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Globalisation and Waste Management

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ABSTRACT

The scope of this paper is to provide a conceptual approach regarding the relation between globalisation process and waste management. For that purpose, the paper presents several key-elements and concepts of globalisation and describes its different dimensions and impacts. Special emphasis is given to the interaction between globalisation and environment which represents the overall framework where waste management fits in. The interaction between globalisation and waste management activities, on the local and global scale, is discussed and several global challenges related to waste management are presented. Amongst them, the challenge of an overcrowded planet is further discussed and its implications to waste management are described. Finally, the need for waste management global initiatives is suggested and directions for further research are proposed.

KEYWORDS: Globalisation, Waste management, Global challange, Research

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INTRODUCTION:

Solid waste management is one among the basic essential services provided by municipal authorities in the country to keep urban centres clean. However, it is among the most poorly rendered services in the basket—the systems applied are unscientific, outdated and inefficient; population coverage is low; and the poor are marginalized. Waste is littered all over leading to insanitary living conditions. Municipal laws governing the urban local bodies do not have adequate provisions to deal effectively with the ever- growing problem of solid waste management. With rapid urbanization, the situation is becoming critical. The urban population has grown fivefold in the last six decades with 285.35 million people living in urban areas as per the 2001 Census.

SOLID WASTE MANAGEMENT

The waste generation rates in India are lower than the low-income countries in other parts of the world and much lower compared to developed countries (Annexe Tables A8.1 and A8.2). However, lifestyle changes, especially in the larger cities, are leading to the use of more packaging material and per capita waste generation is increasing by about 1.3 per cent per year. With the urban population growing at 2.7 per cent to 3.5 per cent per annum, the yearly increase in the overall quantity of solid waste in the cities will be more than 5 per cent. The Energy and Resources Institute (TERI) has estimated that waste generation will exceed 260 million tonnes per year by 2047—more than five times the present level. Cities with 100,000 plus population contribute 72.5 per cent of the waste generated in the country as compared to other 3955 urban centres that produce only 17.5 per cent of the total waste and practices continue to be outdated and inefficient. No serious efforts are made to adapt latest methods and technologies of waste management, treatment and disposal. Though a large portion of the municipal budget is allotted for solid waste management, most of it is spent on the wages of sanitation workers whose productivity is very low. There are no clear plans to enhance their efficiency or improve working conditions through the provision of modern equipment and protective gear. Unionization of the workers, politicization of labour unions and the consequent indiscipline among the workforce are all results of bad working conditions and inept handling of labour issues. Almost all the 3955 towns with population below 100,000 run SWM services rather unprofessionally. They depend on sanitary inspectors to manage solid waste with the help of sanitation workers. In many small towns, even qualified sanitary inspectors are not posted and services are left in the hands of unqualified supervisors. The situation of cities with 100,000 plus population is somewhat better, though far from satisfactory.

PROCESSING OF WASTE :

Generally no processing of municipal solid waste is done in the country. Only a few cities have been practising de- centralized or centralized composting on a limited scale using aerobic or anaerobic systems of composting. In some towns un-segregated waste is put into the pits and allowed to decay for more than six months and the semi-decomposed material is sold out as compost. In some large cities aerobic compost plants of 100 MT to 700 MT capacities are set up but they are functioning much below installed capacity. A few towns

IRREGULAR STREET SWEEPING

Even street sweeping is not carried out on a day-to-day basis in most cities and towns in India. Generally commercial roads and important streets are prioritized and rest of the streets are swept occasionally or not swept at all. Generally, no sweeping is done on Sundays and public holidays and a back log is created on the next working day. The tools used for street sweeping are generally inefficient and out-dated. For instance, the broom with a short handle is still in use forcing sweepers to bend for hours resulting in fatigue and loss of productivity. Traditional handcarts/tricycles are used for collection, which do not synchronize with the secondary storage systems. Waste is deposited on the ground necessitating multiple handling. There are no uniform yardsticks adopted for street sweeping. Though, some states/cities have prescribed work-norms, these are not very scientific. Most of the cities allocate work to sanitation workers on ad hoc basis. The work distribution ranges between 200 metres to 1000 metres of street sweeping each day. Some sanitation workers are found under worked while some over burdened.

WASTE STORAGE DEPOTS

As waste is collected through traditional handcarts/tricycles that can carry only a small quantity of waste at a time, there is a practice to set up depots for temporary storage of waste to facilitate transportation through motorized vehicles. Generally, open sites or round cement concrete bins, masonry bins or concrete structures are used for temporary bulk storage, which necessitates multiple handling of waste. Waste often spills over which is both unsightly as well as unhygienic.

TRANSPORTATION OF WASTE

Transportation of waste from the waste storage depots to the disposal site is done through a variety of vehicles such as bullock carts, three-wheelers, tractors, and trucks. A few cities use modern hydraulic vehicles as well. Most of the transport vehicles are old and open. They are usually loaded manually. The fleet is generally inadequate and utilization inoptimal. Inefficient workshop facilities do not do much to support this old and rumbling squad of squalid vehicles.

DISPOSAL OF WASTE

Disposal of waste is the most neglected area of SWM services and the current practices are grossly unscientific. Almost all municipal authorities deposit solid waste at a dump-yard situated within or outside the city haphazardly and do not bother to spread and cover the waste with inert material. These sites emanate foul smell and become breeding grounds for flies, rodent, and pests. Liquid seeping through the rotting organic waste called leachate pollutes underground water and poses a serious threat to health and environment. Landfill sites also release landfill gas with 50 to 60 per cent methane by volume. Methane is 21 times more potent than carbon dioxide aggravating problems related to global warming. It is estimated by TERI that in 1997 India released about 7 million tonnes of methane into the atmosphere. This could increase to 39 million tonnes by 2047 if no efforts are made to reduce the emission through composting, recycling, etc.

VERMI COMPOSTING

Vermi-compost is the natural organic manure produced from the excreta of earthworms fed on scientifically semi-decomposed organic waste. A few vermi composting plants generally of small size have been set up in some cities and towns in India, the largest plant being in Bangalore of about 100 MT/day capacity. Normally, vermi-composting is preferred to microbial composting in small towns as it requires less mechanization and it is easy to operate. It is, however, to be ensured that toxic material does not enter the chain which if present could kill the earthworms.

WASTE TO ENERGY

Even though the technology of waste to energy (WTE) projects has been proven worldwide, its viability and sustainability is yet to be to be demonstrated and established in the country. The main factors that determine the techno-economic viability of WTE projects are quantum of investment, scale of operation, availability of quality waste, statutory requirements and project risks. WTE projects generally involve higher capital investment and are more complex when compared to other options of waste disposal, but as pointed by Ministry of Non-Conventional Energy Sources (MNES), gains in terms of waste reduction, energy, etc. are also higher. Such plants are financially viable in developed countries mainly because of the tipping fees/gate fees charged by the facility for the service of waste disposal, in addition to its revenue income from power sales. It is thereafter the sole responsibility of the facility operator to treat and dispose of the accepted waste as per statutory requirements. However, at present in India, revenue from power sales is the only source of revenue for WTE plants.

BIOMETHANATION

plants in India Recently a 5 MW power plant based on biomethanation technology was constructed and operationalized at Lucknow but unfortunately it had to be closed down for various reasons, one among them being non-supply of appropriate quality of MSW to the plant. The organic content in the waste supplied to the plant is reported to have been as low as 15 per cent. Biomethanation technology on a small scale is also functioning at Vijayawada and at other places in the country for the treatment of selected organic waste collected from canteens, vegetable markets, etc.

CONCLUSION:

Whereas the private sector can play an important role in construction, operation, and maintenance of treatment and disposal facility, NGOs can play an important role in organizing rag-pickers/waste collectors for door-to-door collection and segregation of waste creating public awareness for storage of organic and recyclable waste separately at source and handing over the waste to the waste collector. promoting recycling of waste and decentralized treatment of waste involving community, CBOs, etc. Rag-pickers could be involved in door-to-door collection of municipal solid waste as well as recyclable waste so that they could get a user fee for collecting waste from the doorstep and derive additional income from sale of recyclables. There is a potential of recovering at least 15 per cent of the waste generated in the country which could be more than 15,000 MT per day providing employment opportunities to about 5,00,000 rag-pickers in the country. Despite immense potential in big cities in this area, NGO/CBO participation is still on a very small scale.

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