleaned and so much waste was collected that municipal authorities took around one month to lift and dispose off the garbage from city areas.

ANALYSIS AND DISCUSSION

Location, climate natural resources, economic growth and means of communication makes Karnal town a preferred residential destination for all. Better education and high living standards are main reasons of migration of people from nearby villages and adjoining state. Available information indicate that solid waste generation in the town is comparable to metropolitan cities (0.5kg/per head/day). Solid waste disposal from individual household to community dustbins is satisfactory. Problem is that some persons do not dispose off their garbage in the dustbins / containers and through it around the dustbins. For example, dustbins have been put in Atal Park at several places but even then many people through leftover food and plastic materials in park lawns. Problems for municipal solid waste management starts at this stage. Indifferent and apathetic attitude of municipal staff and administration hinders the efficient lifting and proper disposal of the MSW. Heaps of fermented and stinking garbage

can be seen at several places. Solid waste treatment plant at Shekhpura Sohana could not become functional till date due to the administrative reasons.

Private contractors engaged for lifting and disposal of MSW also take advantage of this indifferent attitude. However, in Karnal town several social organizations are active. From time to time they put public pressure on authorities for efficient lifting of garbage from town areas.

CONCLUSION AND SUGGESTIONS

Mismanagement of waste is causing serious pollution problems for soil, water and air. It also creates environmental and health problem for the people living in town and adjoining rural areas. Presently very little data is available for studying the problem. Computerization of data of all municipal activities will create a data base for future research & development.

Ward level micro planning of available data and resources may help in efficient collection, disposal and treatment of the MSW. Awareness campaigns needs to be organized for educating citizens, municipal staff and administrators for realization of the seriousness of the problem.

From the study following points emerged for future management.

- i. Residents need to be educated for segregation and proper disposal of their bio-degradable and non- degradable household garbage.
- ii. Realistic and need based budgetary provisions have to be made for MSW lifting, disposal and up gradation of machinery etc.
- iii. Municipal staff, administrators and public representatives, (Mayor and Parshads) may be made directly responsible for the environmental pollution caused by MSW.
- iv. Social organizations/Civil Society must be active in each town. They should continuously put pressure on concerned authorities, for MSW/ sewerage disposal and general cleanliness of the town. Citizens should follow zero tolerance policy on this issue.
- v. Central/ State governments may encourage and support research and development activities for developing new technologies of urban waste management.

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