

A REVIEW: IMPACT ON THE LIFE STYLE OF THE PEOPLE RESIDING NEAR THE LANDFILLS IN INDIA

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Abstract: With increase in population and rapid development the waste management has become a important point to be looked over, as in present situation the residents near the landfill are facing many health related issues. Settlement of crowd around these landfills suffer from the Pungent smells, frequent fires and polluted ground waters which make these locations unhealthy to live. The by-products of the waste deposited in landfill gives adverse effect on the surrounding environment and humans living closer to such sites. The city sanitization plan with specific objectives and missions is being exhibited by the government of India and efforts are being made to reduce these landfill in the city and to totally Sanitize the City.

Keywords: landfill, Sanitize, Pungent and by-products.

Introduction

The rapid development of industry and technology has improved the quality of life of people worldwide. However, as a result of this advancement, waste management and treatment have become a challenging point for human life.

It has been evaluated that the rate of waste accumulation is even faster than the rate of urbanization. **Roland G et.al., (2017)** reported that humans have produced 8.3 billion tons of plastic waste since the beginning of the industry in the 1950's, but only a negligible 9% of them was recycled, 12% was burned, and the rest was discarded and buried worldwide.

The key to efficient waste management is to ensure proper segregation of waste at source and to ensure that the waste goes through different streams of recycling and resource recovery. Then reduced final residue is then deposited scientifically in sanitary landfills. Sanitary landfills are the ultimate means of disposal for unutilized municipal solid waste from waste processing facilities and other types of inorganic waste that cannot be reused or recycled.

Waste Disposal in India

Waste management in India is based on the principles of "sustainable development", "precaution" and "polluter pays". These principles mandate municipalities and commercial establishments to act in an environmentally accountable and responsible manner—restoring balance, if their actions disrupt it. Protection Act, 1986 (EPA). Specific forms of waste are the subject matter of separate rules and require separate compliances, mostly in the nature of authorizations, maintenance of records and adequate disposal mechanisms.

With increased urbanization, the country is facing massive waste management challenge. Over 377 million urban people live in 7,935 towns and cities and generate 62 million tones of municipal solid waste per annum. Only 43 million tones (MT) of the waste is collected, 11.9 MT is treated and 31 MT is dumped in landfill sites. Solid Waste Management (SWM) is one among the basic essential services provided by municipal authorities in the country to keep urban centres clean. However, almost all municipal authorities deposit solid waste at a dumpyard within or outside the city haphazardly. Experts believe that India is following a flawed system of waste disposal and management.

Samar Lahiry (2017) reviewed that in a report by IIT Kanpur (2006) found the potential of recovering at least 15 per cent or 15,000 MT of waste generated every day in the country. This, the report said, could also provide employment opportunities to about 500,000 rag-pickers. The report added that despite immense potential in big cities in this area, participation from non-profits or community is limited. **Gupta A.S (2019)** reported in his study that according to the present situation in Mumbai there are only three dumping grounds to handle the 9,600 metric tonnes of waste generated daily. The major landfill Deodar in this metro is about 90-year-old and is at the verge of collapsing. The garbage masses here is as tall as a five- or six-storey building, standing 15 metres high. Another landfill at Mulund has been functional since 1968. Whereas, the condition in Delhi and Lucknow is also not much great Delhi generates around 9,000 metric tonnes of waste every day and is already sitting on a ticking garbage bomb! Delhi has a total of 3 landfills, at Ghazipur, Okhla and Bhalswa.

Health and environmental risks residing near the dump yards

In Every Indian city there is at least one man-made dump mountain where waste generated at homes and business places are being collected. Around 90% of the staggering 150,000 metric ton of urban solid wastes generated everyday make their way to such locations called dump yards, landfills or garbage mountains. The everyday activities originates waste that sometimes causes serious issues for the natural environment, e.g., air pollution, contaminated grounds, and leads to poor human health, such as diarrhea, respiratory illnesses, or cancer. Settlement of crowd around these landfills suffer from the Pungent smells, frequent fires and polluted ground waters which make these locations unhealthy. Delhi's Bhalswa dump yard has halved the iconic Bhalswa lake to 84 acres and contaminated the lake and surrounding groundwater. Groundwater sampling in these locations indicates the high level of toxic contaminants making water highly dangerous to use. Inadequate supply of clean water, high costs of bottled water and lack of sanitation forces households living in such areas to use the

groundwater causing severe health issues. Residents living close to landfill site also face the problem of some other pollutants associated with the deposition of waste on landfills which include litter, dust, excess rodents, unexpected landfill fires, etc. According to the report of **Malivika Vyawahare (2019)** residents of Khan Chandpur village located near the landfill in Kanpur Dehat district of Uttar Pradesh describe the colour of the water in their village as '*peela*' (yellow).

The factors that affect the emissions from landfills includes the kind and quantity of waste deposited, the age of the landfill, and the climatic conditions of the landfill sites. Complex chemical and microbiological reactions in such landfill often lead to the formation of several gaseous pollutants, persistent organic pollutants (such as dioxins, polycyclic aromatic hydrocarbons), heavy metals and particulate matter which directly or indirectly effect the health and environment.

Landfills generate different kinds of trace toxic elements which effect human health directly or indirectly, fires in the dump yards results in the release of landfill gas, mainly methane lead to toxic fumes, smoke and irritation for residents and motorists in the area, **Shen F.W (2012)** in his study postulated that the continuous inhalation of CH₄ by humans can cause loss of coordination, nausea, vomiting and high concentration can cause death. Acidic gases like nitrogen dioxide, sulphur dioxide, and halides have harmful effects on the health and environment when body gets exposed to such gases. It has been studied by **Kampa M (2008)** and **Latza U et.al., (2009)** that when nitrogen dioxide and sulphur dioxide are inhaled or ingested by humans, it causes nose and throat irritations, bronchoconstriction, dysproca and respiratory infections are prevalent, especially seen in asthmatic patients. These effects can trigger asthma attacks in asthmatic patients. In addition, high contact of NO₂ by humans increases the susceptibility to respiratory infections. Furthermore, when these acidic gases reach the atmosphere, they tend to acidify the moisture in the atmosphere and fall down as acid rain. **Phadi et al., (2013)** identified that sulphur dioxide has harmful effects on plant growth and productivity.

These reports confirms that humans living in such areas are at more risk of reduced lung function, asthma, ataxia, paralysis, vomiting emphysera and lung cancer when heavy metals are inhaled or ingested. Ramaswamy A. (2019) in his article reported that residents of Ezhil Nagar, RR Nagar, Panakara Nagar, Krishnamurthy Nagar and KKD Nagar Chennai are reported to be worst affected by the bad air quality in the region Illnesses like, high blood pressure and anemia have been shown to be caused by heavy metal pollution. Additionally,

when the person high in contact, heavy metals affect the nervous system which causes neurotoxicity leading to neuropathies with symptoms like memory disturbances, sleep disorders, anger, fatigue, head tremors, blurred vision and slurred speech. kidney damage, initial tubular dysfunction, risk of stone formation or nephrocalcinosis, and renal cancer can also be caused in several cases. When humans are exposed to a high amount of lead, it can cause injury to the dopamine system, glutamate system and N-methyl-D-Asphate (NMDA) **Jarup L *et.al.*, (2003) and Martin S *et.al.*, (2009).**

Polycyclic aromatic hydrocarbons (PAHs) occurring in landfills are considered to have potential carcinogenic properties when comes in contact with humans which could lead to a tumour of the lungs, skin cancer and deficiencies on other parts of the body **Sakawi Z *et.al.*, (2011).** When humans inhale fumes of such matter, studies have shown that it leads to lining inflammation, systemic inflammatory changes and blood coagulation which can further lead to obstruction of blood vessels, angina and myocardial infarction. **Kampa M *et.al.*, (2008).**

City Sanitization plan

The Sanitization plan is a government plan which contain certain objectives and mission for cleaning the cities and helping people getting rid of the problems they are facing for so long. The basic objectives of the city sanitization plan consists of a totally Sanitized City that has achieved the outputs or milestones specified in the National Urban Sanitation policy, the salient features of which are as follows:

- Cities must be open defecation free
- Must eliminate the practice of manual scavenging and provide adequate personnel protection equipment that addresses the safety of sanitation workers.
- Municipal wastewater and storm water drainage must be safely managed
- Recycle and reuse of treated wastewater for non-potable applications should be implemented wherever possible.
- Solid Waste collected and disposed off fully and safely
- Services to the Poor and Systems for Sustaining Results
- Improved Public Health Outcomes and Environmental Standards

Conclusion

This study concludes that the human health and environmental is badly effected of by the landfill and the residents living closer to the landfill get exposed to various health issues and diseases, which integrates different factors like waste disposal, air and dust pollution, location of the landfill, water and noise pollution, fear of future health, property value, mosquitoes and

rodent's pollution, life in general in the community, etc. The residents living closer to the landfill sites are at the health risk associated with landfill pollutants in the study shows that proper landfill management is of great importance. Landfills should be located far away from residential houses and institutions to avoid certain health and environmental related risks.

BIBLIOGRAPHY

- [1] Ashok sen gupta (2019), Waste Disposal in India, *research gate*.
- [2] Järup L. (2003) Hazards of heavy metal contamination. *Br. Med. Bull*; 68:167–182.
- [3] Kampa M., Castanas E. (2008) Human health effects of air pollution. *Environ. Pollut.*; 151:362–367
- [4] Latza U., Gerdes S., Baur X. (2009) Effects of nitrogen dioxide on human health: Systematic review of experimental and epidemiological studies conducted between 2002 and 2006. *Int. J. Hyg. Environ. Health.*;212:271–287.
- [5] Martin S., Griswold W (2009) Human health effects of heavy metals. *Environ. Sci. Tech. Briefs Citiz.*;15:1–6.
- [6] Malivika Vyawahare (2019) A report: This Kanpur village drinks neon green water & lives near a toxic waste dump as big as CP, *The print*. <https://theprint.in/india/this-kanpur-village-drinks-neon-green-water-lives-near-a-toxic-waste-dump-as-big-as-cp/205769/>
- [7] Padhi S.K., Dash M., Swain S.C. (2013) Effect of sulphur dioxide on growth, chlorophyll and sulphur contents of tomato (*Solanum Lycopersicum L.*) *Eur. Sci.* 9
- [8] Roland G, Jenna RJ, Kara LL. (2017) Production, use, and fate of all plastics ever made. *Sci Adv*.
- [9] Ramaswamy A. (2019) An analysis of media reports on the nexus between waste, health and human rights in Chennai. *CAG Citizen consumer and civic action group*.
- [10] Sahana Goswami and Samrat Basak(2021) Living near urban landfills in india, *wri india* 22-25.
- [11] Samar Lahiry (2017) ndia's challenges in waste management, *down to earth*.<https://www.downtoearth.org.in/blog/waste/india-s-challenges-in-waste-management-56753>
- [12] Shen F.W., Guo H.C., Xin C.L. (2012) The environmental assessment of landfill based on stakeholder analysis. *Procedia. Environ. Sci.*; 13:1872–1881.
- [13] Sharma A., Gupta A.K., Ganguly R. (2018) Impact of open dumping of municipal solid waste on soil properties in mountainous region. *J. Rock Mech. Geotechnical Eng.* 2018;10:725–739.

[14] Sakawi Z., Sharifah S.A., Jaafar O., Mahmud M. (2011) Community perception of odour pollution from the landfill. *Res. J. Environ. Earth Sci.*;3:142–145.

<https://nagarnigamagra.com/pdfs/City%20Sanitation%20Plan.pdf>