

SOLID WASTE MANAGEMENT IN SMALL HOTELS OF MUKTESHWAR, NAINITAL (INDIA)

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ABSTRACT

Small hotels are considered as the backbone of the tourism industry but at the same time create a noteworthy problem of Solid Waste at any destination. So far, a little or no research has been done on the Solid Waste Management practices of these units. Most of the solid waste generated by these hotels goes to the open dumps, landfills or on any of the hill slopes of the destination. This study opts for a positive approach and looks out for the Solid Waste Management techniques adopted by these hotels and also the role played by government agencies towards these establishments so as to manage the waste effectively. The results exposed a bare fact that only few of the hotels were interested in implementing solid waste management techniques in their properties either because of the apparent problems or the hoteliers themselves were unaware on the SWM issues. This study proposes a best practice model for the government agencies which can be implemented by them. The local authorities should play a good role in eradicating this problem and should educate the waste generators about proper and effective Solid Waste Management techniques and methods.

KEYWORDS: small hotels, dumps, solid waste, local authorities, waste generators.

Introduction

A lot of research on the emissions and waste management techniques has been done so far and it is observed that the work done in this field is mostly restricted to large or medium category hotels across. But, the major share holder i.e. the small hotels were left out from the studies even though they are the biggest generators of solid waste in the hotel industry due to

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their ever increasing numbers. The research was designed to identify the challenges faced by these hotels while dealing with effective Solid Waste Management practices and suggesting ways and methods forward which could be adopted by hotels. It also discusses the various obstacles and motivational factors along with the government regulations which altogether may lead to an effective Solid Waste Management approach. The paper starts with the discussions over the research done so far which is followed by the present status of the Solid Waste Management methods and techniques at present. It then moves towards the research part and discusses the present status of SWM in the small hotels of Mukteshwar, Nainital. A small but strong approach towards the SWM practices in the area is suggested later which considers support and implementation of these methods and techniques for a better tomorrow.

Hotels can be divided into the categories of small, medium and large by various measures like their size, number of employees, market share, finance and ownership (Morrison, 2002). But overall, size is considered to be the best criteria to classify the hotels as small, medium and large. The size of the hotel is again a debatable issue and has been well researched in the past (Baker, Bradley, & Huyton, 2000; Buick, Halcro, & Lynch, 1998; Kirk, 1998; Main, Chung, & Ingold, 1997). However, the present study has considered the hotels having 30 rooms or less as small hotels.

Solid waste generation is seen as the biggest cause of concern and is amongst one of the worst impacts on the environment by the small hotels (IHEI, 2002). Being the largest in number at any destination, they are responsible for the biggest amount of garbage generation which is simply either dumped in a landfill or thrown from the slopes in hilly terrains. Solid Waste Management is often considered as the secondary objective by small hotels (Goodall, 1995) and hence very few steps are taken to reduce the impacts (Webster, 2000). This simple dumping of untreated solid waste from the hilly slopes affects our environment very much and is responsible for polluting the water resources of the area apart from emission of explosive gases like methane (Becklake, 1991). The effects are more visible in the form of bad odour, flies, litter and noise (Kharbanda & Stallworthy, 1990). By having all said so far, it is also important to note that the research in this field has been limited to household waste generation (Oskamp et al., 1991; Price, 1996) and role of the local authorities in waste management programmes (Phillips, Clarkson, & Barnes, 2002; Read, Phillips, & Murphy, 1998) but unfortunately there are very less or almost negligible studies conducted on solid waste management in relation to the small hotels.

Study of Solid Waste Management has been taken up in small hotels of Mukteshwar in Nainital district of Kumaon region of Uttarakhand. The destination is an emerging destination of Kumaon with lush green surroundings and a good number of small hotels have come up at the destination in recent past. But it has been observed that neither the local municipal authorities nor the small hotels themselves are very keen in implementing the SWM measures

and has it has become a need of the hour for Mukteshwar to introduce sustainable SWM practices.

It was suggested by the researchers in the past that the small hotels can use a range of more sustainable waste disposal options, e.g. waste minimization, reuse and recycling to guide their SWM practices (Cummings, 1991). In fact, a programme of waste minimization and recycling can be of a significant advantage to hotel operators for its potential not only to reduce disposal costs but also to assist the hotel in complying with future regulations (Cummings & Cummings, 1991) and to protect the environment.



Figure 1. Location of Mukteshwar, Kumaon, India

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Solid Waste Management in the Hospitality Industry

Solid waste generation and proper disposal are few of the most important areas of concern for the hospitality industry. Generally, one guest in a hotel is expected to generate a kilo of waste on an everyday basis which accounts to tones of waste annually (IHEI, 2002). Most of the hotels do not actively participate in the process because the cost involved in the solid waste disposal also has many hidden costs like staff members, resources and energy (Todd & Hawkins, 2007) and hence it is observed that small hotels have either very less or no interest in proper

disposal of the generated waste as this is their secondary area of concern because of time and money involved in it (Chan & Lam, 2001).

In case of Mukteshwar, the responsibility of clearing solid waste from the surroundings and neighborhoods lies with the Gram Panchayat of Mukteshwar. The civic body finds itself in doldrums and many a times incapable of clearing the waste from the hotels on time and as per the standards. Hence, the onus falls on the head of hotels themselves to clear the garbage. As the place in itself does not have any specific dumping ground or waste segregation unit, the hotels try to dispose off with litter at the nearest possible place with the minimum input of staff, time and money. The best place suiting their requirements is the adjacent hill slope which acts as the dumping ground for these properties. By doing so, the hotels get rid of their area of concern and the manager feels satisfied. But these practices can not at all be termed as green practices and the hotels should immediately stop them for a better tomorrow. At the same time, it is also felt and observed that the things could have been different if the hotel managers would have been more educated and more aware on the sustainable issues (Horobin & Long, 1996).

A model of hospitality SWM practices was developed by Cummings (1997) which introduces five levels for waste minimization including commit to waste minimization, purchase with eco-intelligence, use efficiently to generate less waste, reuse waste materials and segregate and recycle waste. This model of Cummings was not well taken by the hoteliers who had negative attitudes towards the sustainable practices and also by others because the model did not had any system of motivation and/or pressure to influence hoteliers' behavioral intentions in relation to SWM. It is essential to educate and train staff about waste minimization practices, along with providing incentives to enhance their commitment to the programme (Cummings, 1997; Trung & Kumar, 2005). It was also pointed out by Cummings (1997) that customers can play an important role in a hotel's waste recycling programme by not contaminating waste with food. Various methods could be adopted by the hotels which can encourage the guests or the consumers to participate in this exercise like providing additional bins for recyclable materials. It has also been observed that the consumers have started looking towards the things differently and in a positive manner (Hayward, 1994).

A pyramid shaped hierarchy for Solid Waste Management with most favoured options and least favoured options was drawn by Waste Online (2006) which provide a wide range of options to handle wastes by the means of prevention, minimization, reuse, recycle, energy recovery and disposal (figure 2).

Prevention is the elimination of waste before it is actually created. Minimization is the reduction of waste during the life cycle of the product. Reuse is a process of putting waste materials back into use so that they do not go into the waste stream. Recovery is the retrieval of a part of the value of the materials through recycling and energy recovery. Disposal, at the

bottom of the hierarchy, usually involves landfill and incineration of waste (Baker & Vandeppeer, 2004). However, the waste management hierarchy did not emphasized on the need of composting which forms an integral part of Solid Waste Management in a sustainable manner (Webster, 2000). The same hierarchy is being used as a model for small hotels which can be used by them in maintaining a better and sustainable destination. It has also been modified by incorporating composting instead of energy recovery because of its harmful impacts to the environment and human health, wastes valuable resources and hampers recycling and composting alternatives (Becklake, 1991; Friends of the Earth Cymru, 2003; Gray, 1997; Matthews, 2009).

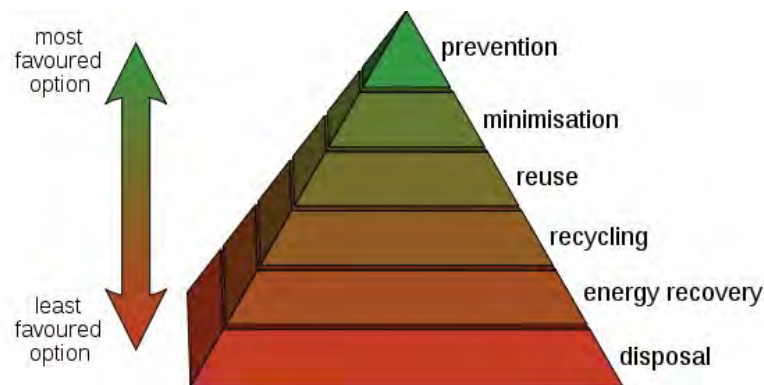


Figure 2. The SWM hierarchy.

Courtesy: Image reproduced, www.wasteonline.org

Abu Taleb (2005) developed a model for larger hotels in Egypt to assist them recycling hotel waste. It involves nine steps: (1) incorporating recycling into hotel policies, (2) performing a waste audit, (3) reusing waste materials, (4) identifying eligible materials for recycling, (5) working with the waste carrier at all stages, (6) developing a waste separation programme throughout the hotel, (7) purchasing recycled products, (8) making staff aware of the hotel's waste recycling programme and (9) involving customers. Nevertheless, Abu Taleb's model targets only recycling and thus pays more attention to dealing with the waste after production rather than preventing it at source or reducing it during the production and processing stages (H.R.I. Radwan et al., 2010).

Few of the municipal corporations of United States have enforced some rules and regulations which makes recycling compulsory but somehow these regulations are limited to larger businesses (Apotheker, 1995; Oskamp et al., 1991). Apotheker (1995) further identified 13 ways for local government to enhance small businesses' recycling collection including cluster collection, charges against waste collection, selling recycled products, etc.

Aims & Objectives

The present study is focused on the scale and level of Solid Waste Management practices adopted by small hotels of Mukteshwar and aims:

- To identify the present government infrastructure available for SWM.
- To identify the present practices adopted by small hotels while dealing with SWM.
- To assume the discomforts that the local villagers experiences because of increased tourist activities and negligence of civic authorities.

Methodology

For the purpose of the research study, both primary and secondary data were collected. Primary data were collected through questionnaire from the local hotels whereas Secondary data was collected from various research publications, books, office records and other documents. A case study of small hotels of Mukteshwar was developed to explore the challenges being faced by them in terms of sustainable SWM practices and also to assess the support given to them by the local civic body. Primary Data was collected from structured interviews by asking the respondents to answer the pre-defined questions on a five point Likert scale ranging from Never to Always with 1 for Never and 5 for Always. The collected data was classified, analyzed in the systematic manner. For the data analysis various statistical tools were employed depending upon the requirements. The respondents of the study were local hotels of Mukteshwar. The sample size of the study was 10 hotels as the number of hotels were comparatively less. The collected data was based on the Convenient Random Sampling method. A questionnaire was framed based on the objectives and tested by administering it randomly. Data were entered in the excel sheet to analyze the objectives taken for the study.

Analysis and Interpretation

The study area of Mukteshwar is one of the 460 Gram Panchayats of Nainital district which is in Kumaon region of Uttarakhand. For general services like administration, law and order, civic amenities, solid waste management, e-governance and slaughter houses are governed by a committee headed by the District Magistrate and the other members are as per figure 3.

The above committee is responsible for Solid Waste Management of the area designated. As per Municipal Solid Waste (Management and Handling) Rules, 2000, every municipal authority within the territorial area of municipality is responsible for the implementation of the provisions of these rules and for any infrastructure development for collection, segregation, storage, transportation, processing and disposal of solid waste.

Even though the framework of the government agency and the one suggested by Waste Online are almost similar and seems to be built on the same platform but unfortunately, it was

observed during the data analysis that more than 70% of the hotels were on the common platform while stating that:

- There is no proper schedule of garbage pickup.
- The garbage collected is not properly transported.
- The garbage collected is not segregated before disposal.
- The garbage collected is dumped and disposed in open.
- The garbage dumped in open is left to be washed away by polluting the water streams.
- The trenches built for waste segregation and disposal are not used.

All above mentioned points were found to be very correct and were evident by the photographs clicked and projected by the officials themselves (CAG Report of audit of Nainital, 2012).

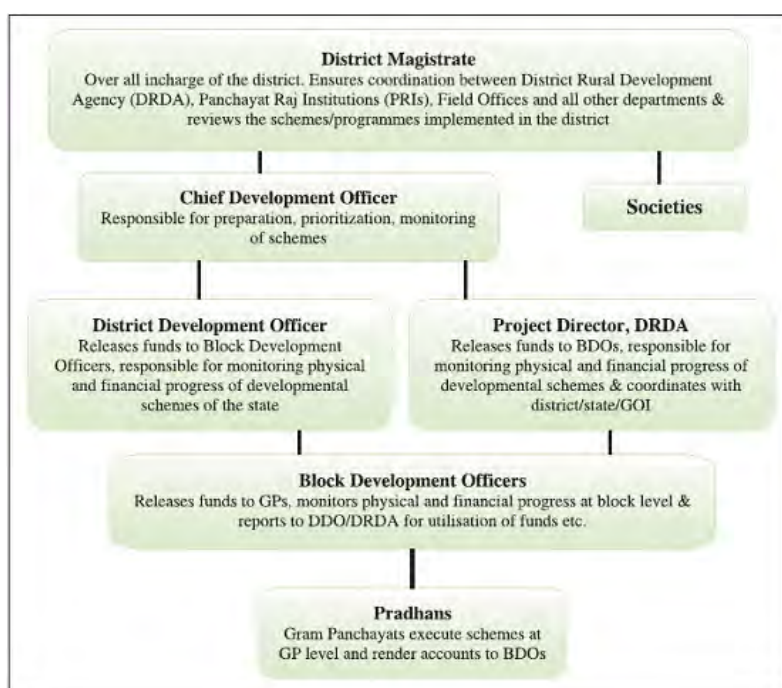


Figure 3. Organization setup of Nainital district Administration

Courtesy: Image reproduced, www.iced.cag.gov.in



Figure 4. Handling of Waste without proper gears and in open.



Figure 5. Transportation of municipal waste unhygienically



Figure 6. Un-segregated dumped waste



Figure 7. Waste being washed away by flood



Figure 8. Dumped waste polluting water bodies



Figure 9. Un-segregated waste at forest land



Figure 10. Un-segregated waste dumped at hill slope



Figure 11. Unused tranches

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What the Local Hotels have to Say?

Table 1: Responses recorded from the hotel owners / representatives

S.No.	Service	Never	Rarely	Sometimes	Often	Always
1	Offer alternatives to bottled water	--	12, 30%	28, 70%	--	--
2	Promoting vegetarian or vegan meal options	--	20, 50%	20, 50%	--	--
3	Offer of non-disposable linen	--	--	8, 20%	20, 50%	12, 30%
4	Purchase food and beverages in bulk	--	--	8, 20%	20, 50%	12, 30%
5	Using reusable baskets or plastic containers for laundry	24, 60%	16, 40%	--	--	--
6	Train employees in environmentally sound practices	40, 100%	--	--	--	--
7	Placing signage indicating promotion of recycling, etc.	28, 70%	8, 20%	4, 10%	--	--
8	Following environment friendly landscaping policy	--	40, 100%	--	--	--
9	Encouraging employees to print double-sided	--	--	8, 20%	20, 50%	12, 30%
10	Following 'Green Marketing Policy'	--	20, 50%	20, 50%	--	--
11	Offering reusable dishes, cups/glasses and cutlery	--	--	--	12, 30%	28, 70%
12	Offering condiments in reusable containers	--	--	12, 30%	20, 50%	8, 20%
13	Reuse worn table linens or remake them	--	12, 30%	8, 20%	20, 50%	--
14	Reuse plastic drums and buckets for recycling	--	--	8, 20%	12, 30%	20, 50%
15	Use of washable chef caps instead of disposable ones	28, 70%	12, 30%	--	--	--
16	Recycle of glass, metal and plastics	40, 100%	--	--	--	--
17	Purchase paper napkins etc made from recycled paper	--	20, 50%	20, 50%	--	--
18	Purchase upholstery etc made from recycled materials	--	20, 50%	20, 50%	--	--

19	Purchase Room carts, etc. made from recycled materials	--	20, 50%	20, 50%	--	--
20	Purchase recycled toner cartridges for office machines	--	--	12, 30%	8, 20%	20, 50%
21	Compost food scraps or leftovers	--	--	8, 20%	12, 30%	20, 50%
22	Using organic manures on your lawn areas and plantings	--	--	12, 30%	20, 50%	20, 20%
23	Blending food waste with papers to reduce smell	32, 80%	4, 10%	4, 10%	--	--
24	Placing signage indicating where to dispose recyclables	--	--	16, 40%	16, 40%	8, 20%
25	Place different sets of bins for segregation of wastes	--	8, 20%	12, 30%	12, 30%	8, 20%
26	Segregating the waste before disposing it	8, 20%	16, 40%	12, 30%	4, 10%	--
27	Attending formal training on Waste disposal or SWM	40, 100%	--	--	--	--
28	Disposing the paper waste by the means of burning	--	8, 20%	16, 40%	8, 20%	8, 20%
29	Disposing bio degradable waste by the means of landfills	--	8, 20%	16, 40%	8, 20%	8, 20%
30	Disposing un-segregated waste by throwing it	--	--	12, 30%	16, 40%	12, 30%
31	Using the facilities provided by the local civic bodies	--	--	40, 100%	--	--
32	Paying additional amount to agency for collecting garbage	28, 70%	12, 30%	--	--	--

DISCUSSIONS

Local Authority's Existing SWM Operations

As evident from the pictures on previous pages, the local authorities are not handling the waste properly and are not following sustainable SWM practices. The local authority's officers agreed that neither they are properly equipped to handle this commercial waste nor they have the adequate place and resources to treat it professionally. The authority did not have any programme in place to educate the owners / managers / staff of these commercial establishments.

Prevention of Waste Generation

The owners / managers of the small hotels of Mukteshwar were not so updated on the practices in use for prevention of waste generation. Few of them do adopt one or two practices falling under prevention but they were doing it unknowingly or because the practice adopted by them is helping them in saving some money. Many of the hotels are not in a regular practice of buying food in bulk because of seasonality and investment reasons.

Minimization of Waste Generation

The owners / managers were again caught on the wrong foot when they were enquired about the practices adopted for minimization of Waste Generation. Most of the hotels do not have any guidelines on minimizing the waste generation. The primary reason appeared to be of no professional training received on the SWM practices. Also the employee and staff

members are not motivated to participate in such activities. Again a couple of practices related to minimization of waste generation were found to be prevailing in few of the hotels because of the cost cutting factor.

Reuse the Waste

The hotel owners or the managers looked fairly better while using the reuse policies. But this was again limited to certain areas like reuse of cutlery, crockery, etc. They were not at all in the stride when asked about use of chef caps made from fabric. Nearly 70% of the hoteliers responded with a negative answer as the initial investment and maintenance cost for fabric caps was more as compared to the paper caps but they were found to be in favour of reuse of discarded linen.

Recycling of Waste

None of the hotel owners / managers were observed to be in favour of buying or purchasing or using recycled items knowingly because of the higher costs involves and also the appearance, finish and end product quality. The only favour given to was to the refilled printing toners or cartridges for printers, fax machines, photo copiers, etc mainly because of the availability of these recycled toners / cartridges at very low cost. None of the hotels had the facility of recycling glass or metal or plastic waste. The glass / metal / plastic / paper waste is sold to the local junk or scrap dealers.

Composting of Biodegradable Waste

As on date most of the hotel owners or managers are finding the option of composting of biodegradable waste a viable one because by composting the waste they save heavily on the fertilizers and chemicals needed by the horticulture department. Half of the hotels were observed using this practice in their kitchen gardens and promoting their restaurants and kitchens as organic ones. But this practice is prevalent with only those hotels which have some lawns and gardens with them. Another point of contention was, not knowing the right procedure for composting the food waste. Most of the hotel owners / managers or their staff did not had any formal training in composting the food and hence did not had the right idea of mixing the paper for a better texture or for low odour.

Disposal of Waste

All the hotels of the study area did not have any SWM policies nor have any practices implemented in their hotels. The hotel owners are basically dependent on the waste collection and disposal by the local civic body or the government contractors but unfortunately the civic body is not playing its role in a professional manner and staff deputed by them is also irregular. Because of the same, the hoteliers are forced to adopt some of the poor and

unsustainable practices of waste disposal. These practices include burning of un-segregated and untreated waste in open, dumping waste in open landfills or simply by pushing it down the hill slopes. All such activities creates nuisance for the locals and is responsible for land, water and air pollution in the area. It was also opined by the hoteliers of appointing professional Waste Disposal organizations and they were ready to avail the services on payment basis.

Expected Role of the Civic Body in SWM practices

Small hotels strongly suggested that the local civic authority should place different dustbins for different types of waste at few designated locations in the town where the local hotels could dump the segregated waste and from where the authority's employees take the garbage and dispose it properly. Local authority should make it easy for businesses and provide the tools and facilities required for recycling, e.g. bins and bags to separate waste materials (H.R.I.Radwan et al 2010). Similar views were emerged in a study conducted previously (Vernon, Essex & Curry, 2005).

Small hotel owners and managers were also of the opinion that the civic body officials should spreading awareness and educating hotel staff on implementation and following sustainable SWM practices. None of the hoteliers / staff had received any formal training in SWM practices. If trained and educated properly, the people involved can lead in minimization and reuse of waste. Apotheker (1995) pointed out that most businesses were willing to recycle but lacked the necessary information to get started.

At the same time, it is also important to motivate small hotels to reduce and recycle their waste by using incentives. Geller, Winett, and Everett (1982) previously indicated that providing monetary benefits is most effective form of motivating people towards recycling. Reduction of waste is a motivational factor for small hotels as the hotels saves on the money involved in disposal of garbage.

Enforcing SWM practices

During the survey and interviews, it was clearly evident that cost is the primary factor which can influence the decision of implementing SWM practices. It was observed that if the hotels save on the costs and time in waste disposal, they will be happy to implement the practices. On the other hand, the local people or the society had a role to play in implementation of these practices. If, all the people of the society come on a common platform and take a decision of conserving their locale, it will be an added pressure on the hoteliers to strictly adhere to the sustainable SWM practices. Thirdly, enforcement of strict rules and regulations can force the business operators to follow the SWM rules but in that the enforcement agencies cannot put pressure about reducing or recycling of waste but can only force the hoteliers to follow stringent norms for waste disposal. Another force or pressure on the hoteliers to follow

sustainable SWM practices can be of tourists themselves. Nowadays, more and more tourists are getting aware on the environment issues and are found participating in some or other 'Green Activities'. So, if the properties themselves can convince their customer on implementation or following of sustainable SWM practices, then it will be a booster for their business as well as for the environment.

Suggestions

After reviewing the available literature and the responses received in the survey, it is suggested that:

- (i) All concerned should compel themselves for sustainable SWM practices.
- (ii) Hotels should formulate their policies on SWM practices at the earliest as implementing sustainable SWM practices should be seen as a long term economic viability.
- (iii) Hotels and local civic body should prepare an action plan for strict implementation of SWM practices in the area, in consultation with the society representatives, and should ensure that the things move on in the right direction and as per plan.
- (iv) Hotels should take an internal waste audit at least twice in an year.
- (v) New entrants should be properly trained and the defaulters to be penalized.
- (vi) SWM hierarchy as suggested by waste online could be improvised by replacing the component of energy recovery with composting because the small waste generated by hotels individually cannot result in significant energy production.

Conclusion

It was observed that the waste generated by the hotels include left over foods, bottles, plastics, aluminum cans, paper, clothing, packaging materials, kitchen and garden waste, old furniture and equipment, and potentially hazardous waste such as asbestos and solvents. Findings from this study showed that almost all the hotels defaulted on the step of source segregation of the waste. Lack of source separation of solid waste increases inefficiencies in the recycling system because materials become contaminated and dispersed (Jindal, R., H. Harada and S. Shikura, 1998). The study also showed that some hotels still practice improper waste disposal methods such as open dumping and open burning. Improper waste management can cause environmental degradation and loss of aesthetic appeal (Tribe, J., X. Font, N. Griffiths, R. Vickery and K. Yale, 2000 & Manuaba, A., 1995). Open burning of garbage spreads smoke and fog in the atmosphere along with the spread of some other poisonous and hazardous gases. The soil on the surface and surface water and ground water are badly and adversely affected by the leachate. As observed and opined in the survey, most of the hotels do not have the facilities

of waste recycling available with them apart from the effective waste reduction methods. Strategies should be formulated and implemented in the hotels for the reduction of solid waste generated and all the hotels should follow the principals of Prevention and Minimization along with Reuse and Recycle. All this is easily achievable if their staff gets proper training and education and a word on awareness and implementation of SWM practices is spread across loudly and strongly.

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