



---

## **ROLE OF NGOS IN WASTE MANAGEMENT PRACTICE: A CASE STUDY OF DELHI**

**Dr. Ashwani Kumar**

**Assistant Professor, Department of Geography,  
C.H.L. Government College Chhara, Jhajjar, Haryana**

### **Abstract**

Solid waste management systems adopted in Indian cities/towns are highly inefficient and outdated, which is lacking public participation. Overall apathy is observed in the matter of collection, transportation, and disposal of municipal waste. A system of depositing domestic, trade and institutional solid wastes on the streets/open spaces by waste generators and its collection by urban local bodies from the streets and open spaces. They usually dispose off at dump sites and it is cause for water pollution. Most of the urban local bodies are struggling to manage solid waste due to lack of equipment or machineries. Moreover, in most of developing countries SWM is still totally a manual process. Due to these problems municipalities cannot collect and transport the waste properly. If the process is manual, the management of SW takes too much time for (such as in collection and transportation). Delhi is also facing the problem of waste management. Presently, NCT of Delhi has estimated to generate about 6000-8000 tonnes of MSW every day. But out of total waste only 75 percent is collected daily, rest were spread on roads, streets, and parks. The waste collection points are not sufficient. Waste transportation facility is also outdated. The solid waste management problems are to be solved with the involvement of community and non-governmental organizations (NGOs). In this paper we have analyzed the role of non-governmental organizations work in municipal solid waste management in Delhi and we have found that in many areas they have done a wonderful work. It has been shown that NGOs in solid waste management ought to be an essential component of new developments in this area.

**Key words:** Solid Waste Management, Pollution, Non-governmental organizations

### **Introduction**

“Solid Waste” refers to the refuse, the solid and semi solid waste matters of a community except the night soil. Solid waste contains organic as well as inorganic matters. Solid waste management includes the entire process of dealing with solid waste, starting from the collection from the primary source to ultimately disposing off it hygienically, so that it may not be a nuisance or create any harmful effect on nearby community. The solid waste management involves management at waste generation level, storage at the source of generation, primary collection, street cleansing, temporary storage at



---

locality level, regular and periodic transportation of this temporarily collected waste to disposing sites and treatment plants.

A clean city is a result of consistent efforts done by the city managers and the civil society. The decision-making process for managing solid waste in urban areas is going through a paradigm shift from the “decide, announce, and defend” premise of local authorities to more involved public participation. Solid waste management (SWM) is an activity in which public participation holds the key to success. An urban local body (ULB) can never be successful in SWM without active community participation. The solution is not in the hands of one stakeholder but depends on the interest and participation of all stakeholders. In this context, creating awareness, environmental education and advocacy campaigning programmes and vested with NGOs, media, trade associations and other social institutions. In order to increasing the waste efficiently, it is very essential to take the co-operation from the waste generators. Involvement of public is very essential for managing the waste from different localities. SWM requires the involvement of not only the technical staff with knowledge of the SWM system but also the civil society.

The solid waste management problems are to be solved with the involvement of community and non-governmental organizations (NGOs). NGOs have a complete understanding of the magnitude of the problems, so there is triangle of government, people and non-government organizations which have been playing a significant role for waste management. Non-governmental organisations (NGOs) operate between the private and governmental realms. Originating outside of the communities in which they work, NGOs are motivated primarily by humanitarian and/or developmental concerns rather than an interest in service improvement for their own members.

### **Study Area of the Present Study**

The area selected for the present research study has a unique position with regard to its location. National Capital Territory of Delhi (NCT) is the second–largest metropolis in India and it is the sixth metropolis in the world by population. Delhi is located in North India between the latitude of 28°24'17" to 28° 53' 00" North and longitude of 76°50 '24" to 77°20' 37" East. It has 16.75 million populations, 8.98 million male and 7.78 million females’ population (Census of India, 2011). Delhi has divided into nine district 27 tehsils and 165 villages, as per 2001 census. The area of the National Capital Territory of



---

Delhi is 1483 sq. kms. (0.4 percent of the total geographical area of India). It is encircled by Uttar Pradesh in the East, Haryana on the North, West and South.

## **Objectives**

The present paper aims to assess the level of satisfaction with Urban Local Bodies (ULBs). This paper also studied about the role of NGOs and community-based organizations in solid waste management in NCT of Delhi.

## **Data Base and Research Methodology**

One of the important stages in the research process is data collection the researcher used both primary and secondary methods of data collection. In order to accomplish the research's objectives, information on existing solid waste management practices and public perception on the effectiveness of the current system were gathered. In assessing the general perception and willingness of respondents on the household waste management system, sample size of 300 households among the community was selected randomly. The respondents were divided into three groups' i.e., high income group, middle income group and low income. A structured questionnaire was made for primary survey. Collection of data was based on direct interview of residents and NGO's directors to obtain information on household's waste handling and management, waste management services, patronage, and willingness to pay for such waste management services. The data has been analyzed and present in figures.

## **Municipal Solid Waste Management Practice (MSWM) in Delhi**

The solid waste management involves management at waste generation level, storage at the source of generation, primary collection, street cleansing, temporary storage at locality level, regular and periodic transportation of this temporarily collected waste to disposing sites and treatment plants.

## **Waste Generation, Collection and Transportation**

Solid waste is an inevitable consequence of production and consumption activities in any economy. It is positively correlated with the level of income and highly urbanized economics, generating higher levels of per capita solid waste. Generation of MSW has an obviously related to the population of the area or city. Presently, NCT of Delhi has estimated to generate about 6000-8000 tonnes of MSW every day. There were spatio-temporal variations in the quantity of waste generation in all MCD zones.



---

NDMC and Delhi Cantonment Board area lifted 85579.95 tonnes waste and it is 3.94 percent of the total waste collected in Delhi. Besides, Agriculture Produce Market Committee (APMC), Slaughter houses, Compost plant rejects etc. deposit 84770.3 tonnes waste and it is 3.90 percent of the total waste collection in 2011-12.

In Delhi MCD, NDMC and DCB are responsible for storage and managing of waste receptacles in their respected jurisdiction, whereby public employees and equipment are assigned to the task. In MCD area, there are two types of waste storage points existing- one is dhalao system covered structure closed to the outside, they are 1494 in number and secondly, there is street dustbins system which accounts 342 in numbers. Street dustbin size varies from place to place. Due to lack of municipal receptacles, open sites have also identified in some areas as local garbage collection points. There are 433 open sites which have been selected for local garbage collection within the MCD jurisdiction. We have seen that the availability of waste receptacles varies from one zone to another. It is concluded that zones having higher population density, has a highest number of receptacles serving per ten square kilometers of area. It is because of smaller area, as a result, it tends to generate higher quantity of waste. The areas which include West, Shahdara (N) and Central zone most populated area and higher waste generator but waste receptacles not so sufficient in these zones.

Transportation of solid waste is an intermediate and important activity. Transportation is a link between the collection and disposal of garbage. The waste generated from residential houses, markets, hotels, commercial areas, parks and garden are collected at the community bins and taken away to the processing or disposal sites by using a variety of vehicles. There is unequal distribution of waste transportation in all the zones of MCD.

### **Waste Disposal**

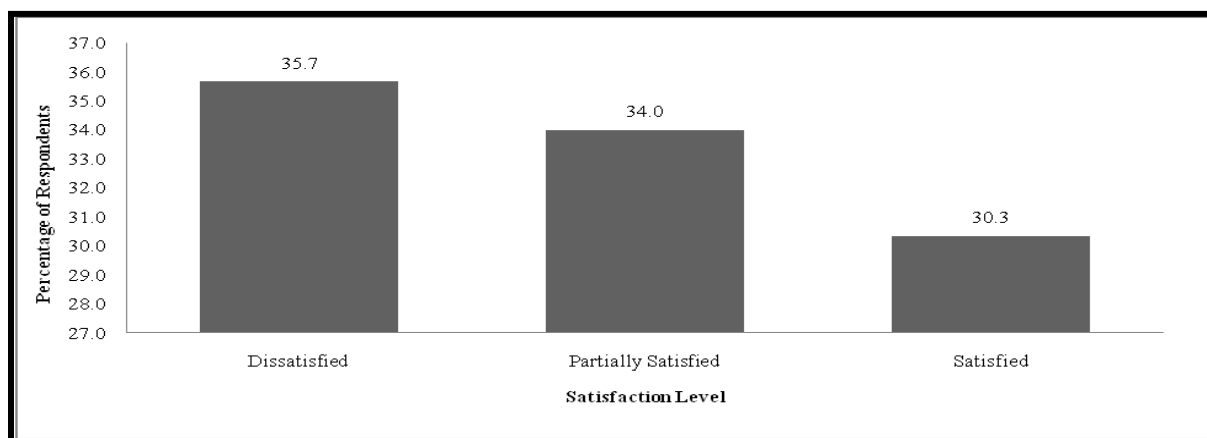
The disposal of waste is an important aspect of the municipal solid waste management system and it requires a special attention by the city corporation through effective and efficient planning. Presently in study area, there are four landfilling sites in operations which covers 202 acres of land situated in different zones in different directions. Bhalswa, Gazipur Okhla and Narela/Bawana landfill sites are in operation. The Municipal Corporation of Delhi is responsible for the management of all four existing landfill sites. The three operational landfill sites namely Bhalswa, Gazipur and Okhla have almost exhausted their capacity but waste dumping is continuing which leads overflowing and posing negative impacts on human's health and environment. So, an urgent need to new landfill site in near

future.

### Level of Satisfaction with Urban Local Bodies on Waste Management Services

Based on empirical study, various level of satisfaction for the services, rendered by the municipalities has been analyzed. It was found that, in most of the people are not satisfied at all. In this context various scale of satisfaction in various income groups have been fixed different. In the primary survey there are three options to know the level of satisfaction, first by dissatisfied, second by satisfied and third partially satisfied. Out of total 300 respondents, 36 percent were dissatisfied from the function and the services rendered by MCD in their localities.

**Figure 1: Level of Satisfaction with Urban Local Bodies in Delhi on MSWM Services**



Out of these majority of the respondents belongs to lower income group colonies such as Jhangir Puri and Nangloi and it is followed by MIG localities. Only 70-80 percent of the waste is collected and transported every day and rest of waste is spread on roads and streets. There are 34 percent of the people who have opined that they were partially satisfied. They told that MCD is doing some work, but it not perfect and up to the mark. They have felt that some improvement and management of services may enhance the esteem of MCD. In this context, nearly 30 percent of respondents have felt fully satisfied with the services provided by MCD in their respective areas for municipal solid waste management and maximum. Most of the people belong to higher income group localities, such as Defence Colony and Mayur Vihar Phase II (Figure 1). Most of the respondents, who were satisfied, belong to upper class. The situation of waste management in Delhi is very worse, that is why NGOs and other social society's



---

works are so important. Thus, we have analysed the role of NGOs in municipal solid waste management in Delhi.

### **The Role of Non-Government Organizations (NGOs) in MSWM in Delhi**

The 2000 Rules explicitly mention the key role of NGOs and CBOs in improving municipal solid waste management. NGOs have more leeway for their activities and can establish strong partnerships with municipalities. NGOs are great institutions for organizing people and promoting citizen participation; they are also a natural venue for implementing waste minimization programs.

Non-governmental organisations (NGOs) operate between the private and governmental realms. Originating outside of the communities where they work, NGOs are motivated primarily by humanitarian and/or developmental concerns rather than an interest in service improvement for their own members. The self-creation of meaningful employment for members may also be a motivation for NGO formation (Schübeler, 1996). NGOs may help to increase the capacity of people or community groups for playing an active role in local solid waste management. Their different mode of participation may be benefitted as follows:

- People's awareness of waste management problems;
- Organisational capacity building and the formation of community-based organisations (CBO);
- Channels of communication between CBO and government authorities;
- CBOs voice in the municipal planning and implementation processes;
- Technical know-how should be included the CBOs;
- Access to bank/financial institutions credit facilities;
- Providing employment through organising door-to-door collection of waste;
- Providing health education to the rag pickers and suggestions for safety measures;
- Encouraging minimization of waste by repairing of house backyard composting, vermin-culture, and biogas manufacturing etc.

NGOs may help to enhance the capacity of people or community groups to play an active role in local solid waste management by contributing to creating people's awareness on waste management problematic areas. Numerous of non-governmental organisations are working in Delhi, and engaged in managing the municipal solid waste. Activities of few Delhi based NGOs are followings:

#### **Conserve**



- 
- Provides training of segregation of waste to the citizens of Safdarjung Enclave;
  - Creating awareness about solid waste management through the distribution of small chart on segregation;
  - Provides training to the women of low-income groups in Narela about the recycling of polythene bags, small wrappers of pan masala etc.;
  - Developing techniques for the recycling of polythene bags etc.

#### **Acord**

- To develop solid waste-oriented education for the people;
- Organising environment education awareness programmes;
- Training for Capacity building of Residential Welfare Associations (RWAs), sanitary workers and key persons in the project area;
- Organising door to door and group meeting with the residents;
- Introducing improved waste collection equipment in the locations;
- Setting up of a system of door step collection of waste.

#### **Chintan**

- Optimises waste handling through the informal sector (comprising of rag pickers and small kabaris);
- Identifies rag pickers through I-Card system;
- Trains rag pickers to handle waste through door-to-door collection system in specified blocks in NDMC area and Connaught Place;
- Trains rag pickers to operate and run new garbage stations;
- Designs bins, which are more conducive for recycling;
- Waste collection, segregation and disposal/recycling the dry waste from the three properties of the Taj Group of Hotels in New Delhi;
- Provide environmental education at the school level;
- Organize workshops in various parts of Delhi. It is essential to empowering citizen to handle waste in a better way;
- Promoting the participatory planning and policy for handling of solid waste in a ward of Sadar Paharganj;
- Offering of inputs about planning for waste handling;





- 
- Organising the communities and rag pickers to create decentralize models of solid waste management;
  - It creates awareness among the people who are against the use of plastic bags through citizens manual- ‘The Enemy Within’;
  - Conducts the research and campaign programme against toxic technologies for waste reduction and better waste handling system;
  - Creating the awareness among the citizens through resource material like pamphlets and public meetings;
  - House-to-house waste collection;
  - Develops the techniques for composting of waste among the people at household level;
  - To impart the training for private scavengers.

#### **Action India**

- Motivates the people towards participation in the solid waste management, construction, and maintenance through training to the workers of compost pits;
- Awareness building of community on segregation of waste through poster competition, puppet show and distribution of information education and communication (IEC) material prepared by Sristhi;
- Formation of Community Watch Group;
- Training organization of workshops to orient on leadership, technicalities of composting;
- Joint Action Plan with the Rag Pickers, private garbage collectors and Community Watch Group;
- Mobilising the sanitation workers to clean the garbage bins installed in area;
- Providing rickshaws for collection of waste;
- Providing safety kits and essentials to the garbage collectors;
- Provides incentives to members of garbage collectors.

#### **Vatavaran**

- Motivates RWAs to organize themselves with a view to progressively become free from garbage problems with decentralized system;





- 
- Meetings are held to make people more aware of their responsibility towards solid waste management. Enhancing the awareness for prevailing health hazards, developed from accumulation of solid waste;
  - Launching of eco-friendly, scientific, and decentralized garbage management scheme known as “Cleaning Brigade.” It is working in many parts of Delhi and Noida.
  - Recruit unemployed youth, rag pickers and labourers for the collecting and disposing the garbage of community as a part of task force of Vatavaran. RWAs are supposed to considering of cleaning brigade (task force) boys as their extended family and treat them with love and affection;
  - Emphasis is given on creating zero garbage colonies by converting the waste into resource with help of the process of separation of waste into two different bins. It provides the employment to jobless persons;
  - Bio-degradable waste is composted and the recyclable waste materials are sold to junk cleaners prepare for compost is sold to residents for gardening at reasonable price.

### **A Case Study of Delhi Based NGO, Vatavaran**

Vatavaran is a small and strictly non-profit organization; it was founded in 1994 by Dr. Iqbal Malik. The aim of the NGO are, work with sensitivity, passion, commitment and use a multi-pronged, down to earth approach to stop exploitation of natural resources, excessive waste generation, disposable culture and to resolve problems like disorderliness, congestion, noise pollution, solid waste and sewage mismanagement, barren and desolate lands, water woes, unkempt historic structures and upkeep of the stray dogs in the various areas. Vatavaran NGO works with decentralized approach and it is working with individuals, communities, organizations, families, kids, teachers, and educated and non-educated persons.

In general, management of municipal solid waste is a responsibility of the urban local bodies, but Delhi is facing a numerous of problems related to mismanagement of garbage. That is why, the people participation and social groups’ involvement in required for management of waste. Integrated waste management system is the new ‘mantra’ from the developed world. It prefers to reduce, reuse, refuse and recycling of waste. Many NGOs are working in this field, and Vatavaran is a leading NGO in Delhi. A vital step has been taken by Vatavaran (The Cleaning Brigades), a decentralized system and motivated



---

for participation from every section of society which has facilitated to converting it to a garbage free city. Today, in different parts of Delhi, Vatavaran is an NGO, which is managing the garbage without using of any heavy vehicles, loaders, heavy machinery, or a plant. The ‘Cleaning Brigades’ works in a systematic manner in various parts of Delhi.

### **Some Success Stories of Vatavaran NGO**

These NGOs also worked for Government of Delhi for creating awareness by organizing door to door meeting, cluster meetings, awareness generation programmes rallies, school programmes etc. These programmes have achieved remarkable success in different areas of Delhi. Some of their success stories are as follows:

#### **Asian Games Village**

The first project in the year 1994 in Asian games village Vatavaran started the first project to manage the municipal waste. The offering of garbage bins helped prevention of rotting, stinking, open dumps and garbage which was thrown in the parks and the drains. In 1993, a private contractor was entrusted with the task of collecting garbage from door to door but all household did not join the programme; as a result, it was utterly failed. In the year 1994, the contractor disappeared and first cleaning brigade was launched in the Asian village. MCD bins were overflowed it is because of their capacity was low and generation of waste was higher. On that time, a rough estimate was that on an average each household produced a kg of garbage per day making a total of 900 kgs. for 846 houses of the colony before launching the scheme all the householders were personally contracted and the scheme was explained to them. In 1996, a total of 625 households had joined the scheme the cleaning brigade comprised of one supervisor and 10 boys. Money collection from the resident was Rs. 10000. Recyclable material was sold for Rs. 4000 per month and manure for Rs. 3000 per month. Each boy was paid amount of Rs. 1350 while the supervisor took 2350 as his monthly salary. Thus the total money collected was Rs. 17300. Out of which Rs. 16300 were distributed. An amount of Rs. 1000 was saved which was used to repair rickshaws and giving the gifts to the boys on festival. Now there is a right system exists for the municipal solid waste management. The roads, streets and bins are cleaned properly. It is a great success story for executing this scheme. Now an Asian Games Village is a zero-garbage area. It is because of peoples’ participation in waste management practices.



---

### **Jawaharlal Nehru University**

JNU is situated in the south-western part of Delhi about 8 km south-east of Delhi airport. The campus is located on Delhi ridge thus the topography of campus is highly undulating. About the garbage to the garbage situation about, 1 percent of the total area of JNU has been converted into a wasteland due to illegal or legal dumping of waste. Before the Vatavaran project launch their 98 open dumps in the area. Only 8 legal bins of size 8'x 8' existed. The walls of the bins were only 4 feet height and not surprisingly each bin was overflowing and stinking. Behind Sabarmati, Narmada, Brahmaputra, Ganga, knavery, Godavari and Jhelum hostels, garbage dumps had been created because of the students of chucking garbage out of their window into the backyards of the hostels. On the library side, the accumulated food packaging polythene, paper, broken pens, pencils, carbon paper etc. had resulted into a massive garbage dump. Besides, canteens were depositing off their waste at well hidden sites. There was no organized method of garbage collection, transportation, and disposal in the campus. Though, JNU had 250 safai-karamcharies they had never cleaned the legal or illegal dumps. Before launching of the cleaning brigade, they organized meetings of students, teachers, and residents and made them understand the rationale behind the scheme.

A group of local rag pickers and unemployed groups from nearby areas was selected as a part of the 'Cleaning Brigade' team. On 1<sup>st</sup> April 1995 the first 'Cleaning Brigade' was launched in JNU campus. The total amount of waste generated is 2000to 2800 kg per day and out of this 50 percent is biodegradable, 48 percent recyclable and 2 percent is unidentified waste.

In JNU, Vatavaran managed the garbage produced by 15000 people, and very soon the campus become zero garbage area, because all the waste produced was systematically recycled and composted on the campus and no waste went to any landfill site. It is a big success of this project.

### **University of Delhi, North Campus**

Form August, 2007, Vatavaran started their work in Delhi University, North Campus. The Cleaning Brigade has defined its work as removal of garbage, sweeping, mopping, dusting and cleaning of toilets and general tidiness and up-keeping of internal and external passages and roads around the eight selected departments of Delhi University. The Cleaning Brigade collects the garbage, segregates the recyclable material, and composts the biodegradable waste while the rest is deposit into MCD bins in the university. At present there is one supervisor, three deputy supervisors and eight departments' in-charge, one for each department. The system has been structured in order to have a better monitoring



---

system at place. Now the campus is clean and waste free.

Besides, these successful projects, Vatavaran NGO is working in various market areas of Delhi colleges and schools. Vatavaran has also imparted training for other Delhi based NGOs, which is working in waste management field. These NGOs are Indcare, Samarth, Accord, Development Alternatives, Navjyoti, Disha, Deepalaya, Concern India, Iffcord, Rotary Eco Foundation and Inner wheel. Now there are 11 Delhi based NGOs, which have adopted the Vatavaran waste management technique and are working in various parts of Delhi.

### **Conclusion**

Non-governmental organisations (NGOs) operate between the private and governmental realms. Originating outside of the communities where they work, NGOs are motivated primarily by humanitarian and/or developmental concerns rather than an interest in service improvement for their own members. In this paper we have tried to analyse the future viability of new developments in municipal waste management in Delhi through an examination of NGOs active in this line of work. It has been shown that NGOs in solid waste management ought to be an essential component of new developments in this area. The future of municipal waste management depends not only on the effectiveness of local government, the operator of public services, but also on the attitude of citizens, and on the key role of NGOs to shape and develop community participation, as the reality of formal waste management in Delhi reflects a continuous struggle to provide basic collection services to communities. This paper has therefore focused on an important shift in domestic waste management brought about by the current crisis, namely on a more decentralised approach which includes the assistance of NGOs through local waste disposal schemes linking up with informal recycling activities. I would argue that as pressures for proper SWM continue to mount, greater research co-operation and collaboration between the public and private sector, and with NGOs will be essential for the future of waste management in Delhi, as well as in many other cities in India. Without adequate assistance from these NGOs, the whole new labour-intensive model towards waste management may be jeopardised.

### **References**

- Ansari, J.H. (1999): *Solid Waste Management in Delhi- Need for Partnership Arrangements*, Congress Paper at 27<sup>th</sup> National Congress, 19-22 September.
- Census of India (2011): *Provisional Data*, Government of India, New Delhi.



- 
- Malik, I. (2013): *Garbage Management my Experience*, Vatavaran NGO, Unpublished Book.
  - Schübeler, P. 1996. *Conceptual Framework for Municipal Solid Waste Management in Low-Income Countries*. SKAT (Swiss Centre for Development Cooperation in Technology and Management), Switzerland.
  - Talyan V., Dahiya, R.P., Anand, S., Sreeprishman, T.R. (2008): “State of municipal Solid Waste Management in Delhi, the capital of India”, *Waste Management*, Vol. 28, pp. 1276-1287.
  - UNECE (United Nations Economic Commission for Europe). 2008. *Guidebook on promoting good governance in Public-Private Partnerships*. United Nations, New York.