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Cost Benefit Analysis of Hotel Recycling Practices in India

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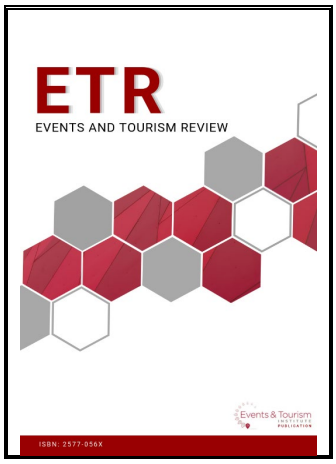

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Abstract

Waste management practices like recycling are not only beneficial to the environment but can provide economic benefits and enhance the image of the Hoteliers. There is a need for more studies on the economic benefits of recycling practices to the hoteliers. This study investigated the cost and benefit analysis of solid waste management via recycling in India, by exploring eight highly rated hotels and assessing the average recycling benefits attributed to these hotels in India. The result indicated that by practicing recycling, the hospitality industry would protect the environment while generating economic benefits from waste management.

Keywords: Recycling, Hotel Waste, Waste-Audit, Cost Benefit Analysis, Waste Management

Introduction

The economic importance of the hospitality and tourism industry cannot be overemphasized. According to World Travel & Tourism Council (2018), in 2017, the travel and tourism industry was the fastest growing economic sector worldwide. Its direct, indirect and induced impact accounted for: (1) US$8.3 trillion contribution to the world's GDP (10.4%), (2) US$882 billion investment (4.5% of total investment) globally, and (3) 313 million jobs, 1 in 10 jobs worldwide. While the economic importance of the industry cannot be overemphasized, its adverse effect on the environment because of the enormous waste attributed to this industry, cannot be undermined. According to Central Pollution Control Board (CPCB) of India, waste generation varies from 2.2 lbs to 13.22 lbs per hotel room (CPCB, Annual report*,* 2007). The hospitality industry is critically noted as the contributor of as much as 45% of all municipal solid waste from this industry (Bacot, McCoy, & Plagman-Galvan, 2002). Hence, the purpose of this case study is to investigate the cost benefit analysis of solid waste reduction via recycling in India.

Literature Review

According to Kirk (1995) three strategies that hotels can use to reduce the amount of waste on the environment need to focus on the following: (1) purchasing policies that include sensible packaging of the product, (2) waste management, which includes the minimization of operation's waste, reuse, and recycle of solid waste, and (3) waste disposal principles based on sound disposal method and partnership with disposal companies. One of the challenges of waste management is the lack of separation of waste at the source by the hotel industry. The operations of hotel industries include lodging, restaurant, bars, etc. Having several operations that consume food, water, energy, paper, and other resources adds pollutants like solid and wet waste to the environment (Kirk, 1995). Taleb (2005) developed a beneficial model of waste recycling programs for some hotels in Egypt to support them in waste reduction. Similarly, in the spirit hotel waste reduction, some countries employed the principle of "pay as you throw" (Fullerton & Kinnaman, 1996). In fact, some local governments in the U.S. have passed legislation to impose commercial recycling by substantial businesses (Apotheker, 1995; Oskamp et al., 1991).

Recycling here refers to setting aside waste material such as aluminum cans, glass and plastic bottles, and paper to be recycled. In hospitality context, this action reduces the amount of waste, which goes to landfills, minimizes hauling cost, adds to profitability, and green image (Baker, Davis, & Weaver, 2013; Singla, 2013; Singh & Lavina, 2015; Singh, Sundari, & Nath, 2015; Singh, Cranage, & Lee, 2014). Thus, recycling helps in reducing the overall waste that goes in the landfill, also referred as waste reduction.

Among the various barriers to recycling (e.g., time, cost, and space), the shortage of a "doorstep" collection service was noted as the leading challenge (Maclaren & Yu, 1997; Horobin & Long, 1996). Hence, waste materials seem difficult to separate because its time consuming and costly, as well as lack of space for different bins. However, findings indicated that improving hotel waste management would reduce operational cost, reduce energy consumption and help advance the company's corporate image towards attainment of a competitive advantage (Mensah, 2006).

Hotel waste includes glass, aluminium, steel, plastics, food and cardboard (Axler, 1973; Kirk, 1995; Taleb, 2005). A substantial hotel can produce up to eight tons of waste daily, and about 60 percent of this is recyclable, an obvious indication of the importance of recycling (Ogbeide, 2012; Potts, Christenbury, & Wolak, 2002; Snarr & Pezza, 2000). The amount of recyclable waste differs from one hotel to another. The difference is based on the kind of hotel, purchase practice, occupancy rate, size and number of conferences, lounge/bar business, and activities of guests and employees. Nonetheless, findings indicated that best practices in waste reduction and recycling could curtail waste to 50 g of unsorted hotel waste per guest night (Bohdanowicz, 2005). Bearing the above in mind, the importance of hotel recycling program cannot be undermined. Most importantly, how could hoteliers be motivated to incorporate best practices in recycling into their operations? The study aims to use the cost benefit analysis from recycling the hotel waste material to encourage more hoteliers to adopt recycling practice.

Methodology

Primary data from waste audits of eight highly rated hotels in the Delhi national capital region (NCR) of India and secondary data from a literature review provided a foundation for this case study. According to Evergreen Environmental (n.d.), a waste audit is a process that can be utilized to establish the quantity and kinds of waste produced by an organization. Evidence from such audits can be used to identify how to reduce the amount of waste an organization generates. The eight selected hotels for the waste audit include, Jaypee Siddharth Hotel, Park Plaza, Hilton Hotel, La-Shangri-la Hotel, Jaypee Greens Golf & Spa Resort, Country INN, Lemon Tree Hotel, and Jaypee Vasant Continental. These hotels were selected because of their brand and consent to participate in waste audit.

The waste audit instrument was based on a structured format, which was validated by experts in the field before its utilization for this study. The instrument consisted of 10 different waste materials generated in hotels. The data generated from the audit was subjected to a cost benefit analysis. The analysis focused on the difference between the total cost of recycling and the benefit of recycling (*Net benefit = Benefit – Cost*). The information about the cost of recycling was based on a direct interview of the Indian Pollution Control Association (IPCA) and triangulated with two additional interviews from Indian non-governmental organizations (Chintan and Vatavaran) and facts from the literature review (Nilofour, Swamy, & Devi, 2013).

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In a study conducted by New Delhi Municipal Cooperation (NDMC) and Central Pollution Control Board (CPCB) in India on waste separation, it was discovered that a single labor could be used to separate 100 kg of waste per day (Devi, Arza, Swamy, & Krishna, 2014). The economic benefits of recycling were based on the revenue made from selling recyclable items to scrap dealers.

Result and Discussion

Once the entire waste audit process was completed for the selected hotels, the average of each waste material produced from the hotels was determined. Table 1 displays the average of each waste material generated from 10 different hotel wastes.

Cost and Benefit: The hotels' first-year cost of employing green practices in their facilities included the cost of added labor for waste separation (i.e., one labor per 100 kg of waste separation), cost of bins and miscellaneous cost. The second year's cost of recycling included the labor cost for waste separation and miscellaneous cost, but excluded the cost of bins because it would be a onetime expense.

Table 1. Average Quantity of Each Waste Material Generated From all Eight Hotels

Material	Average waste/day (LB)	Average waste/Yr (LB)
Plastic Pet Bottle	18.79	6,856.62
Other/Mixed Plastic	24.56	8,963.49
Tetra Pak (Laminated Paper)	12.36	4,510.85
Aluminum	10.46	3,819.27
Glass	360.95	131,748.21
Newspaper	152.25	55,572.62
Mixed Office Paper	17.69	6,458.13
Cardboard	363.83	132,796.13
Food/Wet Waste	1,664.88	607,681.29
Trash (Laminated Plastic)	5.38	1,963.74
Total	**2,631.15**	**960,370.33**

The third year's cost of recycling included 50% of the labor cost for waste separation and miscellaneous cost. The 50% of labor cost was based on experience and specialization in the labor required for waste separation. The cost of the fourth year of recycling was the same as the cost of the third year. There was no recycling cost associated with recycling from the fifth year onwards.

The above cost estimate was based on the discussion with the senior operations managers at the surveyed hotels. Based on the discussion with these experts it was intuitively decided that the extra cost of hiring eight labors for separating waste would be saved because separation would become a habit or a way of work. Thus, the waste would be pre-sorted from room and kitchen areas, which would not need extra labor for sorting. It is essential to note here that the extra cost of labor was added only for the purpose of sorting the commingled waste, especially from the rooms and kitchen area. There might be a need for sorting the waste coming from

events and gatherings such as conferences etc., but it would be negligible due to the experience and specialization in the labor required for waste separation.

The benefit of recycling was based on the income from revenue made from selling recyclable items (salvage) to scrap dealers. The average revenue was estimated to be the same for each year. The net benefit was based on the difference between the total cost of recycling and the benefit of recycling (see Table 2).

Table 2. Cost Benefit Analysis of Hotel Waste Management in India

	Year 1 ($)	**Year 2 ($)**	**Year 3 ($)**	**Year 4 ($)**	**Year 5 ($)**
Labor cost	9291.41	9291.41	4645.71	4645.71	0.00
Bins cost	593.90	0.00	0.00	0.00	0.00
Miscellaneous cost	1244.38	1244.38	1244.38	1244.38	0.00
Total Cost	**$11,129.69**	**$10,535.79**	**$5,890.09**	**$5,890.09**	**0.00**
Benefit (Average Income from salvage)	**$11,397.64**	**$11,397.64**	**$11,397.64**	**$11,397.64**	**$11,397.64**
Net Benefit	**$267.95**	**$861.85**	**$5,507.56**	**$5,507.56**	**$11,397.64**

Conclusion and Implications

The cost and benefit analysis of hotels recycling practices in India indicates that some hotels can actually save some money if waste management practices are adopted. These findings are in line with the recent studies such as Singh et al. (2015), which suggest that recycling practices can increase profitability of hotels in the long run. However, is the finding enough to motivate other hoteliers to adopt waste reduction (recycling) practices in their facilities?

The stimulus for all hotels to adopt waste reduction practices would be a great implication of this case study. However, it is evident that many hoteliers are well aware of the documentation in the literature about the image, environmental and economic benefits of waste reduction in the world. Upon all the implications, many hotels are still not motivated to adopt waste management practices. Hence, a combination of all the benefits of waste reduction and some agreeable regulations might be a solution toward encouraging the hoteliers to practice recycling.

This recommendation is in support of the work of Hasek (1991), that increased government regulations and legislation would encourage some hotels to adopt the practice of hotel waste management using recycling. Regardless of the motivation approach, hotel recycling practices should be customized to suit each hotel's waste management needs. Legislating or regulating hotel waste reduction practices could be both important and very complex. It is even going to be more challenging in most capitalistic societies. Hence, such proposal and the enforcement of the proposal would require the cooperation of the hotel industry movers and shakers, coupled with great emphasis on the image, environmental and economic benefits of adopting hotel waste reduction practices.

Some of the limitations of this study include the fact that the cost benefit analysis was based on the economic condition in India. The differences between the cost benefit analyses from other parts of the world will be grounded on the amount and cost of labor required for recycling, other miscellaneous costs as well as the economic value of hotel waste in those regions. In addition, the cost benefit analysis was based on eight highly ranked hotels in India. Thus, the findings might not be applicable to economy hotels in India or other parts of the world. Hence, future studies should aim to explore different types of hotels in different parts of the world in order to show a comprehensive benefit of hotel recycling practices.

References

Apotheker, S. (1995). Making the big jump in commercial recycling: one small business at a time. *Resource Recycling,* 14, 16-26.

Axler. (1973). Sanitation, Safety and Maintenance Management. *The Bobbs Merrill Company*, 94-102.

Bacot, H., McCoy, W. & Plagman-Galvin, J. (2002). Municipal commercial recycling: Barriers to success. *The American Review of Public Administration,* 32(2), 145–165.

Baker, A. M., Davis, A. E., & Weaver, A. P. (2013). Eco-friendly Attitudes, Barriers to Participation, and Differences in Behavior at Green Hotels. *Cornell Hospitality Quarterly,* XX(X), 1-11.

Bohdanowicz, P. (2005). European hoteliers environmental attitudes: Greening the business. *Cornell Hotel and Restaurant Administration Quarterly,* 46, 188.

Devi, K. S., Arza V., Swamy, V. S. & Krishna, R.H. (2014). Studies on the Solid Waste Collection by Rag Pickers at Greater Hyderabad Municipal Corporation, India. *International Research Journal of Environment Sciences*, 3(1), 13-22.

Evergreen Environmental (n.d.). How to Conduct a Waste Audit. Retrieved on December 2, 2018 from https://www.goevergreenllc.com/

Fullerton, D., & Kinnaman, T., (1996). Household Demand for Garbage and Recycling Collection with the Start of a Price Per Bag. *American Economic Review,* 86, 971-984

Hasek , G. (1991). Hotels keeping watch in waste. *Resource Recycling,* 10, 56-60

Horobin, H., & Long, J. (1996). Sustainable tourism: the role of the small firm. *International Journal of Contemporary Hospitality, 8*(5), 15–19.

Kirk, D., 1995. Environmental management in hotels. *International Journal of Contemporary Hospitality Management,* 7(6), 3–8.

Maclaren, V. W., & Yu, C.-C. (1997). Solid waste recycling behaviour of industrial-commercial institutional establishments. *Growth and Change,* 28, 93-110

Mensah, I. (2006). Environmental management practices among hotels in the greater Accra region. *International Journal of Hospitality Management*, 25(3), 414–431.

Ministry of Environment & Forestry. (2007). *CPCB -Annual report.* Government of India.

Niloufer, S., Swamy, A. V. V. S., & Devi, K. S. (2013). Waste Collection by Rag Pickers in the Cities-A Brief Report. *PARIPEX - Indian Journal of Research, 2*(4), 211-214.

Ogbeide, G. C. (2012). Perception of green hotels in the 21st century. *Journal of Tourism Insight,* 3(1).

Oskamp, S., Harrington, M. J., Edwards, T. C., Sherwood, D. L., Okuda, S. M., & Swanson, D. C. (1991). Factors influencing household recycling-behavior. *Environment and Behavior,* 23*,* 494-519.

Potts, D., Christenbury , H. & Wolak , J. (2002) Recycling for the hospitality industry*, Cooperative Extension Service, Clemson University*, 15-30.

Singal, M. (2014). The Link between Firm Financial Performance and Investment in Sustainability Initiatives. *Cornell Hospitality Quarterly, 55*(1), 19-30.

Singh, N., & Lavina, A. (2015). Waste separation at household level: Comparison and contrast among 40 countries. *Indian Journal of Applied Research*, *5*(1), 558-562.

Singh, N., Cranage, D., & Lee, S. (2014). Green strategies for hotels: Estimation of recycling benefits. *International Journal of Hospitality Management*, *43*, 13-22.

Singh, N., Sundari, S. K., & Nath, A. (2015). Contribution of hotel and restaurant industry to solid waste: An assessment of its impact on environment. *i-manager's Journal on Management, 10*(1), 22-32.

Taleb, A., (2005). *A study on benefits of applying waste recycling programs in the hotel industry* (Unpublished doctorate thesis). Helwan University, Egypt.

World Travel & Tourism Council. (2018). World Travel & Tourism Council Unveils 2018 Economic Impact Research Report. Retrieved on December 3, 2018 from https://www.treadright.org/news/press-releases-news-our-partners-sustainable-travel/world-travel-tourism-council-unveils-2018