

## A REVIEW OF FOOD WASTES IN THE HOTEL INDUSTRY AND THEIR IMPACT

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### ABSTRACT

*Annually, the typical individual throws away around 475 pounds of food, adding more than 70 million tonnes of waste to our landfills. The waste draws in unwanted insects, gives off toxic odors, and leaks potentially harmful substances into the surrounding environment. Those who struggle to put food on the table should not have to be insulted by food waste. Even though thousands of people who fall into these categories need nutritious meals rich in nutrients, families, and restaurants routinely throw away significant volumes of edible food waste in garbage cans. The waste contributes to the production of methane gas, which has 20–25 times the destructive potential of carbon dioxide. In significant years, food waste has emerged as an issue of growing significance for businesses of all stripes. This is especially true for those working in the hospitality industry. The hospitality experience includes in-room dining and eating at upscale restaurants and buffets with unlimited food. However, after all of the guests have done eating, what will happen to the food that was left over? The vast majority will be disposed of in landfills, which will incur high costs for the organization and even more damage to the surrounding environment. The waste is negatively impacted in a variety of ways by wasted food. Realizing the repercussions of one's actions is the first step toward making a change. The first is the manufacturing process. Food waste is increasingly being recognized as a possible threat to the environment's overall health. In many countries, the unchecked dumping of vast volumes of food waste (FW) has considerably caused major environmental pollution, significantly contributing to the sudden escalation of global warming.*

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**Keywords:** Food Waste, Waste Reduction, Eco Food Recycling, Food Waste Collection, Hotel Industry, Tourism & Hospitality Sector.

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### Introduction

This statistic may not be as much of a reflection of our love of excess as it is of the magnitude of our population. Indians throw away the same amount of food as the whole population of the United Kingdom. Despite this, there is a significant issue with food waste in India. The garbage cans, roadways, and landfills of our city provide sufficient proof for this assertion. The production of a large quantity of food is common in households and at weddings, canteens, hotels, social events, and family reunions. The UN Development Program estimates that as much as 40% of India's agricultural output is lost or squandered. Approximately 21 million tons of wheat are lost in India alone, and around 50 percent of all food produced across the globe goes to waste and is not distributed to hungry people.

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According to estimates provided by the country's agriculture ministry, the amount of money lost due to food waste throughout the country totals 50,000 crores rupees per year. The vast majority are oblivious to the severity of the damage that may be done to an economy due to food waste. When food is wasted away, there is a significant loss of labor and power in the food processing industry and a significant loss of water in the agricultural sector. This may even affect the number of trees that are wasted. Considering all factors, it is estimated that food waste results in an annual loss for India of an amazing 58,000 crores of rupees. To feed more people, the government needs to take measures to cut down on the amount of food that is wasted. At the same time, it is being transported, increases the rate at which food is processed, and works to enhance storage conditions (currently, the cold storage chain is 50% shorter than needed). Food waste during production may not be something you can control, but there is no question that you can reduce the amount of food that you throw away in your own home. Every movement in the right direction is important.

On the other hand, it contributes 9.1 percent to the total world GDP and is expanding at a pace of 4.3 percent per year (WTTC, 2012). Its importance is further heightened by the fact that this sector is the largest employer in the world, creating 254,941,000 employees, almost one out of every twelve jobs. This statistic further highlights the significance of the industry (WTTC, 2012). For every million dollars spent, the Indian tourist industry generates 47.5 direct jobs and 85–90 indirect jobs, which is higher employment than the combined employment of the agricultural sector (44.6) and the industrial sector (12.6) (Mukherjee, 2012).

A Cornell School of Hotel Administration research team started a study to look at the wastes produced in commercial kitchens in the spring of 1975. Given the enormous amount of waste that restaurants create and the lack of data on the quantity or kind of waste that restaurants produce, this was done. According to the statistical analysis's findings, there were both constant and variable components to the number of fluid wastes produced. Additionally, the data showed that as the number of delivered meals rose, the quantity of waste produced each meal decreased. It also indicated that when the number of meals grew, the amount of water used per meal also fell. This might be because the dishwasher was loaded more efficiently and because fixed water usage was spread across many meals (White, 1977).

The sheer act of producing food significantly and negatively impacts the ecology in the process. For plants and crops to mature to the point where they can feed a whole nation, a significant quantity of land must be cleared. Several industry complexes have recently largely taken over the once ecologically significant area. Pesticides and fertilizers are often employed to speed up the growth process, but this does not imply that the damage ends there. Years of farming will result in long-term contamination and destruction of the soil and water systems, even if there may not be any immediate effects on the land. This is even though there might not be any immediate consequences on the land at all.

### **Waste Reduction**

The tourist business caters to an annual population projected to be forty million people. More than half of these vacationers spend at least some of their time away from home in hotels. A significant amount of the state's total commercial waste stream comprises the waste these tourists leave behind. According to a waste audit of hotels, the majority of the waste generated by the company was produced by the food and beverage division rather than the guest rooms. When waste from a hotel is not recycled or reduced, it adds to the state's larger environmental issues. The expenses of treatment and disposal may be cut down or eliminated. Contamination can be avoided by reducing the amount of material produced at the point of origin and by recovering, reusing, and recycling the material. Recycling should become integral to day-to-day business practices, including personnel training. Every hotel and motel must develop a unique recycling program that considers the respective establishment's processes, activities, and structural design.

The environment in which crops are cultivated is impacted by climate change due to several variables, including "changed precipitation patterns, greater freshwater shortages, the degradation or loss of agricultural land, and human ability to cultivate crops. "The inability to cultivate the crops they depend on might result in major issues for the area as a whole because people would be compelled to migrate. In addition, the process of decomposition that occurs in landfills, the loss of resources that occur throughout the manufacturing process, and the transportation of food from farm to table contribute to the release of greenhouse gases along the whole food chain. As a result, reducing food waste may reduce the demand for resources that contribute to climate change, boost future food security and availability, mitigate the impacts of population relocation, and lead to a more constant supply of food.

The Environmental Protection Act (EPA) of 1990 is the legislation that now controls and regulates the waste management industry in the United Kingdom. This legislation also confers more authority on waste transporters and producers (Read, Phillips, & Robinson, 1998). Each waste producer must comply with the "Duty of Care" standards outlined in Section 34 of the Act. To comply with this regulation, all commercial and industrial businesses must hire a licensed waste carrier, organize stores, and get rid of their rubbish appropriately (Webster, 2000).

To enhance employees' dedication to the program, it is essential to educate them about waste reduction strategies, provide them with training, and inspire them to take action (Cummings, 1997; Trung & Kumar, 2005). According to Cummings, guests may significantly contribute to a hotel's waste recycling program by avoiding the disposal of waste contaminated with food (1997). There are a lot of different ways that may be done to encourage visitors to separate their recyclables, such as putting a separate container for recyclables near the elevators or in the rooms themselves. According to Hayward (1994), consumers' perspectives on environmental concerns have evolved.

### Statistics Wastes

- Food waste accounts for forty percent of the total mass included in landfills.
- Currently, recycling rates for food waste are at a meager 3%.
- The gas known as methane, produced by the breakdown of food waste, is 20–25% more potent than CO<sub>2</sub>.
- Landfills create methane, a greenhouse gas that traps more heat in the atmosphere than carbon, and account for around twenty percent of all emissions in Canada. Compared to carbon, methane is a more effective heat-trapping substance.
- It is estimated that over forty percent of perfectly edible food in Canada is wasted away, costing the nation approximately twenty-seven billion dollars each year.
- In Canada, the hospitality industry produces 8% of the country's total food waste (51% of which comes from families; if you are cautious with the food waste at your home, you will be more careful at work!).
- Currently, recycling contributes less than 3% of each year's total output of "more than 30 million tons of organic waste". The problem is much more severe for industrial food processors since they are responsible for handling significant quantities of food waste.

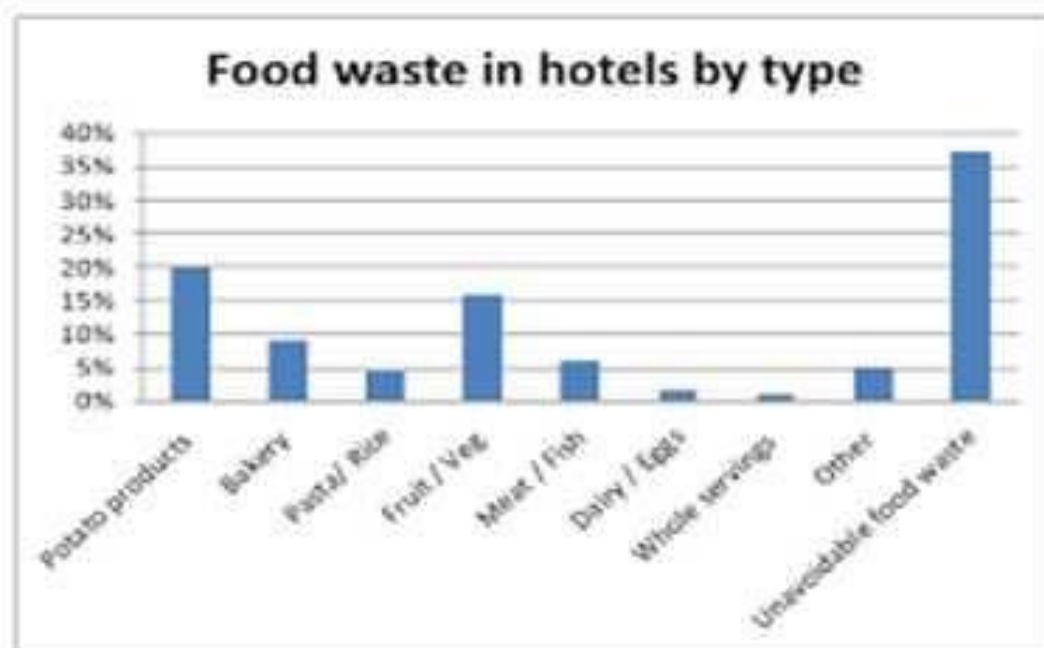
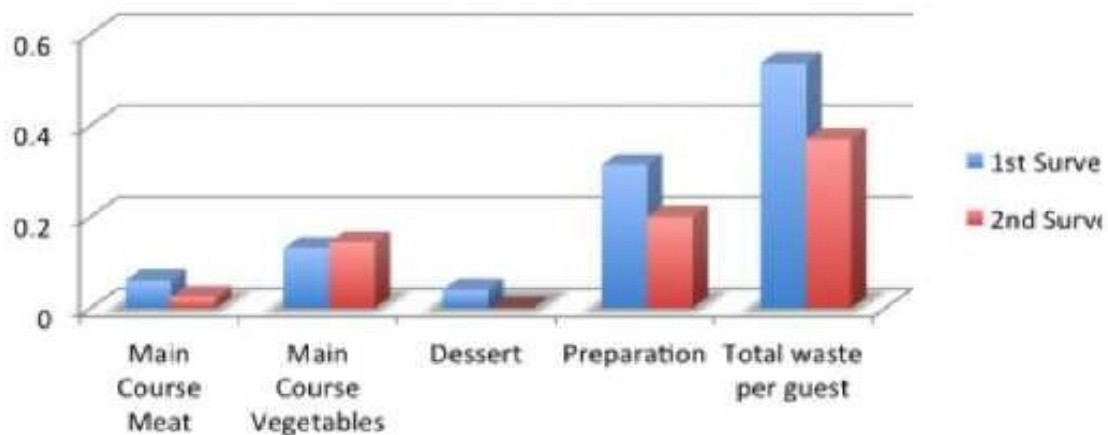


Figure 1: Food Wates in Hotel

The average guest at a hotel creates one kilogram of waste for each night they stay at the establishment. The quantity of waste produced is astounding when that number is compounded by all the hotels and guests worldwide. In addition, one has to think about the amount of room necessary to organize and store everything. It is not an easy issue to solve, especially because some hotels are in the heart of bustling metropolitan areas where there isn't much room to move about. During a hotel's planning and construction stages, most available space is often designated for public and visiting hotels. These places might include the lobby, dining restaurants, conference spaces, a fitness club, and gardens. As a result, the remaining spaces are designated for the back-of-house staff to use for waste sorting and disposal. Concerns about health and safety and the noise produced during collecting and compacting are additional variables to consider.

Based on the statistics from Denmark and Finland, one may conclude that the hospitality business is responsible for providing one-third of all meals. Food waste and food waste that may be prevented have been discovered in the study that is now available. Better methodology and definitions are required to increase the quality of data on food waste and prevent food waste. To show the state of avoidable food waste in the hotel sector and for particular segments, the volumes of food waste and avoidable food waste are estimated using several approaches. According to the findings of the evaluations, there was a total unnecessary food waste of 456,000 tonnes across the four nations, equivalent to around 18kg per person. The variations in the reports highlight the need for better statistics, particularly better reporting procedures and definitions.

## Waste Generated at Hotel A Wedding Function



**Figure 2: Food Wastes in Functions**

### Some Tips for Reduce Food Waste and Save you Money

- **Take the Time to Plan Your Menu Carefully**

During this step, you should evaluate which meals have been popular (and which have not been) and at what times. If you are a new business, it may be tough to grasp the supply and demand for your goods or services, but it is vital to have a solid knowledge of your clientele.

- **Make the Most of Seasonal Produce**

This will help keep the menu interesting, be a more cost-effective approach to shopping, and make it easier to get more of anything if you happen to run out of it.

- **Prevent the Unnecessary Spoilage of Food**

Make sure you store your products correctly and securely (according to the requirements for food safety), and check to see that your refrigerators and freezers are operating at the appropriate temperatures.

- **Grow Your Herbs**

Not only will this ensure that you always have what you need on hand, but it will also provide an excellent selling point for those concerned about the environment.

- **Thoroughly inspect all Food Orders Upon Their Arrival**

If anything doesn't appear nice or correct, send it back as soon as possible.

- **Inviting Customers to Take Leftovers Home**

Customers will appreciate conveniently taking leftover containers (that can be recycled) with them to their homes to enjoy later.

- **Shopping Locally**

If you have access to a local produce source, take advantage of them! This should assist you in avoiding overbuying products since it will be much simpler to obtain more of anything if you run out of it before you have the chance. Additionally, it is a local opportunity to give back to the community in which you live.

- **The Size of the Plate**

If you find that your customers are not finishing their meals regularly, you may want to try changing the size of the plate to a little bit smaller.

- **Alter the Menu to Reduce the Amount of Food**

That Is Extra If you suspect that you won't be able to sell a certain item before it spoils, changes your menu to add a time-limited offer.

### **Eco Food Recycling Abundantly gathers Food Waste from Hotels and Restaurants**

The hotel and catering industries each year produce millions of tons of food waste. The premier independent food waste collection and recycling company in the south, Eco Food Recycling, picks up waste from some of the most well-known businesses in the UK. Food is wasted significantly in the hospitality industry, which includes hotels, pubs, and restaurants. Whitbread, Premier Inn, Beefeater, Hotel du Vin, Malmaison, and Ramada are just a few well-known businesses that Eco Food Recycling is responsible for collecting and recycling food waste. In the UK, a significant portion of commercial food waste is attributable to catering. This category covers food waste from workplace canteens and food waste from educational institutions, including schools, colleges, and universities. Currently, Eco Food Recycling collects food waste from three different BBQ stores, as well as from the universities of Southampton and Winchester and local schools in Bournemouth, at its headquarters in Chandlers Ford. Eco Food Recycling disposes of all its catering and hospitality food waste locally in Bournemouth. A significant portion of the food waste that is collected originates from an upmarket amusement park and a neighborhood shopping center located close to Eco Food Recycling. The increased recycling rates that have resulted from Eco Food Recycling's collection of food waste from theme parks like Paulton's Park at Owner, which is located in the vicinity of Southampton, are a testament to the company's success. The food waste collection and recycling firm headquartered in Ringwood, United Kingdom, has achieved another significant triumph by signing an agreement "to collect all food waste from 18 Waitrose stores located in the south of England". In addition to collecting food waste from well-known enterprises, the companies also collect waste from restaurants and other businesses of varying sizes to divert waste from landfills.

It is anticipated that the hospitality industry will expand globally over the next several years in many different locations (Berman, 2014). For instance, it is anticipated that the "Revenue Per Available Room would grow by 6% in the United States in 2014, and up to 5% in some European cities in both 2014 and 2015". (Milburn and Hall, 2014)

### **Major Hotel Chain Expand Food Waste Collections with Eco Food Recycling**

After a successful trial phase of two months at the Hotel du Vin in Winchester, where 5.5 tons of food waste were generated over the eight-week trial period, the decision was made to extend the food waste collection and recycling service to sites in Poole and Reading. The Hotel du Vin in Poole and the Malmaison in Reading will begin participating in the food waste collection program run by Eco Food Recycling at the beginning of June. Eco Food Recycling provides a food waste collection and recycling service to hotels of all sizes in Dorset, Hampshire, Wiltshire, Berkshire, Surrey, and Sussex counties. This service ensures that one hundred percent of the food waste collected is recycled.

### Conclusion

The stages of production, yield handling, and storage, collectively referred to as the “upstream” phase, are responsible for more than fifty percent of the waste generated. In contrast, the processing, distribution, and consumption stages, collectively referred to as the “downstream” phase, account for fifty percent of the waste generated. The research conducted by the FAO was also successful in identifying a particular pattern in the food that is wasted all across the globe. Developing countries were more likely to lose or waste food during the upstream phase due to improper harvesting and inadequate infrastructure. This was in contrast to the behavior of middle-income and higher-income regions, which occurred either during the downstream phase or at the consumer level. It should go without saying that the longer food is wasted in the supply chain, the more of an effect it has on the environment. This is because more energy and natural resources need to be needed to process, transport, store, and prepare food. Informal trash collection offers a means of subsistence to thousands of people in underdeveloped countries who are developing to escape poverty (Razeto and Hemelryck, 1991; Fernandez, 1997a). The informal recycling networks safeguard the environment, cut collection and disposal costs, provide employment jobs, and provide the industry with inexpensive raw materials (Jindal et al., 1998).

### References

1. Unuofin, John Onolame, et al. “Food Wastes: Perceptions, Impacts, and Management.” *Food Wastes: Perceptions, Impacts and Management | SpringerLink*, 26 Aug. 2021, [link.springer.com/chapter/10.1007/978-981-16-2015-7\\_8](https://link.springer.com/chapter/10.1007/978-981-16-2015-7_8).
2. Dalal, Jagbir Singh, and Sunil Kumar Panwar. “A STUDY ON FOOD WASTES IN HOTEL INDUSTRIES AND THEIR EFFECTS.” <http://www.ijbarr.com/>, June 2016, [admin.ijbarr.com/archive.php?v=3&i=14](http://admin.ijbarr.com/archive.php?v=3&i=14).
3. Berman, s. d., 2014. Hospitality directions us: our updated lodging outlook.
4. Cummings, l. e. (1997). Waste minimization supporting urban tourism sustainability: a mega-resort case study. *Journal of sustainable tourism*, 5(2),93-108.
5. Fernandez, a. L. (1997a). Introduction. In fernandez, a. L. (ed.), k. Oya (co-ed.) And d.
6. Hayward, p. (1994). Disney does the environment. *Lodging*, 19(7), 46-58
7. Jindal, r., h. Harada and s. Shikura. (1998). Solid waste management in some Asian countries. *Environmental systems review no. 42/43*. Bangkok, Thailand: Environmental Systems Information Center (ENSIC), Asian Institute Of Technology.
8. Mukherjee, d. (2012). Rural tourism - path to economic and regional development in India, *Kurukshetra*. Vol 60(7): pp 3-6.
9. Razeto, j. And l. Hemelryck. (1991). Community participation in waste recycling and management. *African environment* 29-30(viii, 1-2):147-155.
10. Read, a.d., Phillips, p., &Robinson, g. (1998). Landfill as a future waste management option in England: the view of landfill operators. *The geographical journal*, 164(1),55-66.
11. Trung, d.n., &Kumar, s. (2005). Resource use and waste management in Vietnam hotel industry. *Journal of cleaner production*, 13(2), 109-116.
12. Webster, k. (2000). *Environmental management in the hospitality industry: a guide for students and managers*. London: Cassell.
13. World travel and tourism council (2012) accessed at [www.wttc.org](http://www.wttc.org).

