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Review Article

Issues with solid waste management in South Asian countries: A situational analysis of Pakistan

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Abstract

Solid Waste Management (SWM) is the generation, separation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands. Failure of the municipal solid waste management system has also serious environmental impacts like land and air pollution, blockage of drains and water pollution in natural streams. The objective of this review was to carry out the situational analysis of solid waste management in South Asian countries particularly in the context of Pakistan. A review of the literature was done using Google scholar, Pubmed and Pakmedinet as search engines. Books were also consulted that provides information about SWM. There are various factors that attribute to poor solid waste management, such as, lack of public awareness, unplanned city growth, high waste generation and non-functioning of existing systems. Rate of urbanization, scavenger role for recyclable separation and the capacities of existing municipalities for solid waste management are also important factors that should be considered. This review concluded that unfortunately solid waste is not considered a big problem in Pakistan and health authorities fail to appreciate the magnitude of the problem. Participation of different sectors including community ownership, role of government and private sector is important for better management of solid waste. Regulatory authorities have to make certain rules and most importantly find ways to implement it.

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INTRODUCTION

Solid waste can be defined as material that no longer has any value to people who was responsible for that and it is not carried through a pipe. It is produced by domestic, commercial, industrial, healthcare, agricultural and mineral extraction activities and accumulates in houses and other places. Human excreta are not included in it normally. The words “garbage”, “trash” and “rubbish” are used to refer to some forms of solid waste. Solid Waste Management (SWM) is the generation, separation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands [1].

Unfortunately none of the cities of Pakistan has a proper disposal system for solid waste; much of the uncollected wastes possess great threat to public health as they are the breeding ground for mosquitoes and cholera which transmit malaria and cholera later on. Failure of the municipal solid waste management system has also serious environmental impacts like land and air pollution, blockage of drains and water pollution in natural streams. Hospital and industrial wastes are also treated as ordinary waste. The role of scavengers in separation of recyclables is important. So regulation for solid waste management is very crucial for having a better policy for the protection of environment.

This article reviews the recent literature about solid

waste management in major South Asian countries and especially in the context of Pakistan and it highlights the various factors and problems associated with solid waste management in these countries.

Global Scenario of Solid Waste Management

Solid waste is due to increase in urban population, industrialization, changing consumption pattern and also affluent life style. Due to these trends many cities are unable to cope with increase volume of solid waste, especially in middle and low income countries. During the late period of 1900's annual waste production ranged from 300-800 kg per person in more developed countries to less than 200 per kg per person in less developed countries [1].

In South Asian countries, solid waste management is considered a big problem. Although there have been some formulated policies for environmental protection, but these are only implemented in cities, open dumping is the method of disposal in rural areas [2]. There are various stages of solid waste management, primary collection is from house hold to dust bin sites manually. Secondary collection is done from dust bin sites to land fill sites mechanically. And final disposal is at landfill sites [3].

Using a combination of these activities that best protects the community itself and environment is termed as integrated solid waste management (IWSM). This program can help reduce green house effect and slows the effect of climate change [4]. One of the studies showed that, the integrated solid waste management (IWSM) sustainable approach is required by giving the stakeholders to participate in the process of IWSM and share the responsibilities [5]. The objective of waste management plan is to give the parties involved in waste management planning that re-enforce the fact that involvement of other stakeholders in the process is very important [6].

There are various studies that are conducted in South Asian region. In a study conducted at Nepal, it showed that the composition analysis of solid waste from different sources have a high percentage of organic waste. It suggested an opportunity for recovery of organic waste via composting and recycling [7]. In another study at Kolkata, India, it reveals lack of facilities and improper bin collections are responsible for poor collection and transportation of municipal solid waste [8].

These studies showed that this issue has to be addressed as this directly relates to environment and the community itself.

Pakistan scenario of Solid Waste Management

Solid waste generation in Pakistan ranges between

0.283 to 0.612 kg/capital /day and waste generation growth rate is 2.4 percentage per year [9]. There are various studies conducted in Pakistan regarding solid waste management. One of which conducted in Rawalpindi, showed that there are two main issues associated with solid waste management, one is communicable diseases and other is unhygienic environment. The study also showed that there are various reasons for poor solid waste management, i.e., lack of public awareness, unplanned city growth, high waste generation and non-functioning of existing systems [10].

In another study, which is the review analysis of solid waste management in urban areas of Pakistan, stated that solid waste management has not been carried out in proper manner and the condition is getting worse by the time. The factors they include were rate of urbanization, composition of waste, scavenger role for recyclable separation and the capacities of existing municipalities for solid waste management [11].

In Pakistan , municipal government are the main stakeholders of solid waste collection and disposal and at the same time it is a big issue and it is impractical on behalf of municipal government to single handedly address the issue. But now after devolution, town municipal administration (TMA'S) are now responsible for solid waste management and administration, they are much strengthen now. But there is need for regulatory framework at town, district and provincial level and also formation of commission at national level is the need of the hour [12].

Public education and awareness is very important for the change of attitude and behavior of public. For this purpose we may use different strategies, e.g., education session for common man regarding disposal of garbage. By this way we can educate the common man regarding how they can play their role in solid waste management [13].

THINGS TO DO

Although there are some studies conducted in Pakistan but there is need for further evaluating the practices in various cities of Pakistan. These are the few recommendations that can work: raising awareness about consequences caused by solid waste pollution, role of government sector, NGO'S, private sector collectively for solid waste management, legislation should be done which would be effective and find ways to implement it effectively, application of 3 R's (Reduce, Recycle, and Reuse) concept in solid waste management.

EFFECTIVE INTERVENTIONS

These are few of the interventions that if implemented would help in solid waste management a great deal. House to house collection of solid waste should be organized. Littering of solid waste should be prohibited in cities, towns and urban areas. Proper segregation would be vital for scientific disposal of waste. Developing legal framework and national guidelines for solid waste management that includes waste management rules and basic recycling rules.

CONCLUSION

Solid waste is not considered as a big problem in Pakistan and health authorities fail to appreciate the magnitude of the problem. Several health and environmental issues are related to it. Participation of different sectors including community ownership, role of government and private sector is important for better management of solid waste. Regulatory authorities have to make certain rules and most importantly find ways to implement it.

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