

Solid Waste Management in India: Current Situation and Opportunities

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ABSTRACT

India's solid waste management system is the big hurdle in the way of India's development. This inadequate management system is because of high rate of population growth and quantum population specially in metro cities. Also the unawareness of people is responsible for this. There is a need to upgrade solid waste management systems. The informal sector can be used as resource. This paper covers such challenges and some future opportunities for the sustainable development of India's solid waste management systems.

Keywords: Waste Management, Sustainable Development, India, Population Growth

I. INTRODUCTION

India is a developing country. But there are many issues those are being hurdles in the way of development. Solid waste management is one of such issues. In spite of the remarkable development in social, economical and environmental areas, solid waste management systems in India are not developed relatively. The population explosion is the main reason for the increased solid waste. But the urbanization made solid waste management more difficult. There is an urgent need of more sustainable solid waste management systems. The current situation of solid waste management is not so good, and also it has negative impact on public health.

Purpose of this paper is to discuss the challenges in solid waste management systems and the scope of future improvement.

II. METHODS AND MATERIAL

Waste generation and urbanization in India

India is at the 2nd highest populated country. The rate of increase in the population is also significant. This results increase in solid waste generation in urban as

well as rural areas of the country. But the rate of urbanization is very high in India which makes solid waste generation more intense in the urban areas, especially in metro cities. In rural area, mostly household waste is generated and it is more biodegradable. There are many sources of waste generation in the urban area other than household waste. The waste from urban area is more non-biodegradable and also hazardous.

Table 1 shows Trends of Solid waste generation in some major metro cities. Which clearly shows the fast increase in waste generation. The waste produced in urban areas of India is approximately 170 000 tons per day and it is expected that this waste generation will increase by 5% per year.

Table 1: Trends of Solid waste generation in some major metro cities.

Source: Central pollution control board, MoEFC, GOI

R a n k	City	Populatio n	Waste Generation (Tons per day)			
			1999 - 2000	2004 - 2005	2010 - 2011	2015- 2016
1	Mumbai	12,442,37	5355	5320	6500	11,00

		3				0
2	Delhi	11,034,555	400	5922	6800	8700
3	Bangalore	8,443,675	200	1669	3700	3700
4	Chennai	7,088,000	3124	3036	4500	5000
5	Hyderabad	6,731,790	1566	2187	4200	4000
6	Ahmedabad	5,577,940	1683	1302	2300	2500
7	Kolkata	4,496,694	3692	2653	3670	4000
8	Surat	4,467,797	900	1000	1200	1680
9	Pune	3,124,458	700	1175	1300	1600
10	Jaipur	3,046,163	580	904	310	1000
11	Lucknow	2,817,105	1010	475	1200	1200
12	Kanpur	2,765,348	1200	1100	1600	1500
13	Nagpur	2,405,665	443	504	650	1000
14	Visakhapatnam	2,035,922	300	584	334	350
15	Indore	1,960,631	350	557	720	850

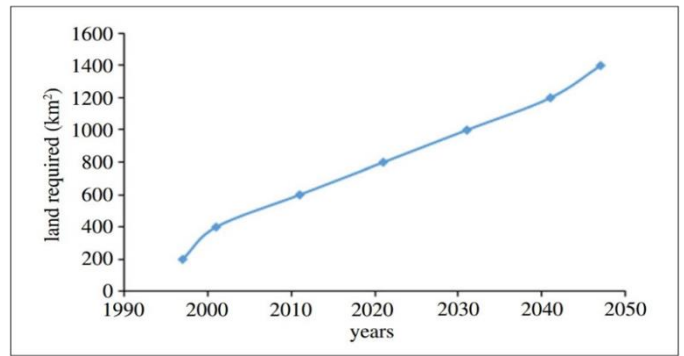
III. RESULTS AND DISCUSSION

Waste Management in India

In India, many old methods are used for the waste management. Burning is one of them. But it actually causes pollution, so it has negative impact. In this time, almost all the metro cities use dumping method to take away solid waste from cities. All waste from city is dumped outside or far from the city. But there are some disadvantages of this method. Most prominent issue is land acquisition. As there will be an increase in waste generation, the more land will be required for dumping the generated waste. Figure 1 shows the prediction of land required for dumping of Solid waste. This clears that the requirement of land will increase day by day. But the spreading of metro cities and migration of more people to urban areas makes this land problem more intense.

Figure 1: Land required for dumping of Solid Waste.

Source: Singhal & Pandey, Solid waste management in India: status and future directions



The other problem of dumping is the hazardous effects on the health of the people working or living near the dumping site. Not only human beings, it also affects birds and animals in the areas. Open dumps release methane from decomposition of biodegradable waste under anaerobic conditions. Methane causes fires and explosions and is a major contributor to global warming. There are also problems associated with odour and migration of leachates to receiving waters.

The informal sector has a very important role in India's solid waste management. The informal sector means small-scale, labor-intensive, largely unregulated and unregistered low-technology manufacturing or provision of materials and services. Waste pickers collect household or commercial/industrial waste and many hundreds of thousands of waste pickers in India depend on waste for an income, despite the associated health and social issues. Pickers extract potential value from waste bins, trucks, streets, waterways and dumpsites. Some work in recycling plants owned by cooperatives or waste picker associations. Waste picking is often the only source of income for families, providing a livelihood for significant numbers of urban poor and usable materials to other enterprises. Waste pickers also make a significant contribution by keeping cities clean.

In recent years, the government and local authorities in India have given considerable attention to the solid waste management. A number of partnerships/alliances are found to exist in the field of solid waste management in Indian cities.

Suggestions for Future Improvement

- The major issues of the solid waste management systems in India are lack of awareness, lack of collection and classification of waste at the primary source, land problem, etc. So, there is a room for improvement simply with the change of method of collection or the classification of waste while collection at primary source, to separate materials that can be recycled and to reduce the amount of wastes requiring collection and disposal.
- Efforts to improve waste storage and collection are required.
- Instead of simple dumping, the advanced technology can be used. It will be bit expensive but it can make big difference.
- The informal sector can be regulated to use it as a good resource. Waste pickers can be hired for their work and provide some facilities to them. This will affect positively in the solid waste management of India.
- The number of recycling plants, should be increased, so that the waste can be minimized.
- Composting units can be used for the degradable waste.
- The general public level waste management units can be run by self-help groups, youth groups or small entrepreneurs. This will help in making the solid waste management self-supportive and sustainable.
- All Indian school children should understand the importance of waste management, the effects of poor waste management on the environment and public health, and the role and responsibilities of each individual in the waste management system. This will develop responsible citizens who regard waste as a resource opportunity.

IV. CONCLUSION

India's population and particularly gathering of the more population at metro cities make the solid waste management of India worse. The current situation of the solid waste management system is not reliable or not adequate for such big problem. There is a need that the solid waste management system of India should be improved. Also, there is lack of awareness among people, that should be changed. The major issues can be solved with the participation of public and private organizations. Until the fundamental requirements are met, India will continue to suffer from poor waste management and the associated impacts on public health and the environment.

V. REFERENCES

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