

Environmental Impact of Solid Waste (Okhla – Landfill Site)

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Abstract: Due to rapid urbanization and uncontrolled population growth in Delhi, the problem of Solid Waste Management (SWM) has become critical. Limited financial resources, absence of appropriate treatment technology and lack of public concerns etc. towards SWM have made this service far from satisfaction. This project report is an outcome on the evaluation of the present situation of SWM at Okhla landfill site based on field survey and secondary data collection. The various elements of SWM system right from generation, collection, storage, transfer, transport, processing and disposal of solid waste is discussed in a manner that is in accordance with the best principles of public health, conservation, aesthetics and other environmental considerations. Solid waste management is one of the challenging fields of modern urban living and it has its colossal scale to be managed effectively. Simultaneously, we need to address the environmental issues and associated water issues, global warming and Green house gas emissions while tackling this waste problem. Engineered landfilling is one of the options available and practical approaches to improve landfill design and operation have to be achieved by proper understanding of all variables. All these aspects have to be considered from the view point of economic feasibility and appropriate technologies to achieve best sustainable solution.

1. INTRODUCTION

Solid Waste is an unwanted, useless, or dirty substance which is an outcome of human activities. The excessive generation of solid waste is an enormous threat to society and municipal authorities face tremendous difficulties in disposing of huge masses of piled up wastes. It is a major source of survival for poor people (rag pickers) and secure their livelihood in urban population. Municipal Solid Waste Management in India traditionally has been a neglected area of urban development and often has been accounted for severe urban health problems in the past. As a result of the currently experienced rapid economic development and the immense industrial growth, Delhi is being faced with an unmatched amount of solid waste and the far-reaching difficulties relating to waste collection, treatment and disposal.

The task of managing solid wastes has become more and more problematic and complicated as new types of waste such as hazardous chemicals, e-waste or different kind of plastic materials have been introduced into the consumption cycle in

the recent years without adequate system for their disposal. Hence, an integrated approach is required in order to equip Delhi with both technical and management system to coop up with the continually increasing amount of solid waste. The waste is disposed in an unscientific method on the land and thereby posing threat to the environment and public health. The per capita of MW generated daily in India, ranges from about 100g in small towns to 500g in large towns. The problem is compounded by the absence of segregated collection systems and engineered separated streams for different types of wastes and adequate scientific waste disposal facilities with appropriate monitoring and control. Revision of policy is necessary to avoid converting the country into a dumping ground for wastes and its adverse implications to water and environment.

The dumping of solid wastes in the open areas creates aesthetic problems as the beauty of a place is destroyed. The garbage forms a source of food for rats, flies, mosquitoes and the like. Hence typhoid, plague, dysentery, diarrhea epidemics could occur. Toxic hazardous substances in the wastes would be harmful to human and animal health. The plastics if eaten by cows could be fatal. Solid wastes could also pollute water and their burning could lead to air pollution.

Accumulation of solid waste in open areas is an eyesore, diminishing real estate and property value, a breeding ground for insects and other vectors (rats and mice, wild and domesticated animals, as well as humans who may come in contact with contaminated wastes). It also cause odour nuisance, reflects the unorganized nature of the community, and creates a poor environment for growing children. Improper disposal of MSW in open areas and landfills have negative impact on the living conditions of human beings as well as the overall environment. It results in spread of communicable and non-communicable diseases among human beings and animals. Thus affects the welfare, livelihood, and economic, in addition, it causes contamination of soil, surface water, ground water and generation of toxic and Green House Gases (GHG). Use of adequate information, resources and efficient management practices can turn solid waste into a useful resource.

When solid waste is disposed off on the land in open dump or in improperly design landfills it causes following impact on the environment:

- Ground water contamination by the leachate generated by the waste dump.
- Surface water contamination by the runoff from the waste dump.
- Bad odour, pests, rodents, and wind blow litter in and around the waste dump.
- Generation of inflammable gas (methane) within the waste dump.
- Bird menace above the waste dump which affects flight at aircraft.
- Fires within the waste dump.
- Erosion and stability problems relating to slopes at the waste dump.
- Epidemics through stray animals.
- Acidity to surrounding soil.
- Release of Green House Gases(GHG)
- Skin and blood infections resulting from direct contact with waste and from infected wounds.
- Eye and respiratory infections resulting from exposure to infected dust.

- Intestinal infections that are transmitted by flies feeding on the waste.

2. SALIENT FEATURE OF OKHLA LANDFILL SITE

The Okhla Landfill site is located in Delhi, the capital city of India. The landfill is owned and operated by Municipal Corporation of Delhi. The waste disposal started in 1994. The landfill has approximately 5.6 million tonnes of waste in place, and was to be closed in 2008 after reaching a site capacity of about 6.3 million tonnes. The existing landfill covers a total of 54 acres, which is almost completely covered with waste. The waste mass has an estimated depth of 20 to 30 meters, with steep slide slopes. The landfill does not have a current gas collection, flaring or utilization system.

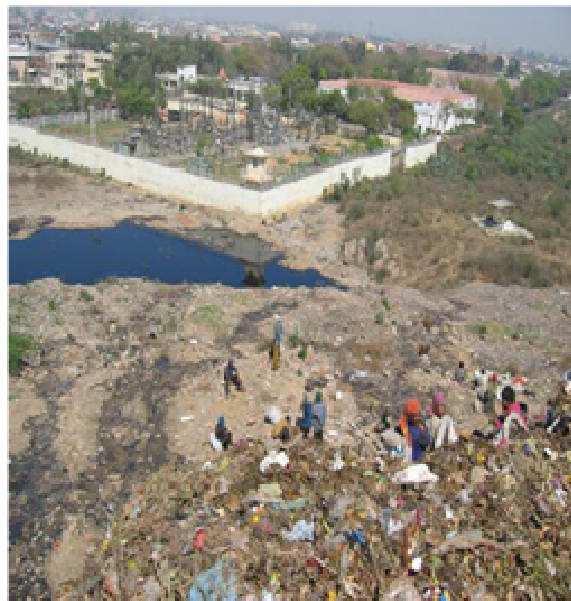
Latest Details : FROM 1ST APRIL 2009 To 30th DECEMBER 2009

TYPE	TRIP	METRIC TONNES
MALWA	18884	111935.890
SLIT, SLUDGE	3650	16265.615
GARBAGE	76079	330884.980

Source : Mr. Narayan Singh (Mate Supervisor in Okhla-Landfill site)

Okhla Landfill

- Commissioned in 1994, spreads over an area of 16.89 Ha and is in operation for last 14 years.
- About 1 600 ton of MSW inclusive of C&D waste is being deposited here every day.
- Uncontrolled solid waste disposal facility
- Slightly better system of waste management with regular covering of MSW with C&D waste in addition to daily leveling and compaction.





3. CONCLUSION

Based on the survey and observation of the waste management at Okhla landfill site, it is observed that the waste is not being segregated and hence the energy that can be recovered from the waste by using suitable technology is not possible. The vehicles that are used for the transportation are not in proper condition to work for long time and are in need of servicing and hence the waste is not treated properly. The waste is also scattered on the roadside instead of bins which provided for the proper collection of waste. The landfill site needs proper attention, it is located near to the residential areas it can cause harm to the environment and the people living near to the site as harmful gases are emitted and there is no provision of gas venting. It is being proposed from the government (under process) to produce electricity from the municipal solid waste but for this the major problem is of segregation without this it cannot be worked out successfully. The availability of storage bins is inadequate and people are disposing waste in haphazard manner. Waste is burnt in some places and cause public nuisance. It is observed from the study that the condition of waste management needs to be improved and maintained scientifically. Solid waste management is one of the challenging fields of modern urban living and it has its colossal scale to be managed effectively. Simultaneously, we need to address the environmental issues and associated water

issues, global warming and Green house gas emissions while tackling this waste problems. Engineered landfilling is one of the options available and practical approaches to improve landfill design and operation have to be achieved by proper understanding of all variables. All these aspects have to be considered from the viewpoint of economic feasibility and appropriate technologies to achieve best sustainable solutions.

4. ACKNOWLEDGEMENT

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