ijergs
Open Access
International Journal of Engineering Research and Generic Science (IJERGS)
Available Online at www.ijergs.in
ISSN: 2455 - 1597
Volume -3, Issue-1, January – February 2017, Page No. 58 - 60

A Study on Environmental Health Issues and Solid Waste Management Practice

Er.T.kavimani, M.E, Assistant professor in Department of Civil Engineering, Annamalai University
E-mail: tkavimani@gmail.com

Abstract

Man's activities on the environment has tended to degrade and make the environment untidy and unfit for human habitation because of its poor sanitation nature. Public health can be seen as a fate of well-being due to the influences and impacts of the physical environment and sanitation on man or indeed on a community. Poor conduct and inappropriate disposal methods exercised during handling and disposal of solid waste is increasing significant health hazards and environmental pollution due to the infectious nature of the waste. Furthermore, most of the healthcare centers of the developing world have faced financial difficulties and therefore looking for cost effective disposal methods of clinical waste. This paper presents a perspective discussion on environment, sanitation and public health.

Keywords: Environment, Pollution, Public Health, Sanitation.

1. Introduction

An overview is presented for causes of diseases, injuries, and accidents from solid waste management technologies. Illnesses discussed include infectious diseases, allergies, respiratory damage, and cancers. Some diseases are derived from direct ingestion of infectious micro-organisms, others involve infection through. contamination of the food chain, whereby animals or other vectors have ingested infectious micro-organisms. Injuries include joint and spinal damage, fractures, puncture wounds, damage to eyes and ears. Accidents include slides from unstable disposal piles, fires, explosions, being caught in processing equipment, and being run over by mobile equipment. The health and injury issues well discussed in the events include collection, recycling, processing, and disposal technologies.[1]

2. Health And Injury Issues

Population growth and economic development have brought increasing amounts of solid waste to urban areas. In most developing countries, the ever-increasing quantities have overwhelmed local governments' capabilities to cope efficiently, In many of these countries, infectious medical wastes and toxic industrial wastes are not segregated from domestic waste (with the probable exception of radioactive materials), exposing the waste collectors to a wide array of risks. Even when segregated from other wastes, they are often placed in large waste rooms that must be emptied manually by workers with picks and shovels.

In many developing countries, waste pickers find their livelihood through sorting and recycling of secondary materials. They have high occupational health risks, including risk from contact with human fecal matter, paper that may have become saturated with toxic materials, bottles with chemical residues, metal containers with residue pesticides and solvents, needles and bandages (containing pathogenic organisms) from hospitals, and batteries containing heavy metals. Exhaust fumes of waste collection trucks traveling to and from disposal sites, dust from disposal operations, and open burning of waste all contribute to occupational health problems. [1,2]

This document focuses on the occupational health and injury risks associated with solid waste collection, processing, recycling, and disposal. Environmental health and injury risks, such as downwind air pollution and down gradient water pollution from solid waste disposal facilities, are listed.

3. Occupational Health and Injury Issues

Some of the more commonly reported occupational health and injury issues in solid waste management: Back and joint .injuries from lifting heavy waste-filled containers and driving heavy landfill and loading equipment. Respiratory illness from ingesting particulates, bio-aerosols, and volatile organics during waste collection, and from working in smoky and dusty conditions at open dumps. Infections from direct contact with contaminated material; dog and rodent bites, or eating of waste-fed animals. Puncture wounds leading to tetanus, hepatitis, and HIV infection; Injuries at dumps due to surface subsidence, underground fires, and slides. Headaches and nausea from anoxic conditions where disposal sites have high methane, carbon dioxide, and carbon monoxide concentrations. Lead poisoning from burning of materials with lead-containing batteries, paints, and solders.

4. Environmental Health and Injury Issues

Some of the more commonly reported environmental health and injury issues in solid waste management: Contaminated leachate and surface runoff from land disposal facilities affecting down gradient ground and surface water quality. Methane and carbon dioxide air emissions from and disposal facilities adding to global warming, and subsequently vector-borne disease abundance and pathogen survival.Volatile organic compounds in air emissions and inconclusive evidence on altered cancer incidence, birth defects, and infant mortality, as well as psychological stress for those living near solid waste incinerators or inadequately controlled land disposal facilities. Animals feeding on solid waste providing a food chain path for transmitting animal and human diseases. Uncollected wastes retaining water and clogged drains, thus leading to stagnant waters which encourage mosquito vector abundance. Uncollected wastes providing food and breeding sites for insect, bird and rodent disease vectors[3,4] From the information available, most occupational health and injury problems could be minimized by simple safety procedures that cost little; and most environmental impacts could be minimized by closing open dumps and implementing sanitary landfills. Most importantly, workers in developing countries need to wear protective gear, particularly gloves and face masks. Disposal sites need daily cover and proper control of contaminated leachate. Waste pickers need to be managed; children and domestic animals should not be working on disposal sites. By rearranging the disposal layout, implementing modest sorting facilities, and allowing only registered adults, the waste pickers could have improved access to recyclables and decreased health risk. Provision of water supply for washing, sanitation, and hygiene education are also highly recommended for waste pickers.[1,3]

There appears to be a global relationship (not yet precisely quantified) between exposure to solid waste and increased health and injury risk. The risk is greatest in developing countries where the contact between the solid waste worker and waste is greatest and the level of protection is least.

To complicate the exposure risk to workers and pickers, their personal hygiene is often inadequate. Washing facilities are not typically provided for these people to use at the work place, in order to clean themselves before going home (often by public transportation). To some extent, this is due to inadequate education on hygiene and health relations. Study by US

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Agency for International Development indicates that cost-effective investment in sanitation requires hygiene promotion and education to achieve successful mortality and morbidity reductions.[4,5]

A side effect of solid waste handling is that the filthy nature of the work demotivates people about their hygiene. Dumpsite waste pickers in Katmandu10%, Nepal revealed that 73% did not use soap to wash their hands; 88% did not use soap to wash their feet; and more than 65% did not change their clothing daily. About 18% regularly waited more than a week between baths and changing clothes.[5,6] In waste picking families in India, women reported preparing meals immediately after returning home from waste picking, without washing. Most women pickers bathed only once a week.

5. Conclusions

This article will be useful to a wide audience including ity officials who need to develop programs and systems to protect city workers and residents from health risks related to public cleansing activities. Environmental groups who monitor government services and interact in permitting procedures through public participation.Health practitioners observing work or proximity-related health impacts.

All of the health issues reported from high-income countries are directly applicable to developing countries, but risk levels can be multiplied in the latter because protective measures are seldom implemented in poorer countries. The handling of wastes involves more manual contact too. Where available, older data is also provided for the high-income countries. Historical health data from high-income countries is often more applicable to developing countries than recent data, because risk reduction, protective measures and pollution control systems now expected in higher-income-countries were largely implemented only in the past 20 years.

6. References

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