



Research Article

SOLID WASTE MANAGEMENT OF HOTEL INDUSTRY IN KALYAN AND ULHASNAGAR,

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ABSTRACT

Urban solid waste includes household garbage and rubbish, street sweeping, construction and demolition debris, sanitation residues, trade and industrial refuse and bio-medical solid waste. All nonhazardous solid waste from a community that requires collection and transport to a processing or disposal site is called Refuse or Municipal Solid Waste. Uncollected solid waste in cities provides a favorable habitat for insects, vermin and scavenging animals, which spread diseases. Leachate produced by accumulation of MSW can leak into environment causing contamination. The private sector has been involved in door-to-door collection of solid waste, street sweeping in a limited way, secondary storage and transportation and for treatment and disposal of waste. There have been no efforts in the past to create community awareness, either about the likely perils due to poor waste management or the simple steps that every citizen can take, which will help in reducing waste generation and promote effective management of solid waste generated. MSW can be managed by proper steps like waste reduction, collection, transfer, composting, etc. The waste management of hotel industry is very important in overall waste management. Many hotels generate above 20% of food waste, green waste and other wastes. Very few hotels carry out composting. It is also evident that small and medium hotels pay less attention for implementation of waste minimization than larger ones. The following survey focuses on management of waste which is generated by hotels of Ulhasnagar and Kalyan (Mumbai) and the problems which are faced in segregating and composting management.

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INTRODUCTION

Solid waste is defined as non-liquid, non-soluble material ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Waste, also known as rubbish, trash, refuse, garbage, junk is any material which is unused and rejected as worthless. Urban solid waste includes household garbage and rubbish, street sweeping, construction and demolition debris, sanitation residues, trade and industrial refuse and bio-medical solid waste. It may be simple things like newspaper, junk mail, today's meal scraps, pieces of bread, roti, waste rice, raked leaves, dust, grass clippings, broken furniture, abandoned materials, animal manure, sewage sludge, industrial refuse or street sweepings etc.

Harmful effect

The quantity of this material is increasing readily due to increase in human population and increase in the standards of living.

1. Uncollected solid waste in cities provides a favorable habitat for insects, vermin and scavenging animals, which spread diseases.
2. Leachate produced by accumulation of MSW can leak into environment causing contamination.
3. Waste is littered all over leading to insanitary living conditions.

Hospitality industry can be empirically divided into two parts: entertainment areas like clubs and bars and accommodation. Accommodation takes the form of public houses, resorts, inn, campgrounds, hotels, serviced apartment and motels. The clubs and bars category includes restaurant, fast food and nightclubs.

Empirical work on the acceptance of environmental impacts and responsibilities by hotels in developing countries is still relatively rare. There is also little work on understanding the relationship between business and environment among small and medium hotel companies [6]

Solid waste management includes the process of generation, collection, storage, transport and disposal or reuse and recirculation or incineration or any relevant method of disposal (WHO, 1971). 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. Per capita waste generation

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ranges between 0.2 kg and 0.6 kg per day in the Indian cities amounting, about 1.15 lakh MT of waste per day and 42 million MT annually.

Indian Scenario

More than 2920 ton/d of solid waste are generated in the Kolkata Municipal Corporation (KMC) area and the budget allocation for 2007–2008 was Rs. 1590 million (US\$40 million), which amounts to Rs. 265/cap-y (US\$6.7/cap-d) on SWM. This expenditure is insufficient to provide adequate SWM services. Major deficiencies were found in all elements of SWM. Despite 70% of the SWM budget being allocated for collection, collection efficiency is around 60–70% for the registered residents and less than 20% for unregistered residents (slum dwellers)[2]

Foreign Scenario

There is a lack of clear and adequate knowledge about environmental management, and their tendency to be “politically correct” in relation to environmental issues^[1]ISO 14001, which is the only certifying document in the ISO 14000 series, provides guidelines to set up an EMS. However, there is a paucity of information about the actual environmental measures implemented in ISO 14001 certified hotels [4]

Waste disposal and its regulation are both important and complex in Egypt and as a result the Law 4/1994 for the Protection of the Environment was enforced[5]quantity of MSW created by the Hong Kong hotel industry reached at least 53,070 tons in 1996, with an estimated environmental cost of 3.02 million Hong Kong dollars[7]

MATERIALS AND METHODS

Table 1

Sr.no	Functions	Own	Staff	Contractor
1	SWM service to domestic premise			
2	SWM service to commercial/trade premise			
3	Sweeping			
4	Cleaning			
5	Removal of bulking materials			
6	Removal of abandoned vehicle			
7	Development of plan approval			
8	Procurement of vehicles/equipment			
9	Maintenance of vehicles & equipment			
10	Recruitment of SWM staff			
11	Training of SWM staff			
12	Public education			
13	Special SWM campaign			
14	Other activity			

Table-2

Components	Plastic bag(5-6kg)
Plastic & rubber	
Organic or vegetable waste	
Glass & ceramics	
Aluminium	
Garden waste	

Table-3

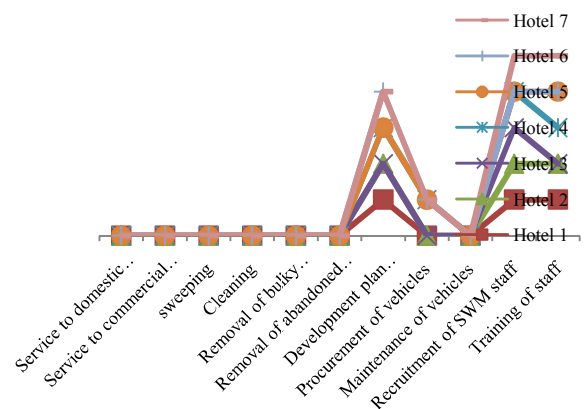
Sr.no	Problems	Serious	Not serious	Very serious
1	Inadequate service coverage			
2	Lack of authority			
3	Lack of financial assistance			
4	Lack of equipment			
5	Lack of legislation			
6	Lack of planning			
7	Lack of vehicles			
8	Lack of public co-operation			
9	Lack of enforcement measures			

In this survey based analysis a methodology is followed which showed the management of the SWM of the Hotel and restaurants of Kalyan and Ulhasnagar. In this questionnaire was prepared and response of hotel authority is recorded. The questionnaire involved function carried by staff/owner/contractor, characterization of waste, problems encounter in solid waste management. It also involves the general information like the types of storage used, collection service coverage, general information about site, vehicle type used for transport, machinery used in management of waste.

RESULTS

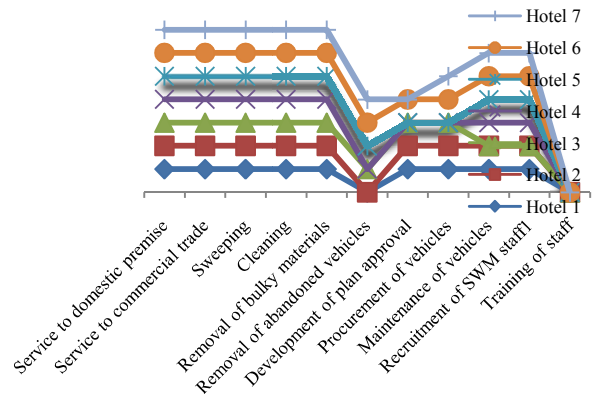
Survey was done on 20 restaurants and hotels of Ulhasnagar and Kalyan. Average of seven hotels, which were showing the significant difference in the results was taken and graphs were plotted as follows:

Owner Vs Function



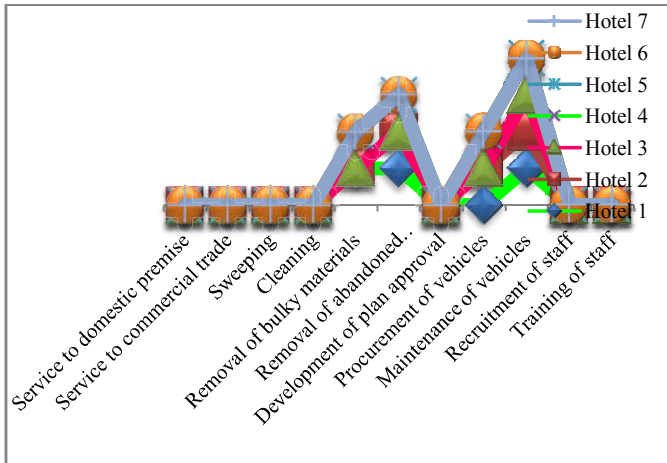
1.0 Graph of average of 7 hotels, showing significant difference

Staff Vs functions



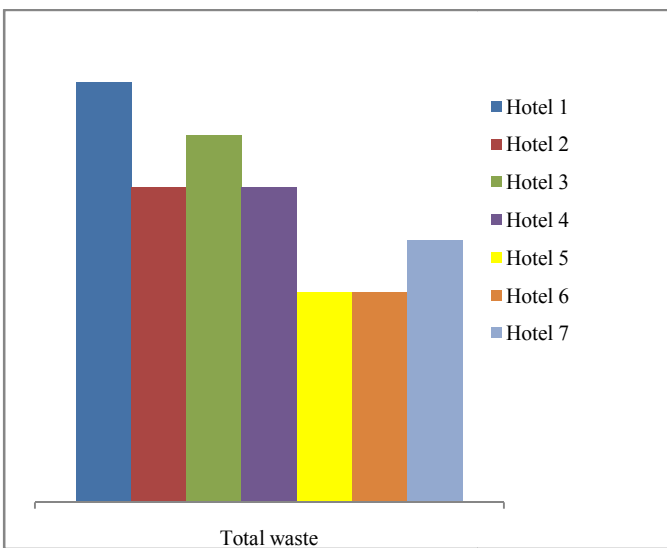
1.1 Graph of average of 7 hotels showing significant difference

Contractor Vs function



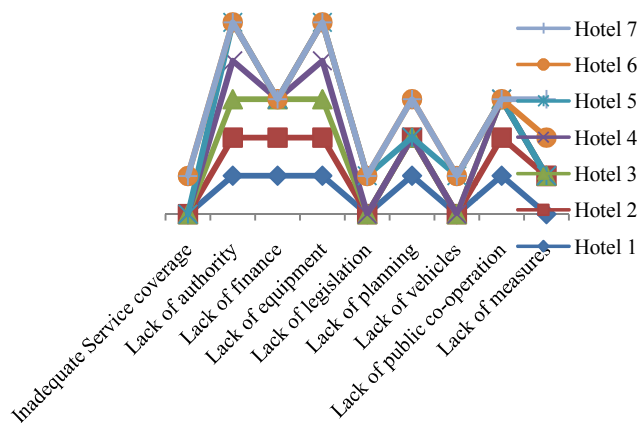
1.2 Graph of average of 7 hotels showing significant difference

Waste components Vs total waste generated/day



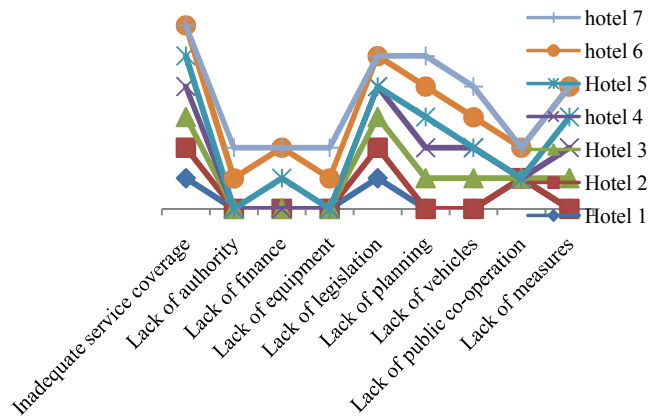
1.3 Graph of average of 7 hotels showing significant difference

Intensity (serious) Vs Problems



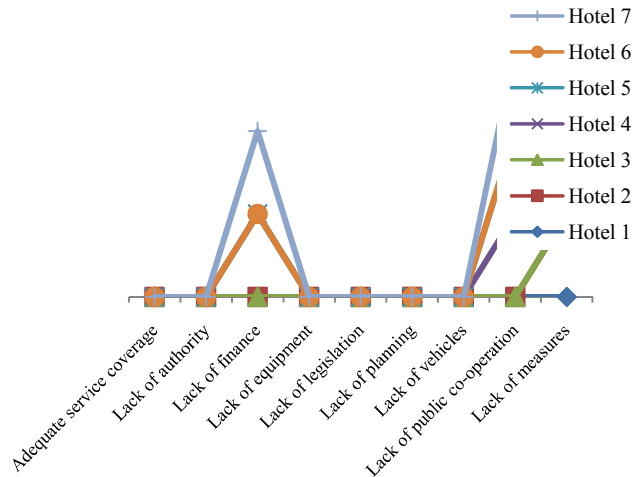
1.4 Graph of average of 7 hotels showing significant difference

Intensity (not serious) Vs Problems



1.5 Graph of average of 7 hotels showing significant difference

Intensity (very serious) Vs Problems



1.6 Graph of average of 7 hotels showing significant difference

DISCUSSION

1. The study basically focuses on the Solid Waste Management of Hotel Industry.
2. From the results obtained it can be said that the waste management techniques followed by hotels are not proper.
3. If the proper steps are taken by the Municipal Corporation/Municipality and if the proper training is given to the staff the waste management will be done properly.
4. And also the burden on the authority will be reduced
5. The waste generation can also be reduced by composting, recycling, reusing, regenerating, awareness and following steps like collection, storage, transportation and proper disposal.
6. Some hotel burn waste daily, contributes to air pollution significantly. The staff/ workers which are involved in cleaning processes are mainly illiterate therefore, they should be made aware of harmful effects of burning the waste and also a fine can also be imposed on hotel involved in burning of waste.

7. Some hotels used segregating bins. They segregate plastics, paper and Aluminium foils from the other waste so that they can recycle or reuse these stuffs. Awareness should be made on segregation of wet waste and dry waste.
8. Consequently, hotels are only interested in improving areas where there are direct financial gains and where there is a fiscal/legislative requirement. A fragmented approach to managing their environmental performance is also resulted. There is a scarcity of literature linking hotel FM and environmental management within the Asian context [3].
9. The weight of the waste produced by a number of hotels still exceeds the international benchmarks. A recommendation is that existing legislation needs to be amended to further both environmental and waste management practice[5]
8. It was also found out that significant number of hotel are involved in recycling of plastic, papers and aluminium foils.
9. Out of 20 hotels 7 hotels are involved in composting and 8 hotels are involved in segregation and 10 hotels burn the waste daily.

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CONCLUSION

From the Survey it was found out that

1. Graph 1.0 show that training of staff, recruitment of staff, development of plan approval, and procurement of vehicle are the functions which are performed by the hotel owner.
2. Graph 1.1 shows that almost all the work associated with the SWM are done by the hotel staffs rather than trained personnel.
3. Graph 1.2 shows that removal of bulky material, removal of abandoned vehicle, procurement of vehicle and maintenance of vehicles are some works allotted to the contractors by hotels.
4. Graph 1.3 shows that out of all the 7 hotels maximum waste is generated by the Hotel 1 i.e, 5-6 kg on 200-300 visitors.
5. Graph 1.4 shows that lack of authority and proper equipment are the serious problems in Solid Waste Management.
6. Graph 1.5 shows that lack of finance, service coverage and proper measures are not a very serious problems in management of solid waste.
7. Graph 1.6 shows that public co-operation is a serious problem in SWM.

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