

Comprehensive Study on food waste management in Hotel and tourism industry

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ABSTRACT

Food waste management stays one of the greatest worries to be controlled in the accommodation business. The paper expects to distinguish the starting points of food waste, both pre-buyer, and post-consumer, and additionally the effects and difficulties of eliminating sustenance waste on a size of an inn's kitchen. Over that, the paper will propose distinctive methodologies and practices for food waste management in the sustenance and refreshment industry. Hotels are the real customers of assets and contribute vigorously toward the waste age, when contrasted with others. Today is the Green Economy time and green methodologies, such as reusing can give an awesome advantage to hotel industry. In this paper, we inspected writing in waste review, WARM model, equivalency adding machine and money saving advantage investigation procedures on inn properties and analyzing the present status of waste management for some hotel industry in India. A record is given of the reasons for the diverse kinds of waste experienced in this segment and what methodologies might be utilized to diminish them. By and large, there is an absence of insightful productions to help this region of research. This paper exhibits an outline of current waste management rehearses in India and proposes answers for a portion of the real issues.

Keywords: Hotel Industry, food waste, Waste Management, Sustainability.

INTRODUCTION

The Indian tourism and hospitality industry has emerged as one of the key drivers of growth among the services sector in India. The third-biggest sub-portion of the managements division involving exchange, repair managements, inns and eateries contributed about US\$ 187.9 billion or 12.5 for each penny to the Gross Domestic Product (GDP) in 2014-15, while becoming the speediest at 11.7 for every penny Compound Annual Growth Rate (CAGR) over the period 2011-12 to 2014-15. Tourism is a possibly extensive business generator other than being a huge wellspring of remote trade for the nation. The business is required to create 13.45 million employments. As critical as food security and cleanliness, sustenance waste ought to be thought about more genuinely. Absolutely, it is extremely important that friendliness supervisors need to offer noticeable quality to the nature of the items conveyed to the clients; in any case, taking a chance with every one of the costs to supplant old generation with newly made items all the time is an unusual waste. Lessening sustenance waste can add to a few ecological advantages as well as various monetary and social effects. In the wake of working in the food and refreshment industry for a lot of time, the creator saw that sustenance waste turned into an unavoidable issue in each eatery and food specialist co-op. Be that as it may, it was an issue that more often than not got disregarded or disguised because of different reasons. While it may be a worry to a great deal of chiefs, yet, not every person is prepared to expedite it and consider it important. Being a tree hugger herself, the creator picked up a solid enthusiasm for adding to sparing the earth. Since waste management when all is said in done and sustenance waste management especially are a significant piece of ensuring the earth, bringing issues to light and additionally showing legitimate taking care of methodologies among the general population is a need.

Past papers demonstrate that there is a distinction between sustenance misfortune and food waste. It is brought up that food misfortune implies the reduction in sustenance mass or in its quality, which makes it unsatisfactory for human utilization. Another source demonstrates that sustenance misfortune comprises of food spills, ruins, causes an unusual diminishment in quality, for example, wounding or get lost before it achieves the clients. Food misfortune generally happens at the generation, stockpiling, preparing, and conveyance arranges in the sustenance esteem chain. In the mean time, sustenance waste has a tendency to be food that has fine quality and is appropriate for utilization, however does not get devoured in

light of the fact that it gets discarded either previously or after it is left to die. Food waste commonly happens at the retail and utilization organizes in the sustenance esteem chain. The reason can be the carelessness or a cognizant choice to discard food. Albeit both food misfortune and waste happen everywhere throughout the world, sustenance misfortune has a tendency to be more pervasive in creating nations, while food waste has a tendency to be more common in created nations. As the drivers that produce food waste and the answers for it are not quite the same as those of sustenance misfortunes, sustenance waste is perceived as a particular piece of sustenance misfortune (FAO, 2017) For the situation of food and refreshment industry, a food thing ends up waste when it neglected to be utilized by a client or a representative of a food management or eatery task. Food waste comprises of both sustenance and refreshment for client's utilization and kitchen waste, for example, eggshells, new food trimming waste, oils, ruined or lapsed items. Sustenance waste falls into two classes: Pre-consumer food waste and post-customer food waste. Pre-buyer sustenance waste incorporates overproduction, deterioration, lapse, and trimming waste. Post-consumer sustenance waste frequently alluded as plate waste, is the food things left or disposed of by the clients. These frequently incorporate food left on the plates or unused flavoring part or extra refreshments. In a comparative vein, Constello separates into two kinds of food waste. The principal write is sustenance waste before its utilization. This kind of waste alludes to kitchen scraps (any natural material that is discarded during food.



Figure 1: Challenges of food waste in the hospitality industry

Total contribution by travel and tourism sector to India’s GDP is expected to increase from US\$ 136.3 billion in 2015 to US\$ 275.2 billion in 2025. Travel and tourism is the third biggest outside trade worker for India. In 2014, the nation oversaw outside trade income of USD 19.7 billion from tourism (IBEF,b). The accommodation business in numerous parts of the world is relied upon to see huge rates of development in the following couple of years. Most human exercises make waste, and the way this waste is dealt with, put away, gathered and discarded can posture dangers to the earth and to general wellbeing (Zhu et al., 2008). With the expansion of business exercises and also fast urbanization, the age of waste has likewise expanded. Dishonorable management of this waste has prompted different dangers for individuals as well as for the entire environment. Reusing has been at the bleeding edge of effectively dealing with the issue identified with waste. It is one of the procedures that is utilized as a part of Integrated Solid Waste Management (ISWM) alongside diminish and reuse.

In one of the papers led in Bali, it was discovered that interest in a waste management program gave guide financial advantages to the hotels (through waste minimization), aberrant advantages, for example, a superior corporate picture, and maintained a strategic distance from costs (risk). Studies have demonstrated that vacationers (inn visitors/customers) will pay more for ecological well disposed items and managements, for example, hotel convenience. Numerous inns are

rehearsing earth well disposed approaches and reusing to oversee waste, which is profiting them by an expansion in benefit and getting positive client reaction and enhanced corporate brand picture.

FOOD WASTE IN THE HOTEL AND TOURISM INDUSTRY

The following section discusses the terminologies, the causes, and impacts of food waste in the hospitality industry, as well as the challenges and approaches and practices to deal with this issue. These are the themes connected to the empirical part of the Paper.

Past papers demonstrate that there is a distinction between sustenance misfortune and food waste. It is called attention to that sustenance misfortune implies the reduction in food mass or in its quality which makes it unacceptable for human utilization. Another source demonstrates that food misfortune comprises of sustenance spills, ruins, acquires a strange decrease in quality, for example, wounding or get lost before it achieves the clients. Food misfortune normally happens at the creation, stockpiling, handling, and circulation organizes in the sustenance esteem chain. Then, food waste has a tendency to be sustenance that has fine quality and is reasonable for utilization, yet does not get expended on the grounds that it gets disposed of either previously or after it is left to die. Sustenance waste ordinarily happens at the retail and utilization arranges in the food esteem chain.

The reason can be the carelessness or a cognizant choice to discard sustenance. Albeit both sustenance misfortune and waste happen everywhere throughout the world, food misfortune has a tendency to be more predominant in creating nations, while food waste has a tendency to be more pervasive in created nations. On account of food and refreshment industry, a sustenance thing ends up waste when it neglected to be utilized by a client or a representative of a food management or eatery activity. Sustenance waste comprises of both food and refreshment for client's utilization and kitchen waste, for example, eggshells, crisp sustenance trimming waste, oils, ruined or terminated items. Sustenance waste falls into two classes: Pre-customer food waste and post-consumer sustenance waste. Pre-customer sustenance waste incorporates overproduction, decay, termination, and trimming waste. Post-consumer sustenance waste frequently alluded as plate waste, is the food things left or disposed of by the clients.

These regularly incorporate food left on the plates or unused flavoring part or remaining drinks. There are mostly two sorts of sustenance waste. The main kind is sustenance waste before its utilization. This sort of waste alludes to kitchen remains (any natural material that is discarded during food readiness, similar to peels, oil, products of the soil parts; it is viewed as unappetizing) and sustenance which has spoiled (either the time span of usability has terminated, or it is breaking down; it is viewed as unpalatable). The other sort is food waste after utilization which is the sustenance served to the visitors that have not been eaten. An easier arrangement of food waste is presented in this figure:

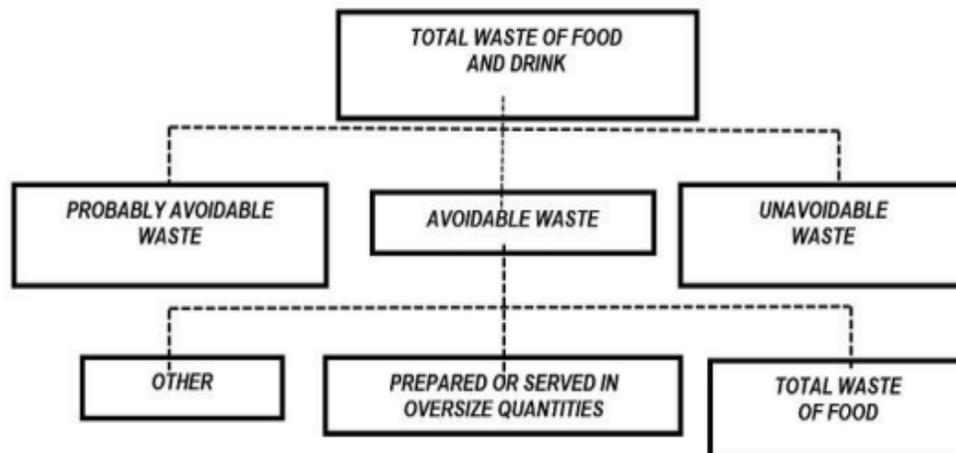


Figure 2: Classification of food and drink waste relating to the possibility of mitigating their production

As we can see from the figure 2, avoidable food waste consists of food prepared or served in an enormous amount, food that has been damaged during the cooking such as burnt food or unqualified food from the wrong volume or wrong recipe, as well as food which has not been consumed until they get expired. Most avoidable food wastes are not hazardous, and they should be composted properly. They should be separated to be sent to different waste treatment programs.

Another staff-related cause of food waste is unskilled trimming. Vegetables, fresh fruits, and meat need to go through trimming and preparing phase to be ready for use. Staff members should acquire appropriate kitchen skills training and anticipate skills to produce food without creating so much waste.

Furthermore, over-prioritizing merchandising creates an enormous amount of food waste. It is understandable that operators want their merchandising products to stay fresh, beautiful, and plentiful on the shelves. Nevertheless, this can result in an excessive amount of products wasted by the end of the day.

On the other hand, although food safety comes as the first priority at any food service point, it contributes immensely to the dispose of food. Food with any issues regarding timing, temperature or handling should be discarded for the consumers' health reasons. Still, lessons should be learned from the mistakes so that they will not be repeated again.

In terms of post-consumer food waste, Shakman in lists three main reasons. The first reason is large portion sizes. More than often, the portion sizes are way bigger than what the customers can actually consume. In addition, inefficient service model can generate a significant amount of food excess. Self-service food points such as cafeterias, buffet restaurants, and other non-commercial food service operations allow their guests to take more than what they can eat. Also, customer's menu acceptance can contribute to waste in a sense that when customers do not enjoy some part of the condiments, some certain ingredients, or the quality of the served food, they usually refuse to finish their meals.

In a different study, although not categorizing the causes of food waste according to the stages, Hogan proposes that the most five common food waste causes include five factors. The factors are illustrated in Figure 3.

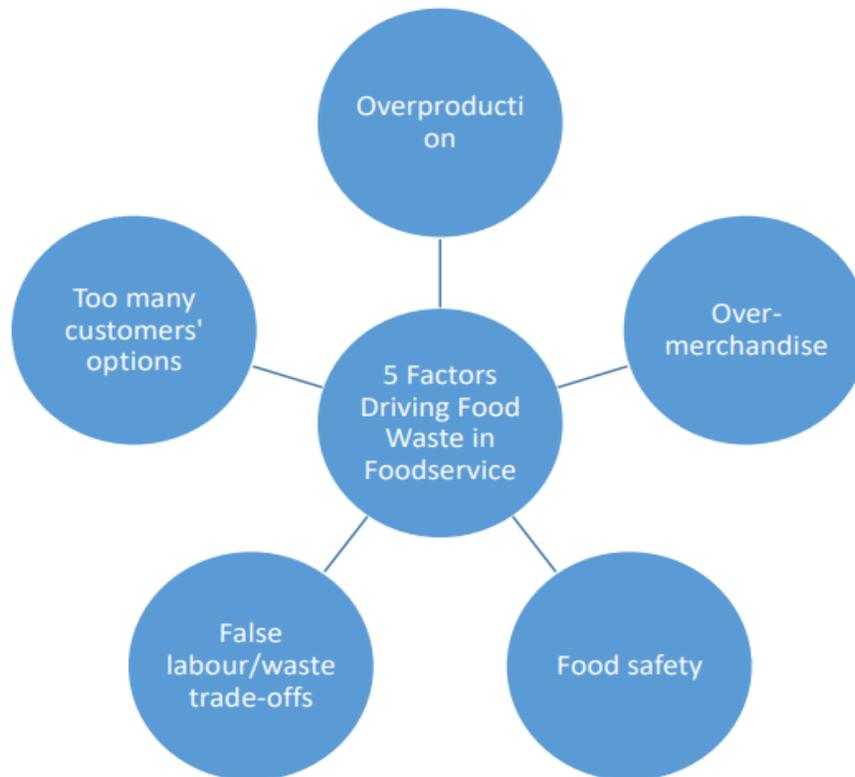


Figure 3: Factors Driving Food Waste in Food service

The first reason to address food waste in restaurants is over-production. Eatery directors and gourmet experts incline toward not to run out on all food things, along these lines, they frequently stock up and deliver in substantial sums. Despite the fact that the reason itself is certain, this for the most part prompts sustenance waste. In sustenance benefit industry, overproduction is considered as a piece of hazard management; by and by, the value that we pay for this hazard management technique is food waste.

CAUSES FOR FOOD WASTE IN THE HOSPITALITY INDUSTRY

This segment tends to be the primary driver of food waste in the friendliness business and when it is regularly made. Sustenance waste is accepted to happen at various phases of the evolved way of life from the supply to the after-benefit. It is incomprehensible for an eatery not to create any waste whatsoever expenses. Food waste age does not show poor working practices, since it happens because of different fathomable and some of the time, inescapable reasons. As sustenance waste is ordered into two gatherings: pre-consumer and post-consumer food waste, the reasons for them are extraordinary. (Baldwin and Shakman, 2012, 57-59) According to (Baldwin and Shakman, 2012, 58-59), pre-consumer food waste is frequently caused by the reasons expressed in Table 1. This table underneath is the synopsis of the primary driver of food waste in the neighborliness business presented by Baldwin and Shakman in the book "Greening Food and Beverage Services". The causes are ordered into two kinds: pre-consumer and post-consumer.

Table 1: Causes of pre-consumer and post-consumer food waste

CAUSES OF FOOD WASTE	
Pre-consumer	Post-consumer
Unidentified demand	Large portion sizes
Overstocking	
Inefficient production	Inefficient service model
Poor communication	
Staff behaviour	
Unskilled trimming	Customer's menu acceptance
Over-merchandising	
Food Safety	

WASTE MANGEMENT IN THE TOURISM INDUSTRY

The World Tourism Organization estimates that revenue from international tourism in 2014 reached £950 billion, but your trip to that fabulous exotic city might be causing more problems than you realize, as there are multiple negative impacts tourism can have on the environment. These incorporate putting an extensive request on vitality, assets and on the waste management arrangement of the city you're in. The United Nations Environment Program (UNEP) gauges that 4.8 million tons, 14 for every penny of all strong waste, is delivered every year exclusively by travelers.

This waste can conceivably over-burden waste management frameworks, particularly in goals that are more country in nature or have a low populace. This expansion is frequently occasional the same number of urban areas have top seasons in either winter or summer. Over-burdening, and in addition vacationers' absence of recognition with contrasting waste frameworks, can prompt shameful waste transfer, which can thusly prompt natural issues, for example, groundwater or soil pollution and ozone harming substance emanations, among others.

Littering is likewise an especially tricky issue in visitor regions, particularly those on the drift, and can have to a great degree harming impacts on both the neighborhood scene and the marine condition. An investigation by natural consultancy

Eunomia Research and Consulting recently uncovered that more than 80 for each penny of the 12.2 million tons of plastic entering the ocean consistently originates from arrive based sources, with litter like beverages bottles and other bundling being the biggest patron.

To conquer these issues, distinctive regions have actualized procedures in light of their particular needs to expand the maintainability of their waste management frameworks.

All visitor urban areas need to adapt to the measure of waste caused by voyagers however in the event that you live in a city which is home to a socially critical UNESCO World Heritage site, at that point you need to stress over safeguarding, as well.

World Heritage city Bergen is the second biggest city in Norway and is known as the 'door to the fjords'. Bergen is building up an underground waste transfer framework called The Bossnett to help keep up its medieval downtown area.

This system of vacuum channels is being developed under the downtown area and enables waste to be transported to the edges, where it is arranged and prepared either by means of reusing or to recover vitality which is utilized to warm the city.

CONCLUSION

Little hotels in the United Kingdom and everywhere throughout the world contribute altogether to the debasement of the earth through the transfer of thousands of huge amounts of waste to landfill. A few hotels are thinking about the execution of more reasonable waste practices, i.e. reusing and treating the soil. In any case, numerous little inn administrators need familiarity with their legitimate commitments in connection to SWM. To avoid waste transfer charges, a few hotels clandestinely utilize the residential waste stream for transfer of strong waste which is for nothing out of pocket however planned just for householders, not for organizations. This features the requirement for neighborhood experts to consider frameworks to control business mishandle of the local waste stream and to bring issues to light of the legitimate commitments of organizations with respect to waste transfer. The waste chain of importance offers a scope of choices that can be utilized by hoteliers to viably oversee hotel waste, including aversion, minimisation, reuse, reusing and fertilizing the soil. Be that as it may, these other options to landfilling are minimal utilized by little inns. Administrators demonstrated an absence of familiarity with the different ways that can be utilized to decrease waste in an inn business. Hoteliers could give careful consideration to SWM forestalling or limiting waste all through the item life cycle and along these lines keeping away from or decreasing transfer costs, e.g. through the appropriation of green buying hones.

Most little inn proprietors/directors will reuse yet they recognized a scope of boundaries confronting them: no doorstep accumulation benefit, issues identifying with detachment of waste and the cost of reusing. Consequently, the neighborhood specialist ought to give kerbside gathering and bring issues to light keeping in mind the end goal to make reusing an open alternative. Systems of little inns would be of incredible incentive to enable them to isolate their waste together and advantage from fruitful cases. It is important for hoteliers to prepare and teach staff on the most proficient method to decrease and reuse waste and furthermore include clients in the hotel's waste reusing program. Unmistakably, treating the soil speaks to a fitting choice to deal with a hotel's natural waste. The nearby specialist should bolster organizations doing in-house fertilizing the soil and give the instruments and training to do it.

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