



A Review On Waste Management In Hotels Of Dehradun, Uttarakhand

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Abstract

In recent years, the hospitality industry has consistently contributed significantly to India's GDP growth. Additionally, it really has contributed to the rise in hotels across the nation. Compared to other industries, hotels are the biggest consumers of resources and make a significant contribution to trash generation. The hotel business can benefit greatly from green initiatives like recycle in the current Green Economy. In this research, we looked into the present condition of waste management in hotels of India by reviewing literature on trash audit, WARM model, analysis on cost-benefit approaches, equivalency calculators. The causes of the various waste kinds observed in this industry are described, along with possible reduction measures. Research papers supporting this field of study are simply lacking. The paper provides an outline of the nation's current waste processes and offers answers to some of the most pressing issues. The hotel business currently employs poor waste management techniques. Poor collecting and transport of municipal solid waste is caused by a lack of adequate facilities (equipment and infrastructure), underrates of trash creation rates, insufficient management and technical skills, improper collection, and route design. The primary objective of the current research is to control hotel garbage in order to

create eco-friendly businesses and make money from waste. It demonstrates that waste minimization may increase hotel revenue and reduce pollution.

Keywords- GDP, Hospitality Industry, Waste Management, Eco-friendly.

Introduction

One of major forces behind the expansion of India's services industry is the hospitality and tourism sector. The third-largest sub-segment of the services sector, which consists of trade, repairers, hotels, and restaurants, contributed close to US\$ 187.9 billion or 12.5% of the GDP in 2014–15, while expanding at the quickest rate of 11.7% compound annual growth (CAGR) from 2011–12 to 2014–15. In addition to being a substantial source of foreign cash for the nation, tourism has the potential to create a lot of jobs. 13.45 million jobs are anticipated to be created by the sector. Sub-segments like restaurants (10.49 million employment), hotels (2.3 million jobs), and travel agents/tour operators (0.66 million) are shown in Figure 1. (IBEF,a).

India's tourism and travel industry is anticipated to contribute a total of US\$ 275.2 billion to the country's GDP by 2025, up from US\$ 136.3 billion in 2015. India's third-largest source of foreign currency earnings is travel and tourism. The nation managed to gain USD 19.7 large amounts of foreign exchange from tourism in 2014. (IBEF,b).

In the upcoming years, the hospitality industry is predicted to increase at considerable rates. The majority of human activities produce trash, and how this waste is collected, gathered, and dealt of can have negative effects on the ecosystems and public also (Zhu et al., 2008). The production of garbage has expanded along with corporate activity growth and growing urbanization. The improper management of this garbage has resulted in numerous risks for not just humans but for the ecological system. Recycling the trash is the best suitable remedy of the problem. Along with reduction and reuse, it is one of the procedures used in integrated solid waste management (ISWM) (Memon, 2010).

One of the studies that have been carried out in Bali, it was discovered that hotels participating in recycling programs benefited financially directly (by reducing garbage), indirectly (by improving their company image), and liabilities costs were avoided (Tang,2004; Vahatiitto, 2010). According to studies, travellers (hotel clients/guests) are ready to spend more on environmentally friendly goods and services, including lodging (Kang et al.,2012; Masau and Prideaux, 2003). Hotels use recycling and other environmentally friendly practices to handle garbage, which helps businesses make more money, attract more customers, and enhance the perception of their corporate brands (IHRA, 1995).

Our objective in this paper is to present a thorough analysis of the present condition of waste management. A review of this nature will be useful to hospitality management, boost the economy, and lessen the company's ecological impact.

Factors Engulfing Research:

- **Waste generated by Hospitality Industry**

On generally, wet (organic/biodegradable) and dry waste both are produced by the hotel sector. Food waste makes up the majority of the wastes generated (Wagh, 2008), that can make up to one third of all the food served in the hotel industry and much more than 50% of the garbage generated by the industry as a whole (Curry, 2012). (Marthinsen et al., 2012). In order to meet commitment to the environment and lessen the burden of waste.

In order to calculate the monetary advantages of recycling for both businesses and the environment, it is important to comprehend garbage generation and its management. The article's findings are in line with the instrumental stakeholder theory.

A growth in waste management complements the operational growth in the hotel sector. Typically, producing more trash results in a bigger environmental impact and more harm to the ecosystem. For instance, the average hotel client is thought to produce up to 1 kilogramme of trash per day, which equates to millions of tonnes of rubbish produced globally each year (International Hotel Environmental Initiative, 2002). The significance of researching hotel management in order to reduce waste cannot be overstated.

The cost of solid waste management for a hospitality industry covers a number of things, including the removal and transportation of trash in addition to related labour expenditures (Todd and Hawkins, 2003). Thus, depending on where the business is located and the local waste management laws, more effective waste management could lead to significant savings for the company. Other advantages of sustainable and environment waste disposal include a better business reputation, lower carbon emissions from trash transportation, lower costs due to fewer vendor order requirements, stronger stakeholder interactions, lower risks and liabilities, and health and safety advantages (Ball and Abou Taleb, 2010).

The production of trash is one of today's challenging challenges since it is becoming a major issue for the environment and human health on a worldwide scale. The hotel business is the primary generator of garbage, with a sizable portion coming from the culinary, storage, and lodging departments of hotels. Controlling trash has a positive impact on nations' societal, financial, and environmental problems (Rohweder, 2008).

- **Nature and Classification of the Waste**

Studies from several fields have provided some information just on common waste streams produced by hotels. For example, several research identified the primary

elements of hotel garbage as being aluminium, plastic, glassware, steel, cardboard, and food scraps (Axler,1973; Kirk,1995). According to a different study (Zein et al., 2008), the non-hazardous categories of trash are shown in Tables 1 as well as the elements of hotel garbage and their origins.

Table 1: Non-hazardous waste from Hospitality industry (Zein et al., 2008)

| Non-hazardou | Elements | Origin |
|---------------------|--|---|
| General trash | Food waste from kitchen, paper and Covering sheets, plastic wrapping sheets, bags | Various sections |
| Paper and Cardboard | Packaging | Store, Purchase department |
| Paper | Print, Information Brochures, Menu, Map, Magazine, Newspapers, | Administrative section, Front desk, Rooms, Bar. Coffee shops and restaurants |
| Plastic waste | Carry Bags, empty water bottles general goods, wrappers | Food Production areas, Dining areas like restaurants, Coffee shop, bars, guestrooms, Administrative section |
| Metallic waste | Tin and Jars- cans and lids, Beer and Fruit juice cans, food vessels, Sauce and Puree tubes, Aluminum foil | Food Production areas, Dining areas like restaurants, Coffee shop, bars, guestrooms |
| Glass waste | Glass bottle, Glass jar, Glass flasks | Food Production areas, Dining areas like restaurants, Coffee shop, bars, guestrooms |

| | | |
|---------------------------------|--|--|
| Clothing waste | Base cloth, Slip cloth, Table cloth, Bath and Bedroom linen, Cloth Serviette and napkins, clothes, Druggets and rags | Kitchen, restaurants, bars, bathrooms, guests rooms |
| Wooden waste | Wooden Cartons | Store and Purchase department |
| Bio-degradable or Organic waste | Vegetables and Fruits peels Fruit and vegetables peelings, flower, foliage, and plants, branches, dead leaves, grass | Kitchen, restaurants, bars, guests rooms, Gardens, horticulture, lawns and gardens |

Table 1 makes it evident that different waste categories frequently come from the same source. Additionally, every business has a different ratio of each of these several waste types. The very first section of Table 2 lists the waste content figures that were reported by various publications in chronological order. Only publications that have precisely described waste kinds that make up hospitality waste in terms of amounts are included.

- **Management of Solid waste in Hospitality Industry**

01 kg waste per day is approximately generated by the hotel guest per room (IHEI, 2002). Many smaller hotels have little interest in waste reduction and/or recycling because they think these processes are also too costly and time-consuming (Chan & Lam, 2001). The cost of solid waste for a hospitality industry comprises labour, materials, and power in addition to the expense of disposal (Todd & Hawkins, 2007). A hierarchy model of the Sustainable waste management for hotels was created by Cummings (1997). The model introduces 5 stages for eliminating waste, namely commitment to reducing trash, eco-aware purchasing, use efficiently to generate less waste, reusing trash, and segregation and recycling of garbage. Nevertheless, because Cummings's approach lacks a mechanism of pressure or motivation to alter hoteliers' behavior intention regarding SWM, it is not relevant to those hoteliers who have unfavourable views towards to the adoption of more sustainable SWM practises. It is crucial to inform, educate, and motivate staff members about waste minimization techniques in order to increase their adherence (Cummings, 1997; Trung & Kuma r, 2005).

Guests may contribute significantly to a hotel's waste recycling programme by refraining from polluting trash with meals, according to Cummings (1997). There are many ways to persuade guests to separate their recyclables, such as placing a separate bin for them in the

room or next to the elevators. According to Hayward (1994), consumers' views on environmental issues had improved. Several hotels, like the Disneyland resort in Anaheim and Disney World, reported strong consumer participation rates in hotel waste recycling facilities.

- **Auditing the Waste generated by the Hotels**

The hospitality industry is a high generator of waste, which is then delivered without sufficient treatment straight to landfills (McCoy, Bacot and Galvan, 2002). India's hotel contributes to the nation's overall garbage production. According to the analysis by Wagh, the hotel business may account for up to 30% of all garbage produced. A waste audit is the first stage in a waste management strategy. The auditing sheets waste, which would be divided into reusable, biodegradable, and toxic garbage, will be the subject of the author's investigation. Wastes that can be treated using different methods to create byproduct or other useful materials are considered reusable.

Vegetable scraps, leftovers, kitchen scraps, and other biodegradable waste are recycled through compost to produce beneficial manure, an ideal for soil conditioning. Finally, why are inert laminated plastic or mixed rubbish transported straight to landfill because they cannot be processed to generate any value item? (2014) Amar Nath to ensure neutral audits and prevent hotels from taking any intentional steps to control their recycle status, the audit was conducted at randomly but without notifying those establishments in advance.

- **Recycling the Waste**

Nath (2014) asserts that there are numerous approaches to waste treatment. Paper waste is processed using the repulping method to produce newspaper and paper products.

Extruder machines, injection moulding, blow moulding, film blasting, depolymerization (melting and chemical breakdown of the plastics), and fluidized bed reactors are used to process plastic waste and turn it into bottles and jars. Textile waste is processed using the Lyocell, Patagonia, Remanufacturing, and Textile Incineration processes to create reusable clothing. Cullet-Glass crusher is used to handle glass trash. Ferrous metal shears are used to treat scrap metal. Compost is used to handle food waste and yard waste, turning it into manure.

- **Composting the Waste**

Decomposition is the best option for lowering hotel organic material. It is a biological process that breaks down organic waste under specific conditions, such as enough ventilation, a temperate climate, humidity, and a carbon to nitrogen (MSW Manual, 2000). Composting is an excellent soil conditioner and valuable manure. Composting mostly depends on the type of trash and how quickly it decomposes. There are two types of composting that are

described in the MSW manual (2000 edition), namely aerobic and anaerobic. Vermicomposting is an additional method of composting that uses different species of earthworms to turn organic waste into manure (Nath, 2014).

- **Developing a Framework**

Again for hospitality industry, a comprehensive framework is developed with a particular emphasis on profit. Waste can be proven to be a source of income for efficient waste management in the hospitality sector. Alternatives will be created by the frame to reduce labour costs associated with garbage treatment as well as the price paid to local vendors. The two categories of the hotel waste disposal model are profit and sustainability.

- **Recycling Compost and Benefits**

The ability to make a gain from each of a company's or firm's various business activities is referred to as profitability. It is an investment's return. It is a tool used to raise or boost total profit through any planned approach. Here, waste materials increase profits. These waste products can bring in a respectable sum of money; biodegradable trash and recyclable garbage are the two main sources (Nath, 2014). Savings from wastes generated and savings from recycling waste's scrap value are two types of waste efficiency. The waste disposal model for the hospitality industry's first result phase is now underway. Both non-biodegradable and biodegradable garbage can be profitable, and we can calculate the monetary and non-monetary worth of waste. The gathered garbage is divided and classified into three categories, including biowaste, organic waste, moist waste or recyclables, and inert/landfill end up wasting, according to Nath (2014).

Waste products are properly handled based on their composition and characteristics. Sorting of recyclable garbage is done for the biogas plant or the compost process. Biogas is the best choice when space for waste treatment and waste volume are both restricted. However, compost is a suitable waste method for treating if the amount of garbage is greater or if there is land available. Similar to how biodegradable materials is sorted, reusable waste is then further divided into subcategories like metal waste, plastic waste, waste paper, etc. In order to obtain the salvage value of each commodity, the subcategorized waste is currently sold to the relevant recycling centers or trash buyers (Nath, 2014).

- **Waste Management and Sustainability**

Sustainable is everything required for the existence and survival of well-being that relies on the natural surroundings, either directly or indirectly. It establishes and upholds the necessary circumstances for both nature and humanity to thrive and survive. The three main pillars of sustainable are societal, financial, and ecological (Source: Pictorial representation of sustainability aspect). Only when these three components are present can a framework, structure, plan, or plan be called to be sustainable.

Conclusion of the research

Since waste is not properly managed in India, garbage creation from the hospitality industry is one of the biggest problems. Therefore, creating a comprehensive framework for waste management is crucial for optimising each waste type in the hotel business. The majority of garbage produced by hotels is biodegradable or recyclable.

The study shows that hotels can benefit lengthily from a proper recycling process in addition to contributing to the environment. Reuse and waste reduction at the origin can significantly reduce greenhouse gas emissions. As a result, it can decrease pollution and help in combating with the menace of global warming, which is a significant issue that the human race is currently confronting.

A thorough review of the literature, professional interviews carried out by the researcher, and the creation of a waste audit form for the estimation of residual waste are all indicators of an effective waste management strategy. The WARM Model and an equivalency calculation were then used to determine the environmental impact of waste. The cost-benefit analysis comes in second place. The final step is to create the most effective framework or model that explains the importance of profitability and sustainability. Waste management is a critical issue which needs to be brought to the general public's notice right now.

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