

Role of Rag Pickers in Solid Waste Management in Nashik City

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Abstract— The NMC Khat Prkalp plant is designed for handling and processing the biodegradable waste materials generated in kitchens, vegetable markets, slaughter houses, food and fruit processing industries, agro-waste and biomass in a degradable manner. This place is 10 km from Nashik City. Proper arrangement for leachate is also provided and this is connected to the leachate treatment plant for further processing. This document describes the current status, relevant planning figures and the future steps for improvement of MSWM in Nashik. It thus forms a planning document for sustainable Municipal Solid Waste Management in Nashik. The informal sector popularly known as “kabadi system” is involved in purchase of about 70 to 75% of recyclables in the country from households and commercial establishments. In this informal sector, there are individuals, families, groups and small enterprises that carry out unregistered and unfettered activities. The larger retailers are the final connection between the recycling factory and the “kabadi’s” and can extend credit, bargain for better pricing.

Keywords— Solid waste management, rag pickers, revenue generation, vendors

INTRODUCTION

Source segregation of waste is a constitutional requirement as per the MSW (M&H) Rules, 2000. As mixed wet and dry waste loses value and makes it very difficult to handle the waste or to segregate it further. MSW contains Biomass, or biogenic (plant or animal products), materials such as paper, cardboard, food waste, grass clippings, leaves, wood, and leather products. Non-biomass combustible materials such as plastics and other synthetic materials made from petroleum. Waste-to-energy is a waste management option - producing electricity is only one reason to burn MSW. Burning waste also reduces the amount of material that would probably be buried in landfills. Burning MSW reduces the volume of waste by about 87%. **Waste to Energy is a Net Greenhouse Gas Reducer.** Methane is a greenhouse gas which is mostly emitted from decomposing waste in landfills. It has more than 20 times the potency of carbon dioxide and is ranked as a hazardous contributor to climate variation. Waste to energy facilities avoid the production of methane while producing almost ten times more electricity from each ton of waste compared to landfills. And waste to energy facilities are the only solid waste disposal option with state-of-the-art air pollution control technology. Each month millions of tons of waste are produced. Either they become a part of landfill or are exported to third world

countries. This causes huge environmental impact in terms of wildlife, ecosystems and to human health. Keeping this in mind, many new waste treatment plants have come up and have developed new ways to generate energy from landfill waste. In a growing world, where the conventional forms of energy are fast moving near extinction as well as are contributing generously to global concerns like the greenhouse effect and global warming, the need to innovate and employ alternate or unconventional energy sources has become crucial for the existence of a future.

Solid Waste Management Steps-

- a) Storage
- b) Collection and transportation
- c) Disposal

Types of storage

a) Storage of household waste

- a) Storage of shops/offices/institutions waste
- b) Storage of market waste
- c) Storage of bio-medical waste

b) Collection and Transportation of solid waste –

There are various methods of collection of solid waste and transport it to plant and it requires various workers with different safety measures this methods are as mentioned below:

- a) Door step collection
- b) Motorized collection
- c) Machineries used for Transportation of MSW
 - Tractors and Trailers
 - Dumper
 - Compactor Vehicle



Figure 1 Compactor Vehicle

c) Disposal of solid waste

The waste collected and transported is then separated mechanically or manually in two categories dry waste and wet waste. The dry waste is separated at trammel and wet waste is kept under sun in windrow system to maintain its moisture content. And then is transferred to biogas plant to generate Electricity and Compost. The polythene and other plastic material from dry waste are processed and we can obtain carbon black and RDF form pyrolysis method.

Current Status of Solid Waste Management in Nasik:

It's generally essential for a city to have the monitoring of the waste, audit it regularly so that it can be processed and managed effectively. Nasik Municipal Corporation (NMC) the governing directorial body of town was established in 1864. It boasts of being a prime municipal corporation in India, as far as disposal of waste and its management are concerned. Its

Ghantagadi project became world famous. Many Municipal Corporations from all over the country and even few Asian countries representatives came to study and co-opt ghantagadi. Solid waste is generally defined as non-soluble material that is thrown away in a solid or semi-solid form. This includes garbage, refuse, sludge and other waste material, as well as waste from industrial, commercial, agricultural and mining operations.

Characteristics of Municipal Solid Waste in Nasik City:

Nasik is growing city and making vast development in educational and industrial sector also various MNC and mechanical companies are making huge investments in Nasik also known for its scenic beauty Nasik have tourist attraction on big scale. Considering all the generation of municipal solid waste and its characteristics and composition varies area to area and place to place and locality to locality. Also this composition and its collection depend upon the various income groups like lower, middle and upper income groups.

METHODOLOGY TO STUDY ROLE OF RAG PICKERS

The informal sector popularly known as "kabadi system" is involved in purchase of about 70 to 75% of recyclables in the country from households and commercial establishments. In this informal sector, there are individuals, families, groups and small enterprises that carry out unregistered and unfettered activities. There is another set of informal sector known as "rag pickers" who pick up rejected recyclable waste from the streets, bins, dump sites etc. They pick up 5 to 10 % of the municipal waste which is of value to them to earn their living. This informal sector helps to reduce the depletion of raw materials, natural resources and energy that otherwise can be used for production of new products.

Local "kabadi system" purchase recyclable waste from households, shops and establishments, segregate this waste in plastic, paper, metal, cardboard, e-waste, glass and then sell the segregated waste to the large wholesalers. The larger wholesaler is the final link between the recycling factory and the "kabadi's" and can extend credit, bargain for better pricing. So questionnaire was taken and informal interviews to study the pattern of kabadiwala's and rag pickers working

and way of them to revenue generation. Visiting the kabadi's in different area. The method like interviews, questionnaires and observations is applied to fulfil this objective in "GANJMAL, NASIK". The prices of different commodities in solid waste sold to bhangarwalas by rag pickers and local households, shopkeepers etc. and from them to kabadiwala's and further the ghantagadi workers collecting this waste and generation of revenue from selling of metal items is determined. The work system of this rag pickers is observed also the safety measures of this rag pickers is observed and its at level none provided to them. This unhygienic process of collection of waste material can lead to serious skin diseases, respiratory disorder and other form of health issues also. But this process is there only way of income generation and some people are completely dependent on this daily basis work system.

Role of rag pickers in solid waste management:

The informal sector popularly known as "kabadi system" is involved in purchase of about 70 to 75% of recyclables in the country from households and commercial establishments. In this informal sector, there are individuals, families, groups and small enterprises that carry out unregistered and unfettered activities. There is another set of informal sector known as "rag pickers" who pick up rejected recyclable waste from the streets, bins, dump sites etc. They pick up 5 to 10 % of the municipal waste which is of value to them to earn their living. This informal sector helps to reduce the depletion of raw materials and energy that otherwise can be used for production of new products. Local "kabadi system" purchase recyclable waste from households, shops and establishments, segregate this waste in plastic, paper, metal, cardboard, e-waste, glass and then sell the segregated waste to the large wholesalers. The larger wholesaler is the final link between the recycling factory and the "kabadi's" and can extend credit, bargain for better pricing.



Figure 2 Kabadiwala's at Ganjmal, Nashik



Figure 3 Actual Interview image of local bhargarwalas- system of work



Figure 4 Local Rag Pickers

Involvement of non-government organisation:

Assessing the size of the existing informal system and the quantity of material handled by them in a town/city; categorizing the number of rag pickers and kabadi system and their linkages to the wholesale market, are all important pre-requisites to defining any initiative to integrate them into the formal system. Establishing the informal sector to form feasible business groups and societies, with the help of local NGOs is a supreme methodology for accomplishing this integration. Such ingenuities should be supported by appropriate local policy and bye-laws, where required; this would result in institutionalizing and safeguarding rights of workers (both men and women) for the entire process. Once organized, setting up of social security and welfare profits to waste pickers should be also considered. As a general rule, any form of health problems related to occupational health hazards should be addressed appropriately. Social benefits of workers should include health check-ups, medical health care and treatment facilities. are must be taken to ensure that workers (be it contractual or otherwise) have access to proper facilities such as separate toilets for me and women, storage place for leaving their belongings etc. The role of rag pickers and their contribution in waste collection is identified. They pick up 5 to 10 % of the municipal waste made a total of Rs. 400/- as their daily wages.

Rates of solid waste in local market:

SR. NO.	Name of Vendor	Founda tion Year	Type of Product	Rate	
1	Riyaz Shah (Maharashtra Scrap)	2011	Battery scrap	114	Rs/kg
			Plastic	5	Rs/kg
			Paper scrap	12	Rs/kg
2	Patil Universal Corporation	2003	car	15	Rs/kg
			wire	10	Rs/kg
			S.S	73	Rs/kg
			plastic	5	Rs/kg
			paper	12	Rs/kg
			tungsten (1-10mm)	1600	Rs/kg
			pharmaceutical	20	Rs/kg
			wood	5	Rs/kg
			e-waste	150	Rs/kg
			polyethene	40	Rs/kg
			bottle	25	Rs/kg
			mild steel	20	Rs/kg
			copper	475	Rs/kg
			glass	1-3	Rs/kg
			ferrous	70	Rs/kg

RESULTS AND DISCUSSION

Problems associated with rag picking:

1. As observed from the interviews and questionnaire the hygiene of the rag pickers is not maintained by individual and also by governmental organisation associated with solid waste management organisation private if any.
2. This may cause serious illness and many other diseases related to skin and respiratory health issues also.
3. Proper health and safety is not maintained.
4. Minimum Wages for this sector hardly earn for daily survive.

CONCLUSION

- 1) GOVERNMENT &NON-GOVERNMENT Organisations should arrange environment health and safety programs for this class of working people. They must be explained the pros and cons of safety and hygiene while working.
- 2) The wholesale purchasers of kabad and bhangar should increase the per kg rate of the items.
- 3) Rag must be provided with safety gloves mouth mask and safety shoes for special waste and bio medical waste handling.

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