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An Exploratory Study of Food Waste in the Hospitality Industry of Pokhara

Anita Ranabhat*

¹PhD Scholar Pokhara University

Corresponding Author Email: anitaranabhat@pusob.edu.np

ABSTRACT

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One-third of the global food production is wasted globally. Food production is a resource intensive process and safe disposal of food wasted requires additional resources. In tourism industry food is just more than fulfillment of basic needs. Food is linked with the experience. Food wastage in hospitality is accepted as a major challenge with multifaced consequences and awareness to address the issue of

food waste is also increasing. In the context of developing countries like Nepal the topic is still under-studied. Therefore, this study is focused on owners and managers perspective on food wastage in tourism industry of Pokhara with the objectives of identifying current composition and causes of food waste and established approaches to mitigate it. This study was carried out with key informants' in-depth interview and on-site observations. Unrealistic expectations, unsustainable consumption patterns, lack of general public awareness and management limitations on wastage controlling were major themes identified by the study. The findings call for quantitative study in mass scale to know the exact situation of the food waste in hospitality industry of Pokhara.

Keywords: Food waste, food waste management hospitality industry food waste

INTRODUCTION

Among the millions of species identified on the earth's earth surface, humans are the only who intentionally waste food. Discarding of any edible food, either at the production, processing, distribution, retail, or consumer level regardless of any reasons to discard is

labelled as food waste. In year 2019 alone about 931 million tons of food is wasted which is equivalent to one-third of the global food production (UNEP, 2021). In the backdrop of this vicious situation food waste has become a complex phenomenon, attracting attention worldwide. Therefore, the UN also has set a target under Sustainable Development Goal 12 “responsible consumption and production” to reduce food waste by half by 2030.

The UN’s goal to reduce food waste is however, a daunting task because food production is a resource intensive process. Approximately, 28% and 70% of the earth’s land and water is used in food production (Silvennoinen et al., 2014). Apart for it, chemical inputs, like fertilizers and pesticides and fossil fuel are needed to grow, harvest, process, distribute and storage of food. It is evident from this that when food is discarded, it leads to wastage of these resources used in producing, processing, transporting, preparing, and storing of food. Furthermore, concealed expenses of waste encompass additional time and expenses invested in waste management, storage, and disposal, ultimately burdening resources (Giri, 2021). Thus, food waste is challenging due to its heavy resource footprint throughout the production, processing, and distribution cycle, burdening land, water, energy, and financial resources.

Apart from its economic consequences, environmental and social effects make up a significant part of the greenhouse gas footprint (Bhajan et al., 2022). Therefore, food waste is multifaceted. Food journey from farm to table emissions carbon dioxide and when that food goes to landfills methane gas is released. Furthermore, environmental issues from greenhouse gas emissions, climate change, freshwater consumption and degradation, loss of biodiversity and ecosystem services, and degradation of soil and air quality arise. Approximately 1.3 billion tons of food wasted annually and about 870 million people experiencing a hunger crisis each year (Lazell et al., 2021). This contrasting fact highlights a deeply concerning global issue, a paradox in global food distribution. And this hunger crisis eventually leads to social issues such as famine and undernourishment. Apart from these, from a religious point of view reducing food waste is aligned with the principles of gratitude, compassion, moderation, and responsible stewardship. Religious teachings often emphasize the importance of using resources wisely and sharing with those in need, reflecting a holistic approach to addressing the ethical implications of food waste.

While there is no specific report on figures contributing to the hospitality sector food waste equation, but it is well accepted fact that food waste is a major problem within the hospitality sector (Goh & Jie, 2019). In tourism food is more than a nourishment. It is an important aspect of a holiday experience. Therefore, comparatively to eating at home more food is wasted on

travel mainly due to food preference, portion size, educational level, food neophilia, meal satisfaction and socio-demographic characteristics (Wang et al., 2021). Moreover, festive moods and holiday spirits are often synonymous with over-sized portions, buffet systems, varieties of food which produces more waste than in normal daily life (Gretzel et al., 2020). Furthermore, increasing culture of eating out of home due to growth in incomes and tourism industry itself (Filimonau et al., 2023), tourism food waste is becoming a significant concern. Considering the economic losses along with environmental and social damage, it is essential to identify factors that contribute to food wasted in hospitality sector. In fact, the resources efficiency and sustainability in the tourism industry is achievable through minimization of food waste.

LITERATURE REVIEW

Food waste is a topic of frequent discussion global media. As food waste is directly linked with the sustainability issues therefore as the general public level of awareness rises coverage of the topic in the media has also increased. But academically the topic is still under-studied despite the fact that food waste is accepted a major challenge with multifaced consequences (Filimonau et al., 2023; Wang et al., 2017). Among those researches majority of them are done in developed economies indicating a critical gaps remain in its geographical coverage (Dhir et al., 2020; Filimonau et al., 2023; Pirani & Arafat, 2014). Lack of data shows that low-income countries do not have sufficient awareness on food waste and also lacks on sufficient studies. Therefore, the actual situation and its impact is still unknown. For instance, there are no national statistics on food waste in tourism sector in Nepal.

Each tourist's views on food varies. Some see it as a basic human need for other it is linked with the experience and some even travel enjoy this experience (Bhajan et al., 2022). In addition, religion and cultural background also contribute towards food consumption behavior of tourists include religious and cultural background (Mak et al., 2012). As the culture of eating outside home on weekends and during holidays is growing rapidly the lack of research on food waste so its magnitude, causes and approaches to mitigation still being vague is a matter of concern (Filimonau et al., 2023). Inefficient use of resources including food leads to accelerated poverty and eventually it also decelerates the economic growth, and creating a vicious circle along with environmental and socio-economic challenges for the developing countries (Thi et al., 2015). Therefore, food waste is a major threatening factor for sustainable development in developing economies.

As the issue of sustainability raised and the level of awareness of general consumer started to grow, the hospitality industry also started proactively to be as environmentally friendly in their operations. Pirani and Arafat (2014) found that before the late 1990s, the hospitality industry was not much concerned about waste and its effect except for economic reasons. As a result, in over the last 20 years, the hospitality industries are focused on managing and developing various strategies aiming to reduce waste, including food waste.

Dhir et al., (2020) found that the existing literatures on food waste in the hospitality industry are focused on mainly three areas. First one is measurement and quantification of food waste, its composition, and handling practices. Second area of focus is behavioral aspects like consumer attitudes and behaviors, the influence of demographic factors, governmental regulations and interventions. And the third area is strategies for waste reduction, composting, and the role of landfills in managing food waste. (Heikkilä et al., 2016) observed that food waste is generated by a combination of diverse reasons and sources, from technical issues, practical reasons, unintentional misinformation by manufacturers, retailers, and regulators, and culture. All of these factors are related to each other. Therefore, focusing only on a single factor does not solve the problem. Therefore, a holistic approach is needed for managing and avoiding food waste in the tourism sector as well.

Objective of the Study

There is no official statistics on food waste in Nepal and no data are available of the tourism sector as well. UNEP (2021) also calls for studies on food waste in the developing nations in both household and commercial sectors. This research responds to that with an exploratory study of food waste in the commercial sector at Pokhara, a tourism city of Nepal. UNEP (2021), reports an estimate of food waste in Nepalese households (79/kg/capita/year) and it labels this estimate as 'very low confidence'. This means the estimate was obtained by extrapolating food waste data from other developing economies rather than by actual measurements of Nepal, calling for empirical research.

Therefore, the study aimed to provide general information about food wastage in the tourism industry of Pokhara. Focusing on the hospitality sector owners and managers' perspective, the objectives of this study were to identify and characterize food waste in terms of its composition, identify causes of food waste, and establish approaches to mitigation of food waste.

MATERIALS AND METHODS

The methodological approach adopted was a qualitative method. For having a holistic understanding of the food waste in hospitality industry in Pokhara, key informants in-depth interview was taken and observations were made based on the different stages of food preparation to serving of food, starting from purchase of raw materials, materials storage, preparation, cooking, serving, consumption and at last disposal of food waste (Papargyropoulou et al., 2019) the environment, and the economy, which makes it a global challenge that requires urgent attention. This study investigates the patterns and causes of food waste generation in the hospitality and food service sector, with the aim of identifying the most promising food waste prevention measures. It presents a comparative analysis of five case studies from the hospitality and food service (HaFS). This was helpful to understand the flow of food materials and food waste across these departments. The units of analysis for the research were selected randomly on convenience basis.

Study Area and Selection of Participants

Pokhara city is a gateway to the worldwide popular trek Annapurna region and located amidst the breathtaking Himalayan landscape its stunning natural beauty captivates visitors. The city is a first choice for a weekend getaway as well as a long relaxing holiday for both domestic and international tourists visiting Nepal. Not only the city's tourism sector contributes significantly to its economy, generating employment opportunities and boosting local businesses but the influx of tourists has led to the growth of various other industries such as hospitality, transportation and recreation, stimulating economic development and infrastructure improvements in the city. In comparison with other cities, tourist cities have to face additional challenges related to waste prevention and management created by the seasonality of tourism and the specificity of the tourism industry and of tourists as waste producers (Filimonau et al., 2023). Therefore, being one of the main hubs of tourism Pokhara city is selected for the study.

To make the study inclusive of different sectors of hospitality industry a star hotel, a banquet, a fine dining restaurant and a takeaway restaurant total of four participants were chosen. The selected cases served both a la carte and buffet catering except for one takeaway case. A la carte restaurants have a menu where dishes are listed separately and individually priced; customers would order from this menu. In buffet-style of catering, involves having the food ready and available for customers to help themselves; one price for the variety of the

food. First case was high-end hotel operating restaurant and banquet service with buffet or a la carte service. Head chef and food and beverage executive were key informants. Second case was a mid to high-end banquet facility, which served serving food for a number of events every day such as official programs like conferences, meetings, workshops, and annual general meetings, promotional events, product or service lunching events, social and family events. Kitchen head and operation manager were the key informants. Third case was a mid-range fine dining restaurant and key informants was operation manager. And fourth case was a mid-range takeaway restaurant operating two outlets. Chef and manager were key participants. The selected participants did not aim to give a comprehensive picture of hospitality sector, but instead to offer an opportunities opportunity to learn a preliminary knowledge on food waste situation in hospitality industry at the study area. The study required identification and selection of knowledgeable and experienced participants therefore purposeful sampling was used since it is a widely used in qualitative research to identify and select information-rich cases (Patton, 2014).

Data Collection and Analysis

Instead of having a fixed prescription or one-size-fits-all method for selecting data collection instruments, methodological omnivore observation (Cohen et al., 2018) was observed. Nepali language was used for the ease and better expression of view from key participants. To begin the interview, the researcher first shared some of the facts on food waste in general and related to the hospitality industry and participant's opinion on it. Open-ended questions starting with "why?" "how?" and "what if?" were asked to get comprehensive answers.

Data collected was analyzed qualitatively. First translation of interview was done from Nepali to English in written. Then responses were segregated into codes and similar codes were categorized in themes based on the research question of the study. In the first stage nine thematic categories were identified and listed as major and minor themes. In the second stage, the four minor thematic categories identified were merged under the five major thematic categories.

DISCUSSION

Customer Satisfaction at the Cost of Food Waste

During the data analysis process customers behavior came up with a major theme for food waste in hospitality industry and all key participants agreed on it. Unsustainable eating habits of guests was observed as major source of food waste and as well as major challenge in food waste management (Bhajan et al., 2022; Kasavan et al., 2019). In buffet style dining higher variety of the dishes was synonymized with lavishness of service. From the management perspective variety was offered to address the taste and preferences as many people as possible so as to maximize customer satisfaction and justify the higher prices charged. And customers often sample all the food displaced to maximize satisfaction for the price they pay which leads to wastage of food as all the dishes does not match their taste buds. Controlling the amount of buffet, was a considerable challenge, on one hand it was very difficult to predict the exact number of guests. and on the other hand, it was expected buffet to look full and tempting even at the end of the dinning time when in actual there should not have been much food left in order to avoid food waste.

In a la carte menu, a standard size portion was served and no customized portions was available to accommodate customer appetite like children, adults or senior citizens except for the case of hotel which had separate kid's menu. Incase guests had leftovers on their plate most of the guests were embarrassed of bringing back their leftovers but if someone request for packing of leftovers (only in a la carte menu order) staff would pack it. To avoid food waste due to taste and preferences differences, in case of hotel, staffs would even inquiry the guests on their preferred style of meal on advance and prepare accordingly.

Food is More Than Nutrition in Hospitality Industry

Key informants viewed that aesthetic aspect of food has become increasingly important, especially with the rise of social media platforms where people often share images of their meals. And consideration of aesthetic appeal of food in hospitality industry began from purchase of raw materials to final plating of the food. All the key informants agreed aesthetic aspect of food being one of the reasons for high food wastage in kitchen. Fruits, vegetables and meat products of certain size, shape and free of any outer blemishes to make them perfect determined the aesthetic standards (Schneider, 2013) and those failed to meet these standards were discarded. Hospitality industry was also strictly guided by these standards and while making purchases these standards are strictly followed specially for fresh fruits, vegetables

and meat products. Therefore, even while selecting vendors those who could meet these requirements were selected along with other criterion like timely delivery, consistency, ability to supply as per order and price. It was observed that in case of food ingredients supplied was in damage condition, in most of the times it would return those ingredients to the suppliers. At the time of cooking also ingredients were rechecked on the kitchen's counter top and those items failing to meet these aesthetic standards were labelled not eligible for guests plating and were either used in staff kitchen or totally discarded.

To give aesthetic appeal often while food plating in a la carte and in buffet setting food matching with theme of the program, color palette, color contrasting, extra decorations and garnishes were done for customer delight. In buffet it was like an unwritten rule that buffet must be very fresh, full and tempting from the beginning until the end of it, therefore a way more food was prepared than the actual consumable quantity. Hospitality industry is guided by principle that guests' total satisfaction is not just giving what they need but "delighting" them by giving more than they expected. Delightful experiences often led to empathy and loyalty establishment, eventually customers marketed for the company with free word of mouth publicity (Rashid, 2003). The craze for aesthetic appealed contributed to food waste as guests often eat only the main part of the dish and food used for aesthetic decoration was left untouched on the plate and then finally into the garbage.

Dilemma on Guests and General Public Awareness in Food Waste: Who is Responsible?

Educating general public to eat better so as to produce less waste is a crucial challenge and it needs a commitment from all the stake holders including consumers, stakeholders and policy maker (Fattibene & Bianchi, 2017). Serious efforts are needed on the ethical and behavioral reasons that push general public to be committed on reducing food waste. Among the two of the four cases interviewed had signs that encouraged to avoid food wastage in their staff canteens though none had any such signs in their guests' eating area. This indicated that hospitality industry was taking initiatives for food waste minimization and towards sustainability, they do not proactively enforce to their guests. As described by some the key informants, hospitality industry was supposed to sell an experience rather than preach guests on eating habits. This even explained the reason for none of the cases selected had ever carried out any campaign that encouraged guests to avoid food waste. All the key respondents agreed that food waste management was a minor part in food handling trainings, which was mostly conducted for new staff in kitchen or service. In case of star hotel interviewed, management had trained their waiters to suggest on portion and number of items to order (only in a la

carte menu) as per guest's group size and dining time so that food waste is prevented due to ordering larger than actually consumable portions.

All the key informants agreed that local government and tourism umbrella organization should take initiatives to aware public on food waste for that they could display posters and signals on food waste in public places but they themselves were reluctant to have same type of signals in their premises. One of the participants even suggested for a properly designed incentives by government like waste tax reduction could provide a strong win-win connotation for all the parties involved in food waste and its prevention and management.

Food Donation: A Taboo in Hospitality Sector

The redistribution of unconsumed but fit for human consumption food to charities is a promising strategy to reduce food waste while addressing a social cause for the hospitality industry. Modern food donation-food banks and food rescue programs with the aim of food wastage reduction along with addressing social issues have been established in developed countries like USA since the late 1960s, in Europe since 1980s, and since 2000 in many developing countries (Schneider, 2013). The donation of edible food can be sustainable way of addressing issues of food waste related to environment, economic and social issues.

Due to hygiene factor none key informants had practiced cooked food donations. They shared that if in case leftover cooked food which was fit for human consumption was donated which is normally consumed outside the premises of the donating organization. And due to delay in distribution or inability to maintain the correct temperature, food was degraded and if that food was still consumed and someone falls ill then hotel or restaurant name could be ruined. As a famous saying goes it takes years and years to earn a reputation but mere few seconds to ruin it. Bad words spread like a wild fire and reputation of the organization is ruined harshly within a no time for repair. Therefore, none of the key informants were willing to take risk of food donation so even though food was fit for human consumption it was dumped into garbage. Whenever for social cause any donation had to be done uncooked raw ingredients were donated and those who received donations also preferred it that way.

Even though social issues like hunger can never be solved by the donation of food also it is not possible to distribute all edible foodstuff to people in need. But the aim is only to recover as much edible food as possible through donation along with other preventive measures like minimization of food waste in kitchen while preparation and raising stakeholder awareness to overcome excessive requirements with respect to aesthetic food appeal, food waste impact

on different sectors. Long-term preventive measures can significantly decrease the amount of food waste.

Management Strategies for Coping with Food Waste

Except for takeaway restaurant in all other three cases excess food if it was fit for human consumption was used for staff food and otherwise the excess food was either composted or donated to pig farming for safety and hygiene reason. In case of takeaway restaurant, the food was kept in display until it was fit for human consumption and later it was as donated to pig farming. In this study, three out of four cases were still not actively composting food waste as it is labor intensive, requires space, inadequate knowledge and a market for the compost as well as management support. In one case, a bio plant was installed on the premises of the hotel for converting food waste into bio fuel which was used to staff kitchen. In all the other remaining cases, food waste was collected by pig farming. Pig farmers themselves would come to collect waste regularly on the premises itself. All the key informants were implementing strategies to minimize food waste generated due to expiry. For that a first-in, first out system was applied for store keeping, planning to cook dishes that would use ingredients that were going to expire soon, and storing all fruits vegetables in cooler and fridge to increase their shelf life. In case of start hotel and fine dining restaurant they even had a “today’s chef special” a dish that was made from the any raw materials that was either over stocked or on the brink of spoilage soon.

Recording and quantification of food waste was not effectively implemented in any of the cases observed except the hotel selected for the study. Others were directly throwing food in the garbage while the hotel at least weighted the food wasted before using in biofuel plant or giving to pig farming. But the valuation of such wasted food was not done as no accounting entries were made as it was already part of total food costing.

For food wastage minimization proper meal planning since the early stage of cooking is crucial (Kasavan et al., 2019). Staff skill inefficiency was one to the important internal reason for food wastage at source that is at the kitchen. Poor cooking skills resulted in working ingredients or inaccurate measurement use due to which food could be unfit to be served to guests, over production and also inability to reuse the leftovers to create a new dish.

CONCLUSION AND FUTURE DIRECTION

Based on the in-depth interview and observations of four sectors of hospitality industry in Pokhara it was observed that diverse sources for food wastage generation but all these

sources were interlinked. Food wastage major reasons observed were unrealistic expectations of food, unsustainable food consumption patterns due of lack of awareness and management limitations on wastage controlling. It was also observed that food wastage was generated from purchasing of ingredients to storing, during cooking process to plating of food and finally guest's consumption. Therefore, food waste is result of several elements; focusing on a single factor may not give a desirable result in combating the issue of food wastage in hospitality industry, therefore a holistic approach is needed(Heikkila et al., 2016). An individual organization cannot solve the food wastage problem on its own due to nature of hospitality business as nature wise it is all about experiences and ultimate aim is to enhance that experience. So, all the stakeholders' equal commitment is required. In hospitality industry quantification of food wastage is as a first step in the process of waste reduction (Eriksson et al., 2019), but such quantification and valuation of food waste was not observed.

This qualitative study did not aim to find generalizable conclusions; however, it did reveal the complexity of food waste behavior in hospitality sector. Therefore, further studies with large scale data collection through quantitative data collection and analysis is needed to know in detail actual situation of food wastage in detail. Similar type of studies in context of other tourism cities and comparison of findings would help to validate the current findings.

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