

Waste management in Kohima: Issue and Challenges

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Abstract: *Scientific and sustainable management of solid waste is major challenge face by any Municipal Council around the world. Kohima being the state capital of Nagaland, solid waste management has been given the utmost priority by the Kohima Municipal Council. The paper highlights that despite the various initiatives taken by the KMC for waste management in the Kohima town area, barriers like lack of solid waste machine, non-segregation of waste, and poor attitude of the major section of the town population are the some of the determinants face by the KMC authorities for the scientific management of waste. The paper concludes that the most sustainable management of solid waste is to inculcate and developed the culture of Reuse, Reduce and Recycle among the citizens without which solid waste management will be a losing battle.*

Keywords: Solid Waste Management, scientific management of waste, Reuse, Reduce, Recycle

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Introduction

In the present political scenario where environmental issue is occupying a major space in discussion and policy making, waste management has been given the top most priorities by municipal councils/corporations around the world. Since the solid waste management is not only an environmental issue but also a health issue, as mismanagement of solid waste around the world, especially in the developing countries has led to hazardous health consequences for the local population (Modak et.al 2015; Gupta et.al 2020). However, it is also a known fact that proper and sustainable management of solid waste is one of the recurrent challenges faced by urban local bodies around the world in general and developing countries in particular. Since industrialization, urbanization, and expansion of economic activities brings with it the issue of waste generation and waste management (Pradhan et.al 2012:68). Similarly, Kohima being the state capital is one of the most urbanized districts, having a vibrant economy which brings with it the issue of solid waste generation. And despite the high level of awareness regarding the importance of proper waste management among major section of the urban population¹, it has not resulted in a positive outcome in terms of proper solid waste management on the ground. Thus, the paper reviews the challenges, barriers, and opportunities associated with issues related to solid waste management in Kohima town.

Methodology

The article is based on primary and secondary sources. The primary source was collected through interviews with KMC authorities, ward authorities, local population, and field observation. The study area is confined to Kohima town and the respondents were selected based on purposive sampling.

Brief Background of Kohima Town

Kohima is the oldest township and also the capital of Nagaland which came into being more than 130 years back. The civic body in Kohima was established in the year 1957 and was christened as Kohima Town Committee (KTC) which was later upgraded to the Municipal Council in 2004 under the Nagaland municipal act 2001(KMC n.d). The KMC jurisdiction covers nearly 11 sq km which accounts for just 17% of the total planning areas of greater Kohima with a population of 98000 as per the 2011 census (<https://kmc.nagaland.gov.in/>). Kohima being the state capital has the second-highest in terms of density of population and the highest in terms of population growth (Nagaland census 2011). Therefore, without a proper mechanism in place, it is bound to create havoc in terms of solid waste management as there is a correlation between an increase of waste generation with the increase in population density of an area (Supangkat & Herdiansyah 2020).

¹ Most of the respondent interviewed understand the importance solid waste management

Table 1. Waste generation under Kohima Town

Sl.No	Source	Types of waste
1	Households	Organic waste, plastics bottles, wrappers, clothes, glass, metals, hazardous waste like cfl bulb, battery, electronic parts, foam
2	Schools	papers, glasses, plastic, cardboard
3	Vegetable/fruit markets	Organic waste
4	restaurants	Plastic bottles, waste food
5	Commercial centers	Mostly paper and plastics
6	Healthcare facilities	Infectious and non-infectious waste
7	Infectious and non-infectious waste	Slaughterhouses Bones, blood, intestines, carcasses, etc

Source: field work

Discussion

Waste management under KMC

Kohima Municipal Council like other Municipal Councils has made solid waste management as one of their top priority within its jurisdiction. Therefore it has initiated various pilot projects funded by the central and state government, and has also taken various initiatives in collaboration with various NGOs, and through community initiatives to spread awareness relating to waste management. Some of the important initiatives taken by the KMC are as follows:

1. One of the initiatives taken by KMC relating to solid waste management is the decentralization of waste management to respective ward authorities. Such steps were taken to reduce the burden upon the KMC for waste management as it became practically not feasible for the sanitary worker to cover the entire area under the jurisdiction of KMC for waste management.
2. The KMC authorities also installed two dustbins, one for bio-degradable and other for non-biodegradable waste in all the wards under its jurisdiction to promote segregation of waste among the citizens.
3. The KMC also established a Solid Waste Management plant at Lerie colony in the year 2016 which was later taken over wholly by KMC in 2019.
4. It also installed "Plastic Bank" around the town vicinity for the purpose of collecting plastic bottles in order to reduce the litter generated by plastic bottles.
5. KMC also has issued a permit to Waste India solution for the collection of all kinds of plastic waste under its jurisdiction.
6. It has also taken initiative to collaborate with world vision India in installing garbage bins, bins for plastic waste, rainwater harvesting, and trailer-bounded bio-toilets.

Table 2

1	Number of sanitation workers	96 workers (all contract)
2	Vehicle dedicated to waste collection under KMC	8 trucks, 1 pickup
3	How many wards under kmc	19 wards (48 colonies)
4	Vehicle dedicated to waste collection under KMC	19 trucks 19 pick up
5	Waste generation	90 tons/day
6	Waste collection	Daily
7	Any chargers for waste collection	Yes
8	Best practice	Decentralization of waste management towards authorities

Source: KMC Office

Issue and Challenges

As highlighted in the earlier discussion KMC has taken up various initiatives for the proper management of waste within the Kohima town. However, despite such initiatives sustainable and proper management of solid waste continues to be a major challenge faced by KMC officials. One of the barriers highlighted by KMC authorities in this regards is the lack of SWM plant. Though SWM plant was installed in 2016, the plant functioning had to be stopped due to the non-segregation of waste, since proper segregation of waste has to be done before waste are put in such plants.

Apart from those infrastructure issues, one of the major challenges related to solid waste management was the lackluster attitude of the general public toward waste management, and their lack of effort toward the segregation of waste. Most of the citizens are hardly in a habit of segregating their household/commercial and institutions waste before dumping it off in the ward or KMC dustbin. Similarly, ‘Plastic Bank’ which was installed in and around Kohima town and ward vicinity with the objective of proper collection of plastic bottles got derailed since the local population started dumping all kinds of unsegregated waste in such plastic bank. In this regard, KMC administrator is of the opinion that no doubt the public knows the importance of waste management but their understanding of waste management is confined to cleaning and depositing their household waste in ward and town area dustbins. Such practices are not sustainable and viable practice relating to waste management. Since such practices are simply shifting the waste from one locality to another which in the long run bound to affect all the community. Thus like in most urban areas there is a lack of ownership in terms of waste management, as the general public has a habit of conveniently dumping their unsegregated waste haphazardly assuming that it is the sole responsibility of the KMC workers to keep the surrounding clean. Such a mindset of the public makes the job of keeping the surroundings clean much harder.

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Figure 1: Waste lying on the ground and Municipal dustbin (Source: Field work)



Figure2a: Landfill in Mokokchung District, Nagaland (source: field work)

Figure2b: landfill in Guwahati Assam India (Source: Free pictures for conservation)



Figure 3: Ghazipur landfill (source: The Advocacy project)

Table 3: Biodegradable and Non-biodegradable Wastes: Degeneration Time

Category	Type of waste	Approximate time taken to degenerate
biodegradable	Organic waste such as vegetable and fruit peels, leftover food stuff, etc	A week or two
	paper	10-30 days
	Cotton cloth	2-5 months
	Woollen items	1 year
	wood	10-15 years
Non-biodegradable	Tin, aluminium, and other metal items such as cans	100-500 years
	Plastic bags	One million years

Source: <https://www.bbau.ac.in/Docs/FoundationCourse/TM/lecture1.pdf>

One of the successful and proven methods of solid waste management is the proper implementation of "segregation of waste". Non-segregation of waste is one of the main reasons for the lack of success in terms of waste management around the world. No doubt there are different kinds of waste but generally speaking waste are categories into bio-degradable and non-biodegradable waste. Bio-degradable waste like kitchen waste and leaves can be easily used for composting, instead of dumping it in the KMC and ward dustbin. There is no doubt that in places like Kohima town, people hardly have a place to compost, in such cases they can segregate the waste to be dumped by the sanitation workers in some community composting dumping zone. Whereas waste like plastic bottles, soda cans, noodles cups, cardboard etc can either reused and recycled for craftwork or can be easily sell off to scrap dealers. In this regard one of the shop owner sharing her experience said that she was able to buy a fridge for her shop by the money generated from selling waste materials like plastic bottles, card box, soda can etc.

In the case of electronic waste like CFL bulbs, circuit board, cables etc can be segregated to be dumped off separately through agencies like E-circle which had installed the first "E-waste" bin in Kohima at Stella Higher Secondary School (Nagaland: First e-waste-bin installed in Kohima,2019). Lastly waste like plastic bag, wrappers, etc can be burned off in incineration or other SWM plant in an environment-friendly manner. Therefore if KMC authorities are to succeed in terms of solid waste management, they should in collaboration with respective ward authorities, NGOs, and the local community come together in spreading awareness regarding waste segregation. They should work on making segregation of waste part of the daily routine and habit of the citizens which will not only drastically reduce the amount of waste to be handled by the sanitation workers but will also lead to sustainable solid waste management. In this regard, one can take the example of Kamikatsu town in Japan which have for decades indulge in a "Zero waste" program where they have 45 categories of waste to be segregated. Further, the town has no trash collection system and it is the responsibility of the residents to transport the household waste to a local waste treatment plant. Such initiatives have enabled the Municipal authority to save money in terms of waste management since it has enabled them to cut costs in terms of incinerating the waste and also earn money from the selling of waste (Henman & Sambyal 2019). So long as there is a human population on the earth, humans are bound to produce waste in some form or the other. Even environment-friendly products like solar panels and wind turbines are generating waste once they reached their lifetime use or get damaged through storm and other factors. Therefore, the most practicable way of proper waste management is to practice the three R that is reuse, recycle and reduce in letter and spirit.

Conclusion

Kohima being the state capital is one of the fastest-growing areas in terms of density of population and commercial activities which brings with it the issue of waste generation, and without proper management of such waste, there will come a time when it will become an impossible task to manage the solid waste leading to pilling up of landfill like in other urbanised areas in India putting the health and environment at risk. Therefore, more scientific management relating to waste management need to be adopted, and the present method of collecting and dumping waste on open landfill need to do away with.

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