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## ESTIMATING COST INVOLVED IN FOOD WASTE MANAGEMENT IN HOSPITALITY SECTOR

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### Abstract

The quantity of garbage that is created and the amount that it costs to treat the waste materials are the two most important factors in terms of the economics of waste management. It should go without saying that the cost of losing product throughout the manufacturing process is expensive; nevertheless, the cost of treating waste depends on the qualities of the trash itself. There is a one-to-one relationship between the amount of money spent on waste management and the amount of money made from the product that is generated. The management of waste is a complex and multifaceted topic. Since waste management programs include a variety of activities, including in-plant control measures, resource recovery and reuse, waste treatment and disposal, and others, it is challenging to evaluate the costs associated with these programs. It has been suggested that each industry set aside a certain amount of money in its budget for the purpose of waste management in the respective sectors. The effective reduction and control of trash, as well as its disposal, are all factors that contribute to the cost of waste management.

**Keywords:** Hospitality, Food waste, cost etc.

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### 1. INTRODUCTION

Despite this interest, the question of how hotels and stores can develop and manage their food supply chain more sustainably appears to be at a similar point to other aspects of sustainability in the hospitality industries. The literature has shown that a variety of problems may be preventing businesses from implementing more environmentally friendly practises and policies. Some firms may be hesitant to implement sustainability initiatives out of concern that doing so would increase their expenses and make them less competitive. Other companies may be hesitant due to a lack of knowledge about sustainability and how to approach the issue. One effective tactic for breaking through these barriers and enhancing sustainable practises has been the development of more precise methods for measuring and disseminating information about these activities. Managers will be able to make more informed choices, and customers will be able to more readily notice and appreciate them.

### 2. REVIEW OF LITERATURE

After the epidemic, Tiwari S & Sanjeev G. M. (2021) recognized several cutting-edge and essential disciplines/areas for creating long-term plans in India's hospitality and tourist sector. Specifically, this paper proposes specific recommendations for policymakers, regulatory bodies, industry professionals, and other key stakeholders regarding strategies that could be

adopted to lessen the adverse impact of the COVID-19 pandemic. It also highlights emerging issues for the Indian hospitality and tourism industry.

**Majumdar, R. (2021)** examines the many strategies Indian hotels have implemented to address COVID-19 by increasing cash flow/revenue, decreasing operational expenses, and conserving resources. List price reductions and discount percentages are actions that will improve cash flow. Labor cost reductions, energy use reductions, and maintenance cost management are all ways to save money. In order to save resources, many businesses and governments have begun to move their supply chains towards localization and delay costly capital investments. The sector has taken steps to boost growth to establish a sustainable "new normal," including marketing to domestic visitors, reorganizing the workforce, and expanding the range of products with high added value.

**Chinie, Catalina (2020).** Reducing food waste would be crucial in the battle against global hunger by redistributing food that is not eaten. However, attaining this objective will also benefit the economy, the environment, and society. Food waste is closely related to the aims of many governmental institutions and international organizations that have led awareness campaigns and created objectives and guidelines for reducing its occurrence.

**Rana, Varinder & Bathla, Gaurav & Raina, Ashish (2020)** The hospitality sector has grown significantly over the last several decades. He is a significant economic development engine for developed and developing nations. The modern period has opened various options for professionals working in the hospitality sector. Entrepreneurs and educators confront enormous challenges considering this potential and a workforce with vital employability skills. The nation's hospitality sector must improve its current situation and train its workforce to a high level of proficiency. Numerous colleges' hospitality sector curricula want to emphasize preparing students for the workforce. More than half of all educational institutions in the country are valuable and crucial for persons looking for work in the hospitality sector. The reader will learn quickly thanks to the book's condensed principles and useful references. There will be plenty of opportunities to grasp the principles of hospitality education thanks to the examples and references. We are sure that the book will attempt to address the current state, difficulties, and potential of hotel management education in India.

**Rahman, I., Chen, H., & Reynolds, D. (2020)** The research suggests that those in the hospitality industry working on eco-friendly hotels could explore cutting rates and making the consumption process more public by giving customers more chances to interact with the hotels via social media. When green hotels are more expensive or of equal quality, consumers typically indicate their intention to avail themselves of the higher-quality conventional hotels.

**Mishra, A., Dhaka, S., Gupta, V., & Shekhar, M. (2020)** This paper comprehensively analyzes green practices towards environmental sustainability by adopting various attributes without affecting the customer's services. Water conservation, solid waste disposal management, and energy conservation are important factors of any sustainable development. It is necessary to educate the hotel staff about the collection of recyclable materials from the hotel's waste stream. This can be done effectively by conducting a waste recycling program in a required time frame.

**Kansakar, Prasanna & Munir, Arslan & Shabani, Neda (2019)** The tourism and hotel industry is a major global economic driver. The widespread use of cutting-edge technology in this industry over the past several years has profoundly impacted service delivery and customer expectations. This article examines how innovative technologies are being implemented in the hotel industry to better serve guests and alter the traditional service delivery paradigm. We also consider potential future hospitality services that may be offered as IoT technology advances.

### 3. RESEARCH METHODOLOGY

This research is qualitative. Both primary and secondary data were used, and an interview schedule was used to collect relevant information.

The data gathered in this manner were then analyzed using statistical methods such as percentages, correlation, and the multiple regression methodology. In addition, a temporal analysis was performed using linear and compound growth rates as the analytical tools. When required, we used several diagrams and statistical techniques.

### 4. DATA ANALYSIS & INTERPRETATION

#### 4.1 Cost Incurred by the Hospitality Sector Units on Waste Management

It was discovered that each of the hospitality sector facilities chosen set aside a certain sum of money for waste management and trash disposal. Additionally, the reason for allocating a certain portion of the budget to waste management varies from one organizational unit to the next.

Table 1: Purpose for Allocation of Budget for Waste Management by the Selected Units

S.No.	Type of Industrial Units	Purpose for Waste Management Budget		Total
		Utilisation + Treatment	Disposal	
1	Jio Mart	30(60)	20(40)	50(100)
2	Specialty Food Stores Processing	15(30)	35(70)	50(100)
3	Retail Stores	22(44)	28(56)	50(100)
4	Grocery Crashing/Extraction	50(100)		50(100)
5.	Hotel	13(26)	37(74)	50(100)
6	Hospital	12(24)	38(76)	50(100)
7	Health & Personal Care	5(10)	45(90)	50(100)
Total		147(42)	20.5(58)	350(100)

Five-eighths of the sampled industrial units' budgets go towards garbage disposal (Table 1), which includes collecting and transporting waste products from the unit premises to the disposal location. For waste utilization and treatment, 42 percent of the sampled industrial units are allocating funds. Waste management expenses vary from unit to unit, in addition to the authorized budget. The average expenses associated with waste management for the hotel industry are summarised in Table 2.

Table 2 Waste Management and Disposal Cost of the Units

S.No	Type of Industrial Units	Waste Management cost(Rs.in thousands)					Total
		<25	26-50	51-100	101-150	>151	
1	Jio Mart	9 (16)	16 (32)	8 (16)	17 (34)	-	50 (100)
2	Specialty Food Stores Processing	5 (10)	22 (44)	8 (16)	15 (30)		50 (100)
3	Retail Stores	2 (4)	10 (20)	16 (32)	15 (30)	7 (14)	50 (100)
4	Grocery	2	18	9	8	13	50

		(4)	(36)	(18)	(16)	(26)	(100)
5	Hotel	11 (22)	9 (18)	17 (34)	13 (26)	-	50 (100)
6	Hospital	9 (18)	17 (34)	12 (24)	12 (24)	-	50 (100)
7	Health & Personal Care	3 (6)	0	22 (44)	5 (10)	-	50 (100)
Total		41 (12)	112 (32)	92 (26)	85 (24)	20 (6)	350 (100)

According to Table 2, all the hospitality sector facilities that were chosen allocate a certain portion of their available funds to waste management and disposal activities. The cost of garbage management might range from less than 25,000 rupees to more than 1,51,000 rupees.

32 percent of the units have budgets ranging from 51 thousand rupees to one hundred thousand rupees. Even though the chosen food processing facilities are smaller, they allot and spend more than one lakh rupees (up to a maximum of three lakh rupees) on this endeavor. Twenty-four percent of the units have budgets that range from 1.01 to 1.50 lakhs rupees. Some of the units spend more than one and fifty-one thousand rupees per year on trash management and disposal costs. Eighty-four percent of the health and personal care, fifty-eight percent of the hospital, sixty percent of the specialty food stores processing, and fifty-four percent of the hotel (beverage) units have spent between rupees 26,000 and one lakh. As a result, the chosen units are spending substantial resources on waste management and trash disposal.

#### 4.2 Output of the Selected Units

One of the most essential aspects that defines any organization's development and success is its output. Input, proper technology, adequate management in organizing inventories, availability of skilled labor and capital all have a role in determining output. Output is regulated by several important elements such as these. The chosen low-volume food processing facilities are responsible for producing a diverse array of goods. Pickles, jam, chips, and fruit juice are just a few products manufactured by the Specialty Food Stores divisions. The fluid retail Stores, ice cream, butter and ghee, cheese, and curd are all being processed by the retail Stores units. The hospital units were responsible for producing various baked goods such as bread, biscuits, toffee, and sugar-coated candies. Grocery units are responsible for the production of food-grade groceries, whereas solvent extraction units are responsible for removing groceries from rich bran and grocery cakes. The Jio Mart plants are responsible for processing rice and dhall (Pulses). The Health and Personal Care divisions are responsible for processing the flesh of goats, sheep, and fowl. In addition, hotel rooms can make drinks made from both artificial and natural ingredients, such as fruit.

Table 3 details the amount of output generated by the various hospitality sector facilities that were taken under consideration.

Table 3 Output of the Selected Units

S. No.	Type of Industrial Units	Output in Tonnes/ Year					Total
		< 100	101- 500	501- 1000	1001- 1500	>1501	
1	Grains Milling		12 (24)	12 (24)	13 (26)	13 (26)	50 (100)

2	Specialty Food Stores	25 (50)	25 (50)		*	-	50 (100)
3	Retail Stores	8 (16)	25 (50)	9 (18)	4 (8)	4 (8)	50 (100)
4	Grocery store	1 (2)	19 (38)	16 (32)	9 (18)	5 (10)	50 (100)
5	Hotel	16 (32)	13 (26)	11 (22)	10 (20)	"	50 (100)
6	Bakery and Confectionery	40 (80)	10 (20)	"	-	-	50 (100)
7	Health & Personal Care	23 (46)	27 (54)	-	-	"	50 (100)
Total		113 (32)	131 (38)	48 (14)	36 (10)	22 (6)	350 (100)

The output of certain units might vary quite a bit from one to the next. There is a wide variety of possibilities, from less than 100 to more than 2500 tonnes every year. The highest percentage of units, 38%, occur within the range of 101 to 500 tonnes each year. This group encompasses fifty percent of the processing, retail store, and health and personal care product units found in Specialty Food Stores. Greater production per year (more than 1500 tonnes per year) has been generated by the Jio Mart plants. When compared to other units, hospital units are shown to have poor production rates. Jio Mart's high production is a direct result of its high level of input consumption. On the other hand, the hospital only uses a limited number of the raw resources, which results in a decreased production. If bakery items are only eaten sporadically, then the production is found to be modest as well.

#### 4. CONCLUSION

Each hospitality sector facility chosen to participate in this study has set aside a certain amount of money for waste management. While the bulk of the units (58%) are funnelling their financial resources into trash disposal, 42% of the units are allocating their budgets for the twin aim of waste utilisation and waste treatment. The amounts of money spent on the activities might vary significantly from one location to the next. There is around 32 percent of the units spend between 51 thousand and one lakh rupees, and there is approximately 24 percent of those units spend between 1.01 and 1.50 lakh rupees. In addition, some of the facilities have annual expenditures for waste management and disposal operations that total more than 515,000 rupees. The output of the various units that were chosen is different from one another. There is a wide variety of possibilities, from less than 100 to more than 2500 tonnes every year. The range of 101 to 500 tonnes per year sees the greatest number of units produced overall. The Jio Mart had the largest annual production compared to the other units, while the hospital had the lowest.

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