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MANAGEMENT OF LANDFILLS IN NCR-DELHI REGION- A TECHNOLOGICALLY FLAWED APPROACH

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Abstract: The landfills in Delhi-NCR region are not managed efficiently and effectively based on the scientific considerations and thus leading to various pollution hazards in air, soil and water. The villages located around the landfills are adversely affected due to this environmental degradation. A survey was conducted to assess the extent of social and public health issues, including the quality of the drinking water and environmental impacts. The study revealed that the social life and the health of the villagers living around the landfills have been seriously impacted. The respondents reported that these landfills should be scientifically and technologically managed so that adverse social and health implications are minimized. The various studies conducted by different investigators also supported the finding of this study.

Keywords: Environmental, Landfills, Technologically, Pollution.

I INTRODUCTION

On Friday, 1st September 2017, the East Delhi's landfill located at Gazipur collapsed and Crashed into a Canal to wash over a nearby road killing two and hurting five people. The incident occurred around 2:15 PM on Saturday, 2nd September. The citizens of the India rise to the caption "**Family gives up hope after losing son**", "**Mountain of garbage**", in addition it brought out the neglected waste management in the country and how it can have deadly consequences. The MSW rules notified much delayed, with the source segregation and their scientific processing. Which is a technological flaws in municipal solid waste management (MSWM).

62 million tons of MSW is produce every year in the country, a potential resource has been left to the rag pickers. This requires behavior modification among citizens and institutions. A very good initiative has been taken by a single Youngman Afroz Shah, who along with his 100+ volunteers clears waste, after segregation almost daily at Varsova beach, Mumbai. His services have been well recognized by international bodies and local citizens due to wide publicity given by media. Such examples need to be replicated in all major cities.

As most of MSW landfills in Delhi NCR region being used as dump, the recyclable dry waste embedded in waste are lost due to dumping on ground. Generally 50% of organic waste readily lends itself to the generation of compost or power generation production. A major opportunity lost[1].

A paradigm shift is urgently required. Let bulk solid waste producer take the lead and city managers demonstrate the way of processing it. Processing of separated garbage needs to be provided with sufficient funds instead of huge funds being provided to private contractors for collection and transportation of garbage [2].

Central Pollution Control Board (CPCB), being the in charge for the implementation of new rules, should periodically asses the preparedness of local bodies to meet the deadlines. As the MSW volumes are officially predicated to grow to 165 million tons a year by 2030, this national issues needs a rigorous time-bound approach, otherwise many more suburbs are bound to be threatened by collapsing or burning of Trash Mountains, such as Bandhipur in Haryana.

The Way ahead: - After having banned the dumping of solid waste in Ghazipur on the very next day of the tragic crash, on Saturday, 2nd September 2017, the lieutenant Governor of

Delhi visited the headquarters of Municipal Corporation on Saturday, 30th September 2017, a national holiday. This clearly highlighted that the top priority being accorded to MSW in the Delhi by implementing the suitable practices being adopted globally. Based upon the information that the waste handling capacity of the waste to Energy (WTE) plant at Gazipur was 1300 MT per day, Lieutenant Governor (LG) declared that the capacity is proposed to be enhanced to 1900 MT per day immediately followed by another enhancement of 600 MT per day by augmentation of power generation equipments. Total waste generated in the East Delhi, where the Ghazipur is located, being 2600 MT waste per day, the advice of the LG that no waste is dumped on Ghazipur is likely to be met very soon.

'Own the waste' is newly launched joint project by the local Municipal Body and Corporate Sector under CSR. The industry sponsor is The sleep well Foundation and the executive partner is Indo Global Social Service Society (IGSSS). This project is first of its kind in the national Capital and a Zero waste Management Model which will see, for the first time, the active participation and support of residents' welfare level to ensure that no waste is dumped at the landfill sites [3].

Action Plan:- The Confederation of Indian Industries (CII) has taken responsibility for collecting, transport and process the segregated MSW from 12,500 households in the East Delhi. CII Delhi City connects has partnered with 75 Resident Welfare Associations (RWAs) for this project. About 75 trained rag pickers will go door to door to collect MSW. They will carry out primary segregation of the waste and the secondary segregation will be carried out at the project site. Finally, it will be ensure that only organic MSW will goes to the landfills for composting.

270 aerobic composite pits are being constructed. Technology like this is being deployed for the first time under Corporate Social Responsibility (CSR) in MSWM. This project is in alignment with Swachh Bharat Mission which aims at keeping one's locality and city clean as it will reduce waste accumulation at landfill sites. The project can become a model for other Resident Welfare Associations in the capital and NCR.

Impact of MSW Landfills on Public Health and the environment: A field survey based study.

Bandhwari, a landfill site, located between Gurugram, a millennium city coming up fast as major international business centre and Faridabad, a well connected city, both coming under Delhi-National Capital Region. Fig. 1 shows the Delhi-NCR map.



Figure 1: Delhi-NCR map (Courtesy: Google earth images)

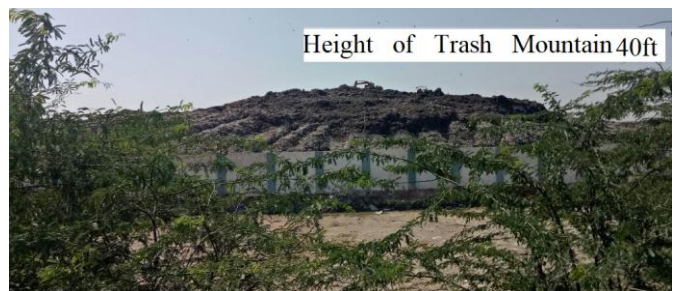


Figure 2: Bhandhwari Landfill site

Mr. Anil Kumar, the respondent accompanied Dr Malik and myself to go up the mountain of garbage, breathe the air with, severe pungent odor, experiencing the in problem in breathing, flies buzzing around. Here are a few photographs snapped during the visit(Figure 3 & 4). We were informed that Eco Green company has just taken over the task of rebuilding the segregating of waste received to the order of 125-130 trucks full of garbage arriving from Faridabad, Gurugram and even from Dharuhera. Based on the CPCB report, it found the water bodies in Bandhwari were polluted and now it is unfit for drinking.



Figure 3: Interacting with Mangara villagers



Figure 4: Interacting with Mangara women villagers

The Mangar village on the eastern side of the garbage dumping site, visited by us was reported to have much more health related problems such as headaches, bodyaches, breathlessness, sleeplessness, irritation, depression and anger. Anger and headache were reported by women and gents of the village. The death of cows in thousands was also reported by some villagers.

This visit was an unforgettable experience with all villagers demanding removal of garbage dumping totally. There being no hospital in the village, the suffering patient has to be taken to Faridabad and Delhi hospitals, more than 15 Km away.

The village women while giving vital information about the diseases quite common among ladies, were expecting that we will provide them some relief by giving them some medicines. The owner of the only chemist shop informed that Disprin tablets are high in demand because of headache problem being very common ailment.

The only solution seems to be close down the dumping ground totally and segregation & processing for production of compost may be taken up at the spot where garbage is generated.

Resident of Ghata, Gawal Pahari and Pali villagers:

- Toxic gases emitted by the Bandhwari plant are polluting the air and water in the areas, thereby impacting their health.
- Bandhwari waste treatment plant shut down after a fire happened in 2013 and the plant is non functional now, tones and tones of waste from across the city are dumped at the site every day.
- Every day 1,600 tonnes of waste is being dumped without processing, resulting a pollution with many villagers seriously suffering from respiratory diseases.
- Bandhwari in 40' tall posing threat to eco- sensitive Aravali region. .
- Plant was set up in 2007, starting function in 2008, was shut down after a fire broke out in 2013.

- Marriage proposal are not being entrained from these affected villages fearing health hazard.
- Ground water is not fit for consumption being contaminated by leachate from waste treatment plant.
- National Green Tribunal (NGT) has been moved by the villagers regarding the issue of ground water contamination, without any results.

Resident of Gwalpahari informed that "Govt, is not showing any interest in solving our issues. Gurgaon and Delhi will be impacted soon being in critical ground water zone. Water samples collected from nearby water pond was found to be contaminated and level of harmful chemicals were found to be above all permissible limits and rendered unfit for drinking.

II IMPACT ON PUBLIC HEALTH

Based upon sample study as above, it was concluded that groundwater, the air and landfill gas is effecting adversely the population living nearby and even upto 15 Kms around the Bandhipur landfill site. The common ailments reported by the villagers of three villages being affected adversely i.e. Pahi, Gwalpahari and Ghata are summarized as follows:-

(A) Ground water: Landfill Sub Soil water.

1. Bandhwari landfill is a highly contaminated water and rendering it unsuitable for use of domestic water supply.
2. This water resulted in reduced service life of household appliances.
3. There are also "non-conventional pollutant which include 95 % of organics in soil water.

(B) Landfills Gas Emissions:

1. Methane and Carbon Dioxide emitted from MSW landfill is highly detrimental to vegetation with disgust odors.

In developed countries, dry tomb landfills approach is commonly practiced. The main objective is to isolate the MSW from water for as long as the MSW seems to be warning, followed in our country as 'dumping ground' is found to be flawed technology it affect the public health.

Bandhwari MSW landfills is located in low lying land with open dump in which the everyday waste is dumped and covered with soil. This approach being practiced extensively in India did not incorporate any provisions to prevent either air pollution from gaseous emissions or ground water pollution from liquid emissions. It is only now, after recent Gazipur landfill crash, the new technology based is going to be incorporated, beginning units Gazipur landfill.

A similar approach is proposed to be duplicated in Bhandipur and other landfill sites in Delhi-NCR. Providing a land buffer around Bandhwari is the basic requirement of its location, as the same which has been scheduled to be closed and shifted to another site. Local villagers have been agitating on this issue for quite some time.

A team of Journalists visited the landfill site on 12th Oct, 2017 and highlighted that the leachate was indeed overflowing at the plant, resulting in unbearable stench and contaminating underground water for quite some time and not drinkable. This is reason, that most of the Households in village Mangar, just 3km distance from landfill site, have installed RO water purifier at their own expenses.

Ecogreen, Energy Ltd., hired by MCG to launch a new waste management plan: Effective from 21 September 2017 a specific kind of bio-culture will be used to reduce the stink from the landfill. Door to door collection of solid waste is proposed to be started from December followed by leachate treatment which will be started from January, 2018. Regarding bulk waste being generated in the markets, waste pickup trucks will be deployed to prevent pile up of waste. Residents realized their role in the whole initiative being undertaken by municipal corporation for the benefits of residents and decided to supported.

III CONCLUSION

Above positive measures to the satisfaction of local villagers, who gave hunger strike threat on 12 Sept, 2017. This initiate taken by the villagers after observing the consequence of major disaster which happen on Gazipur landfill site in Delhi, killing 2 people and injured several. In additional, Lieutenant Governor Anil Baijal had given clear order that " No waste to be dumped at the landfill site", Instead technology of waste processing through bioculture at composting pits may be initiated after segregation at the project site.

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