

The Quest for Solid Waste Management



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Abstract

Solid waste management has become a nightmare for general public and local authorities in cities crosswise India. Homes, commercial establishments, hospitals, industries and construction sites are estimated to generate a total of 10,000 MT of waste per day in the country. Unofficial estimates indicate that metro cities generate 6000 ton of waste every day. However, local issues and sentiments have prevented even the collection of solid waste. The end result is that the spectacular Indian landscape has been converted into a malodorous, garbage strewn one. Solid waste management is a polite term for garbage management for this IT supported nations. If nations have to be urbanized in the competitive environment then they have to adopt Solid Waste Management and it is a system for handling all of this garbage, and includes municipal waste collection, recycling programs, dumps, and incinerators. Even as the warning alarm regarding proper management of waste has been sounded across Varanasi, the problem seems to be particularly intensified. This paper shows that Solid Waste Management is a challenge for the authorities and stakeholders of developing countries generally due to the increasing formation of waste which influence the different stages of waste management with special reference to Varanasi region. Administrating waste can be difficult for, whether industrial, commercial and institutional organizations. Organizations must deal with a wide variety of materials, large volumes of waste, and behaviors' of many customers, visitors, and/or students from within and outside of the area. There is no one action that will best fit the needs of all the sector organizations. Despite the facts that, a strategic solid waste resource management Solid Waste Management in Varanasi Region 124 Vision for Varanasi: Approach to City Management planning approach will help to define solid solutions. Integrated waste resource management planning enables organizations to create a comprehensive strategy that can linger supple in beam of altering economic, social, material (products and packaging) and environmental conditions. Solid waste is the unwanted or useless solid materials generated from combined residential, industrial and commercial activities in a given area. It may be categorized according to its origin (domestic, industrial, commercial, construction or institutional); according to its contents (organic material, glass, metal, plastic paper etc); or according to hazard potential (toxic, non-toxin, flammable, radioactive, infectious etc). Management of solid waste reduces or eliminates adverse impacts on the environment and human health and supports economic development and improved quality of life. A number of processes are involved in effectively managing waste by municipality in Varanasi region.

Keywords: Solid Waste Management, Garbage, Stakeholders, Recycling Programs.

Introduction

Administrating waste can be difficult for, whether industrial, commercial and institutional organizations. Organizations must deal with a wide variety of materials, large volumes of waste, and behaviors' of many customers, visitors, and/or students from within and outside of the area. There is no one action that will best fit the needs of all the sector organizations. Despite the facts that, a strategic solid waste resource management Solid Waste Management in Varanasi Region 124 Vision for Varanasi: Approach to City Management planning approach will help to define solid solutions. Integrated waste resource management planning enables organizations to create a comprehensive strategy that can linger supple in beam of altering economic, social, material (products and packaging) and environmental conditions. Solid waste is the unwanted or useless solid materials generated from combined residential, industrial and commercial activities in a given area. It may be categorized according to its origin (domestic, industrial, commercial, construction or institutional); according to its contents (organic material, glass, metal, plastic paper etc); or according to hazard potential (toxic, non-toxin, flammable, radioactive, infectious etc).

Management of solid waste reduces or eliminates adverse impacts on the environment and human health and supports economic development and improved quality of life. A number of processes are involved in effectively managing waste by municipality in Varanasi region. These include monitoring, collection, transport, processing, recycling and disposal of wastes. Solid-Waste management, is the process by which the collecting, treating, and disposing of solid material that is discarded for the reason that it has served its purpose or is no longer useful. Improper disposal of municipal solid waste can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease.

The main objective of solid waste management is to reduce and eliminate the unfavorable impact of waste materials on human health and environment to sustain economic development and superior quality of life. A Waste Management Framework Provides Flexibility to frame and analyze quantitative and qualitative information across different scales Structure to clearly identify key goals and values Logic to consider the potential probability and consequences related to a particular option Communicability to clearly communicate key ideas to key stakeholders (Owen, 2003). There are generally 6 sensible fundamentals of waste management system in Varanasi region that consist of:

1. Waste generation Waste generation refers to activities involved in identifying materials which are no longer useable and are either gathered for systematic disposal or thrown away.
2. Onsite Handling, Storage and Processing Onsite handling, storage and processing are the activities around the waste generation points to facilitate easier collection. Normally, to store wastes, waste bins are placed around the places which generate sufficient waste.
3. Waste Collection Waste collection, a very important phase of waste management, includes the activities such as placing waste collection bins, collecting wastes from those bins and gathering the wastes in the location where the collection vehicles are emptied. Although collection phase involve a bit of transportation from point of waste generation, this is not main phase of waste transportation.
4. Transfer and Transport Waste transfer and transport are the activities involved in transferring wastes from the smaller waste storage facilities to the waste disposal sites using larger waste transport vehicles and equipments.
5. Processing and Recovery Waste processing and recovery refers to the facilities, equipment and techniques employed both to recover reuse able or recyclable materials from the waste stream and to improve the effectiveness of other functional elements of waste management. Solid Waste Management in Varanasi Region 126 Vision for Varanasi: Approach to City Management
6. Disposal Waste Waste processing and recovery refers to the facilities, equipment and techniques employed both to recover reuse able or

recyclable materials from the waste stream and to improve the effectiveness of other functional elements of waste management. Problem Statement Despite the current anxieties of persons and the authority on waste management in Varanasi, one of the various edges of Varanasi, is still exposed with serious solid waste management troubles.

In this study an attempt has been made to identify major waste management challenges faced by Varanasi region. Challenges to Solid Waste Management Practices in Varanasi Region Increasing Urbanization: The Census 2011 figures indicate that 47.7 percent of India is urbanized. This is on par with global figures. The trend of urbanization in the state is also different from that in the rest of the country. There is an urban-rural continuum with even the rural areas displaying distinct urban characteristics like high population densities and composite primary and tertiary occupation structures. The higher the urban population will be, the greater the amount of wastes that are generated. In their study, 'What a Waste: A Global Review of Solid Waste Management', authors Daniel Hoorweg and Perinaz Bhada-Tata state that the world's urban residents are producing significantly more waste than they were just 10 years ago. By 2025, the report anticipates that the world's urban population will be producing 2.2 billion tons per year. Given the global experience, the rise in India's urbanized population can be expected to give rise to greater waste generation in Varanasi region too. 127 Changing Lifestyles: Rising disposable incomes have led to a change in values. The use-and-throw culture is now more pronounced. There is also the insidious presence of plastic in our lives. It's not just plastic bags that are the problem. Food, water, phones, computers – almost everything we use in our daily lives uses plastic in some form or the other. This just increases the problems of disposal, as the current composting and recycling rates in Varanasi are hardly encouraging. Rise in Tourism: While tourism is a major revenue earner for Varanasi region, there is a serious flip side too. The United Nations Environment Programme states, "In areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problem and improper disposal can be a major despoiler of the natural environment – rivers, scenic areas, and roadsides. Solid waste and littering can degrade the physical appearance of the water and shoreline and cause the death of marine animals." The Local government has been taking steps to address this issue with its – Waste Free Destination Campaign. However, much more needs to be done to educate both the tourists as well as the tourism industry. In general, solid waste management is given a very low priority in developing countries, except perhaps in capital and large cities. As a result, very limited funds are provided to the solid waste management sector by the governments, and the levels of services required for protection of public health and the environment are not attained.

Financial Constraints

The problem is sensitive at the local government altitude where the local taxation system is improperly expanded and, therefore, the financial basis for public services, including solid waste

management, is pathetic. This weak financial basis of local governments can be supplemented by the collection of user service charges. However, users' ability to pay for the services is very limited in poorer developing countries, and their willingness to pay for the services which are irregular and ineffective is not high either. An effective approach for raising funds needs to be searched in any joint project to make sure its sustainability. In addition to the limited funds, many local governments in developing countries lack good financial management and planning. For illustration, in a town in a developing country, over 90% of the annual budget made available for solid waste management was used up within the first six months. The shortage of financial management and planning, particularly cost accounting, diminishes the limited resources offered for the sector extra swiftly, and affects the solid waste management services to stop for some times, thus trailing the expectations of service users.

Economic Constraints

Economic and industrial development play key roles in solid waste management. Obviously, an enhanced economy enables more funds to be allocated for solid waste management, providing a more sustainable financial basis. However, by definition, developing countries have weak economic bases and, hence, insufficient funds for sustainable development of solid waste management systems in Varanasi. Local industry which produces relatively inexpensive solid waste equipment and vehicles will reduce, or in some cases Solid Waste Management in Varanasi Region 128 Vision for Varanasi: Approach to City Management could eliminate totally, the need for importing expensive foreign equipment/ vehicles and therefore foreign exchange. Such local industry can also supply associated spare parts, lack of which is often responsible for irregular and insufficient solid waste collection and disposal services. However, the lack of industry manufacturing solid waste equipment and spare parts and a limited foreign exchange for importing such equipment/spare parts are the rule rather than exception in developing countries. Also in small developing countries, waste recycling activities are affected by the availability of industry to receive and process recycled materials. For instance, the recycling of waste paper is possible only when there is a paper mill within a distance for which the transportation of waste paper is economical. The weak industry base for recycling activities is a common constraint for the improvement of solid waste management in developing countries, such as those in the Pacific region where a large volume of package waste is generated.

Conclusion

The accomplishment of any waste management plan will depend upon the teamwork of a number of different stakeholder groups in Varanasi. The expected roles and responsibilities of these groups must be clearly outlined so that they are made aware of the expectations placed upon them, and to allow for an element of accountability. Education can play a major role in helping to deal with the solid waste management crisis. In addition, the local government should encourage the setting up waste disposal units at the household level via composting/vermiculture or the installation of biogas

units. The participation of NGOs and community organizations is critical for the success of such programmes. Open dumping grounds have far reaching environmental and health consequences. Local citizens should therefore be made aware of the need for integrated waste management which includes waste processing and treatment. A number of external support agencies recognize solid waste management as a priority issue in developing countries and are interested in supporting to improve the situation. This requires better coordination and communication among the external support agencies and development of partnership among them, removing the organizational egos and sharing and contributing their resources to the benefits of the recipient city. The collaborative project should be designed to improve the solid waste management situation gradually over a long period, instead of attempting a quick fix in Varanasi. The local governments of developing countries have limited funds for solid waste management and must develop measures to reduce and recover the expenditure and increase revenues where possible. Private sector participation in solid waste management collection and disposal services is also a way to reduce the financial burden of the government. It can draw not only investment finance from private companies for solid waste management equipment and facilities, but also managerial expertise and technical skills. Experiences in developing cities, which are reported elsewhere, indicate that privately operated services are generally more cost-effective than public sector services. Therefore, the use of private sector resources through a contractual arrangement provides 129 a potential alternative towards self-financing solid waste management in Varanasi region.

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