

WHITEPAPER

Indian RCVs: Towards A Cleaner Tomorrow

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Abstract

A rise in awareness levels and government initiatives has given a significant boost to Solid Waste Management activities, especially refuse collection methods. RCV (Refuse Collection Vehicle) plays a vital role in the process.

This white paper presents a study on the existing scenario of Indian Refuse collection methods and possible role of engineering companies in making them efficient to the global standards.

Keywords - Off-highway vehicles, Refuse Collection Vehicles, Solid Waste Management, Municipal Solid Waste, Specialty Vehicles, Voice of customer, Market Survey, Benchmarking.

1. Introduction

Refuse Collection Vehicles (RCVs) are specially designed to collect domestic, commercial or industrial waste. These are applied to dispose the collected refuse to transfer stations, landfill or a solid waste treatment facility. These trucks are commonly seen in urban municipalities.

Refuse collection methods in India are in very nascent stages as compared to developed countries^{[i][ii]}. Some shortcomings presently with respect to Indian refuse collection are:

- i. Companies or organisations still employ many manual and semi-automated methods which are less effective and less efficient.
- ii. The existing methods cause serious threat to health and safety of the labour employed.
- iii. Citizens are also ignorant of the threat prone environment around them.
- iv. Lack of awareness of waste management business starting from segregated intermediate storage of waste (e.g. paper, glass, metal, organic, in-organic etc.), collection of waste, recycle the recyclable waste, landfill the rest.
- v. Lack of strong implementation of existing government policies.
- vi. Minimum engineering know-how of the RCV products.



Figure 1: Clean India Mission

There have been recent positive developments with the government creating policies for building a cleaner nation. The Indian Government has announced “Swachh Bharat Mission”^[iii] (Clean India Mission), focusing on developing 100 smart cities across India and have allocated separate budget of INR 7060 crores (around \$1.17 billion) for development and modernization of cities^[iv]. These have opened doors for mechanization of solid waste management across the country.

2. Present Situation and Future Roadmap

India has seen 40% of the growth in population in the last 25 years and it is predicted that the urban population will double to 750 million by 2050^[vi]. Studies indicate that this growing economy and population are likely to result in growth rates of 12 to 13% in Municipal Solid Waste (MSW)^[vi]. Every year, around 160 million tons of refuse is generated in India. Out of these huge “waste-pie”, Class I cities generates 72% of the total waste - this means 7 mega cities and 28 metro cities^[vii]. By 2050, this number is expected to reach to 270 million tons as per the projections made based on recent trends. All thanks to the developing economy and increasing consumerism in this huge populated country of 1.26 billion people.

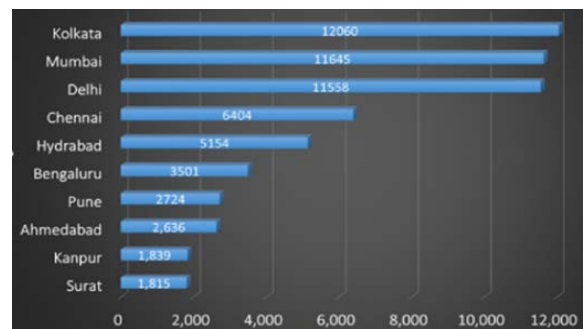


Figure 2: Waste generation per day (source: Central Pollution Control Board)

3. Waste Collection Methods In India

Since last three decade, methods of waste collection in India have evolved in four folds. Olden style wheel barrows were replaced by tricycles and then tricycles further evolved to variety of trash dump trucks and containers carrying trailers, which are used now days in many town level municipalities. In mega or metro cities one can easily spot RCVs with compaction mechanism built in it for doing effective collection, transportation and disposal of solid waste. In the recent months, the government’s special attention to this field is a positive sign.

4. Sample Market Study – Mumbai

Mumbai is one of India’s largest and densely populated city with 12.48 million people ^[viii]. This Indian city is second highest in waste generating of average amount 11,645 tons per day. More than 2,300 RCVs are in use in this mega city. Being the financial capital of India and a progressive city, Mumbai was considered the most suitable place to carry out a study on the RCV industry’s ground reality.

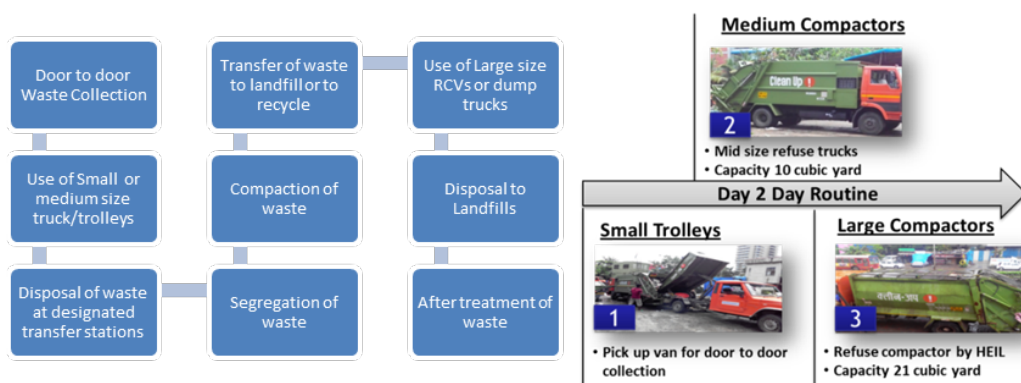


Figure 3: Day-to-day routine

L&T Technology Services carried out a study along with experts in the areas of market study; refuse collecting vehicle's product design and manufacturing have revealed interesting facts of usability and challenges faced by the present user base. The study initiated included a rigorous public domain research on the topic along with systematic library searches. Past extensive experience and technical knowledge base in the domain was an added advantage. A large amount of information related to various manufacturers around the world as well as presence of these RCV manufacturers in India was gathered. The information on waste management practices in India was gathered to understand the ground reality.

Major findings were:

- i. Majority of fleet include rear loading RCVs
- ii. Major presence of local manufacturers or distributors.
- iii. Almost comparable structural strengths of vehicle with the global norms
- iv. Innovative compacting mechanisms used
- v. Absence of use on alternative fuel or hybrid drives
- vi. Opportunities for improvement of operating productivity and operator's safety
- vii. Absence of some of the globally standard features or options like camera and tipper



Figure 4: Transfer Station

5. Inching Towards a Better Tomorrow

The solid waste management (SWM) system in India is still in its evolving phase. During the sample study, we observed some problem areas and initiatives being taken by regulatory bodies in the direction to solve it. A major problem area is the

treatment and disposal of waste. A comprehensive solution addressing long-term needs of SWM is required.

The following are some initiatives already taken:

- i. National and state governments along with municipalities are taking various initiatives for spreading awareness and public participation.
- ii. In Mumbai, ByeLaws 2006^[ix] is in place, which addresses the waste segregation, dissuades citizens from making streets dirty and instills the sense of discipline for a cleaner Mumbai.
- iii. Refuse transfer is done through enclosed vehicles.
- iv. Sweeping of frequented roads are completed before 8 am.
- v. Daily monitoring has been improved.
- vi. Actions are being taken against bird feeders / dog feeders on regular basis.
- vii. Strict actions have been planned through large deployment of security force.
- viii. Many activities are outsourced for instance – 30% of road sweeping through NGO^[x] labour, 100% of manning and mopping on important roads during afternoons and 60% of refuse transportation.
- ix. Modernization of transfer stations to increase its capacities.
- x. Separate budget of INR 7060 crores (around \$1.17 billion) for development and modernization of cities.

6. Conclusion

The sample market study revealed that there are problem areas. Also, initiatives are being taken by government bodies towards a cleaner tomorrow. High level automation is being planned or introduced in the field of SWM.

L&T Technology Services' engineering expertise in the field of RCV/SWM, knowledge of global practices and better understanding of local expectation can result in better engineering designs for future needs of the Indian RCV Market. There are more ways of refuse collection that can be introduced to the Indian market.

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