

# A MISSION MODE APPROACH FOR ADDRESSING GARBAGE ISSUES IN INDIA

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*[Abstract: Indian cities and towns have the dubious distinction of being classified as the dirtiest in the world. Travel advisories of different countries warn their citizens against India's lack of proper sanitation, garbage and sewage disposal and other basic services. Garbage disposal has always been a chronic problem, not only because of the quantity, but because of the inadequate provision for a good system to address the problem. Even advanced countries like the US, Japan, Italy, UK, Canada are concerned despite the apparent cleanliness of their cities. The situation in these countries was as bad about a century ago as is prevalent in India to date. However, upon that reckoning, India is ahead in legislation albeit not in implementation. New sources of garbage are the Electrical and Electronic Equipments which are being increasingly discarded. The packing materials of the new gadgets are further adding to the woes. Certain countries dump their garbage into the oceans and on distant mountains, raising environment concerns and even affecting food chains. In India, there is no uniform, standardized garbage collection, transport and disposal process. Consequently, garbage generation has increased rapidly over the years and is a serious safety and health problem besides presenting an undesirable spectacle. Municipalities have not been able to implement Waste Disposal Rules, even though promulgated at the behest of the Supreme Court. Deadlines set by the Supreme Court have long been exhausted. Individual efforts made in some pockets have produced commendable results but their replication on a wider area has not taken place. Foreign technology solutions and equipment have not succeeded since their adaptation to local needs have not been notably successful. The garbage issue cannot be addressed without the involvement of the community and a determined administration. It may be necessary to invoke a Mission Mode Approach with the vision of making India a garbage-free nation in the next ten years. In the past, Mission Mode approaches have been successful in the fields of communications, vegetable oils, pulses and access to safe water supply.]*

Lamenting the poor facilities in India for disposal of municipal waste, Indian Minister for Environment, Jairam Ramesh, said, "Our cities are the dirtiest cities of the world. If there is a Nobel Prize for dirt and filth, India will win it, no doubt."<sup>1</sup> This was, no doubt, an expression of frustration by the Minister over the inability of the states in tackling the garbage menace engulfing India, particularly its urban segment. Also, the international media is responsible for making unsavoury comments on the Indian sanitary conditions which discourages travellers from coming to India. Only 60% of municipal waste is collected in India. Just 30% of urban sewage is treated. Only 269 of 5161 of India's towns and cities have modern sewage systems, while 33% of the country's 1.2 billion people have access to a toilet. Roads in rural areas are littered with heaps of trash, especially in the countryside. India is drowning in garbage. The

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<sup>1</sup> "If there is a Nobel Prize for filth, India will win it: Jairam Ramesh," *The Economic Times*, November 21, 2009.

cities alone generate over 100 million tons of solid waste per year. Waste-energy schemes are riddled with corruption and civil consciousness to clean up the surroundings is lacking.<sup>2</sup>

Garbology, a new field of study, states that garbage is one of the world's most abundant and universal problems, which is manifesting itself in fiercer forms in the developed and developing economies. Garbologists confirm that the problem of garbage is associated with the careless nature of humans and has been there since times immemorial. Humans let trash fall where it may.<sup>3</sup> The Mayan Indians of Central America had dumps, which exploded occasionally and probably often burned. They also recycled their waste. In some cultures, nearly everything is considered as wasteful and disposable. Garbage has played a tremendous role in history. The bubonic plague, cholera and typhoid fever, to mention a few, were diseases that altered the populations of Europe and influenced monarchies. They were perpetuated by filth that harboured rats, and contaminated water supply. It was not uncommon for Europeans to throw their garbage and even human wastes out of the window. They figured that stray dogs would eat whatever they threw.

Garbology<sup>4</sup> mentions the obvious: That the nature of waste varies greatly from one civilisation to another. Garbology thus becomes an important and useful tool in archaeological research. In 500 BC, the first municipal dump was created in Athens, Greece, which required citizens to dump their garbage at least a mile from the city limits. In 1388, the English Parliament had to pass a law barring waste dispersal in public waterways and ditches. In 1400, Garbage, piles were so high in Paris that it interfered with the defence of the city. The "age of sanitation" began in England in 1890 when it was understood that certain diseases were caused by filth. The first ever incinerator for waste disposal was built in England in 1874 and in New York City the first incinerator was put to use in 1885. In 1889, it was reported that Washington DC was running out of appropriate places for refuse. By 1900, the garbage problem

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<sup>2</sup> "The Problems With Indian Infrastructure," *Travel Muse*, July 4, 2011.

<sup>3</sup> Crowell Barbalace, Roberta (2011), "The History of Waste: Do you want to be Garbologist?" *EnvironmentalChemistry.com*, June 28.

<sup>4</sup> *Ibid.*

was perceived by the local governments in U.S. as one of the greatest problems. In 1954, companies in the U.S., in order to minimize trash, started repurchasing their used cars. In 1965, the U.S. enacted its first federal solid waste management law. In 1976, the U.S. framed the Resource Conservation and Recovery Act emphasizing recycling and household waste management. It was in 1979 that the criteria prohibiting open dumping was published.

The above account on the History of Waste as chronicled by Garbologists would make it clear that the issue of garbage has been there ever since the dawn of civilisation and has been manifesting itself with increasing intensity as the civilisation marches towards more and more industrialisation and urbanisation. Successive administrations have addressed the new emerging issues by enacting laws and imposing regulations and by bringing technology where appropriate to increase and enhance available options at different times. Such a state of affairs is still continuing even in the most advanced and developed countries despite the cleanliness of their cities and towns.

A unique characteristic of garbage is that it is continuously generated but cannot be eliminated at the same rate at which it is created and thus it continuously grows. Further, despite a host of technologies deployed to address this issue, garbage once produced can be shifted, dumped, buried and incinerated but it is not possible to annihilate it. It may change its shape and form, but it grows. The advanced countries have reached a stage where the accumulated garbage has assumed alarming proportions and there is scarcity of landfill sites for its disposal. Nations take recourse to dumping their refuse in the oceans and sparsely populated mountains<sup>5</sup>. Large cities like Toronto which are running out of dumping sites are transporting garbage to far off places like Michigan for its disposal at considerable costs.<sup>6</sup> The cities of New York<sup>7</sup> and Washington also want to transport their large volumes of

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<sup>5</sup> Silverman, Jacob (2011), "Why is the world's biggest landfill in the Pacific Ocean?" science.howstuffworks.com. See also, Karan, Pradyumna Prasad and Dick Gilbreath (2005), "The Challenge of Environmental Presentation," *Japan in the 21<sup>st</sup> Century: Environment, Economy, and Society*, The University Press of Kentucky.

<sup>6</sup> *Congressional Record* (Bound Volumes), Part 11, by Congress, p. 79.

<sup>7</sup> Thomson, E. Vivian (2009), *Garbage In, Garbage Out: Solving the Problems with Long-distance*

waste to neighbouring states, but the states are now in denial mode. Environment concerns are becoming shriller due to rapid deployment of incinerators since the resultant ashes as well as the gases released are toxic<sup>8</sup>. Cities like Naples<sup>9</sup> in Italy have been in constant state of emergency because of garbage issues and have taken the assistance of Hamburg local government in evacuating their garbage by trains and burning it there in their incinerators at a very heavy cost. The garbage management situation in the U.K.<sup>10</sup> is also not comfortable. The situation is getting further aggravated by the consumptive pattern of these societies and the deepening of culture of fast obsolescence in relation to gadgetry with the advancement of technology which is leaping in all directions, except in the direction of garbage management. Over the years, the contents of garbage have been becoming more and more durable and resistant to natural decay process. Latest in this series is the waste resulting from Electrical and Electronic gadgets, which are being dumped on account of their obsolescence. The packing material of the new gadgets being bought as substitutes further aggravates the situation.<sup>11</sup> There is no safe way of recovery and/or disposal of such discarded material.

Tackling waste management issues is a grim prospect for the advanced economies. If they have resorted to dumping their garbage in the oceans and on the mountains, it is, in a way, out of despair and out of sheer disregard for consequences of this action on mankind in future. The historical expression, 'Out of sight, out of mind', does not apply in this situation; there are other disasters waiting to happen. At this moment, the yet unresolved issue of giving final resting place to the accumulated nuclear waste also needs to be flagged to transform the emerging scenario and address environmental challenges.

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*Trash Transport*, University of Virginia Press, p. 5.

<sup>8</sup> "Gasification, Pyrolysis & Plasma Incineration," <http://www.no-burn.org/downloads/Gasification,%20Pyrolysis,%20and%20Plasma%20Incineration.pdf>

<sup>9</sup> "Naples' rotting garbage will wind up in Hamburg," *New Europe*, Issue 776, April 7, 2008, <http://www.neurope.eu/articles/84926.php>

<sup>10</sup> Capetillo, Alicia (2010), "BBC Brings London's E-waste Dumping Issue to the Air," *Good Technology*, March 10, <http://www.good.is/post/bbc-brings-london-s-e-waste-dumping-issue-to-the-air>

<sup>11</sup> "Garbage in, garbage out," *The Economist*, April 24, 2011, [http://www.economist.com/blogs/babbage/2011/04/electronic\\_waste](http://www.economist.com/blogs/babbage/2011/04/electronic_waste)

On the scale of evolution of garbage management, India would, on average, stand at the same level at which Europe and U.S. stood in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries as far as habits of citizens and resultant scenario of garbage is concerned. On the legislative as well as disposal aspects, it may be a little ahead of that period but fares poorly in terms of date comparison. The way garbage is handled, collected, stored and disposed, can pose risks to environment and to public health. Municipalities are struggling to provide even the most basic services years after the promulgation of Waste Management Rules 2000 and also in defiance of the deadlines set by the Supreme Court. As a result, it is not uncommon to see solid waste lying uncollected, which is often mixed with human and animal excreta on the streets and in and around the drains. It causes stench and leads to flooding—becoming a breeding ground for disease-causing insects and rodents—thus causing severe economic and welfare losses. Uncollected garbage and open landfill sites, too, are potential sources of groundwater contamination because of leachate<sup>12</sup> production.

Many studies<sup>13</sup> have observed that urban poor suffer the most from life threatening conditions, as municipal authorities tend to allocate their limited financial resources to the richer areas of tax yields where citizens with more political clout reside. Also, the wealthy citizens use part of their income to avoid direct exposure to the environmental problems close to home thereby shifting the problem away from their neighbourhood to elsewhere; it is usually the poorer localities that bear the brunt of the harm caused. The situation is becoming increasingly acute as more and more urbanisation is taking place and is further compounded by the impact of consumerism on the middle income groups who add to the garbage by throwing

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12 Leachate is a widely used term in the Environmental sciences where it has the specific meaning of a liquid that has dissolved or entrained environmentally harmful substances which may then enter the environment. It is most commonly used in the context of land-filling of putrescible (solid waste that contains organic matter capable of being decomposed and of such a character and proportion as to cause obnoxious odours and to be capable of attracting or providing food for birds or animals.) or industrial waste.

13 Look, Marie (2009), "Trash Planet: India," *Earth911.com*, August 3, [earth911.com/news/2009/08/03/trash-planet-india/](http://earth911.com/news/2009/08/03/trash-planet-india/). See also, Zurburg, Christian (2002), "Urban Solid Waste Management in Low-Income Countries of Asia; How to Cope with the Garbage Crisis," paper presented for Scientific Committee on problems of the Environment (SCOPE), Urban Solid Waste Management Review Session, South Africa, November 2002.

away packing material of the fast moving consumer goods which have a fair component of plastic, which is indestructible.

Door to door collection of garbage has been initiated in some wards of a few municipalities. However, the optimal efficiency in this limited exercise is yet to be achieved. There are no standardised dimensions of bins and the containers in which garbage from domestic bins would be dumped. Further, transportation of garbage from containers is fraught with irregular movements and in non-standard modes. Garbage from the containers ultimately land up in untreated open landfills. Most of the street scavenging work is done manually but again it is irregular. Mounting refuse heaps alongside the road are tossed at irregular intervals in randomly located containers to be carted away to landfills. At each stage of movement there is littering and thus the entire process of garbage disposal becomes a major cause of environmental degradation and spread of various diseases. Despite the yeoman service of ragpickers in sorting out recyclables and thus reducing the volume of waste, they add their bit to the pile of garbage on roads, near containers and at the landfill sites. Such people come from the poorest strata that work in unhealthy conditions; they constitute a workforce of about 1.5 million. Though ragpickers are contributing substantially towards clean environment yet they may become chronic carrier of diseases. Their efforts (i) contribute to garbage management, (ii) provide inputs to the recycling industry which may see considerable gains in economic output, and, (iii) are targeted towards recovering rare metals thus reducing the costs of industrial inputs. However, such a large section of workforce is outside the overall schemes of municipalities. Therefore, the health concerns of such a large population are neglected which ultimately affects their overall output. Except some NGOs, no other programme provides them with gloves or protective gears that are specifically designed for hazardous working conditions as also preventive and curative treatments. A more proactive approach would be to arrange for their onsite education and training programmes for imparting skills so that over the years such a

workforce is weaned away in the hope of coming up with innovative solutions that would minimize their involvement in garbage management.<sup>14</sup>

With the growing of urbanisation, the availability of landfill sites is becoming extremely difficult. The urban development authorities do not identify landfill requirements (site, size, etc.) in their plans initially but later when people start residing, the identification of a landfill site becomes a political issue and can lead to avoidable litigation. Now, however, the accumulation of waste has gotten out of hands with the relatively new areas accumulating solid waste and garbage over roads and near residential areas across the cities with no immediate solutions in site.

According to 2008 report quoted by Marie Look<sup>15</sup>, if an efficient system were in place, roughly 15% of India's waste material such as paper, plastic, metal and glass could be recovered and recycled. About 35 to 55% of organic material can also be recovered for economic use, which would leave 30 to 50% to be sent to landfill sites. If this vision is achieved, the acute problem of shortage of landfill space can be addressed for many years by upgrading the existing sites for which availability of technology is not an issue.

Many initiatives have been taken by various NGO's, individual citizens and municipalities (for example, the Surat Municipal Corporation which is well-known for its achievements in municipal solid waste) with significant achievements. Social workers such as Almitra Patel have written extensively on the subject besides doing hands-on exercises with remarkable single mindedness. Many innovations have been devised and practised. Many high-end technologies of extracting energy from waste, etc., have been tried. Striking features of such efforts have been that (i) while solutions available abroad may be replicable in India, the local conditions, practices, city layouts and habits of citizens would dictate that indigenous solutions are worked out, and (ii) if necessary, foreign technology and appliances should be adapted to

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<sup>14</sup> Look, Marie (2009), "Trash Planet: India," *Earth911.com*, August 3, [earth911.com/news/2009/08/03/trash-planet-india/](http://earth911.com/news/2009/08/03/trash-planet-india/). See also, Singh, Rahul and K.R. Chari, "Socio-economic Issues in Waste Management by Informal Sector in India," <http://www.transwaste.eu/file/001447.pdf>

<sup>15</sup> Look, *Ibid.*

local condition, and in case of failure, their reasons for not working in Indian conditions should be analysed.

Broadly, various fields of garbage management action plan include recommendations for:

- i) Reducing the rate of garbage generation
- ii) Scientific and efficient collection and transportation
- iii) Scientific dumping after recovering to the maximum recoverable
- iv) Incineration with minimum emissions
- v) Composting

Each nation state including India has to work towards their own indigenous solutions—learning from experiences within and experiences from elsewhere. R&D/innovation would also be targeted towards indigenous issues. All the solutions would call for public awareness and co-operation as garbage is first and foremost a public health issue as each and every individual is a producer of garbage and the issue is of concern to everyone. The Community workers and the faith preachers may be required to reorient their thinking and actions to infuse new vigour into the phrase “cleanliness is next to godliness”. *Karseva* (free voluntary service) is sacrosanct with many institutions of worship where devotees deem it as an honour to perform the lowliest of jobs to keep the premises clean. Such faith preachers should advise their followers to do *Karseva* in and around their residential areas with the same fervour to bring order and cleanliness to a busy world!

Government efforts have been fragmented in this task, particularly when the existence of garbage is not only aesthetically repulsive, but also affects health and productivity causing heavy welfare costs and retarding economic output. The fragment-based approach cannot touch the fringe of the problem which is gigantic by all means and is created by the highest to the lowliest in the land and is getting complicated by the day affecting our nation’s reputation to such an extent that even a Union Minister had to admit that India has the dirtiest cities. If the Union Minister is really concerned with the problem, and he should rightly be, he should persuade

his Government to build a dedicated 'mission' for making India a garbage-free nation, say, within the next ten years. A dedicated and empowered mission, on a full time basis, would be in a position to bring together different thoughts to broaden our knowledge and devise, through research and innovation, workable programmes specific to the local needs to make India garbage-free in the next ten years. Mission Mode approaches have worked successfully in the past, notably in tackling the issue of vegetable oil, pulses, communication and access to safe water supply. It would be worthwhile to take up a similar approach for addressing the garbage issue as well.