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Tackling food waste in all-inclusive resort hotels

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Abstract

Food waste remains a serious environmental and economic concern within the hospitality and tourism industry. This study therefore investigates how managers, chefs, and employees in all-inclusive hotels view the impact of food waste and extant waste reduction processes in their workplaces. It explores (1) *why* and *how* food waste occurs, (2) employees' perceptions of the reasons behind food waste, and (3) how it can be reduced in all-inclusive hotels. Semi-structured face-to-face interviews were undertaken with 33 individuals working in all-inclusive hotels in Turkey. The findings indicate that guest behaviors, preferences, and attitudes are perceived as the primary stimulants of food waste. The findings also suggest that guests' cultural backgrounds influence their eating behaviors, further contributing to the volume of waste generated. As such, this study provides a nascent exploration of employee perceptions of the reasons behind food waste, and how best to reduce it, in the all-inclusive resort hotel context.

Keywords: food waste; all-inclusive resorts; consumer behavior; hotels; restaurants.

1. INTRODUCTION

The potential positive economic and social impact of the hospitality and tourism industry on host communities is long established (MacKenzie and Gannon, 2019). However, the industry also negatively impacts upon local populaces as a result of increased energy and water consumption (Wells et al., 2016); changes in land use (Zorpas et al., 2018); and the production of organic and inorganic waste (Pirani and Arafat, 2016). While some of these concerns are investigated thoroughly across extant research (Filimonau and De Coteau, 2019; Heikkilä et al., 2016; Salihoglu et al., 2018), one major contributor, food waste in all-inclusive resort hotels, is yet to be fully examined. Accordingly, this study aims to explore employee and manager perceptions of food waste, alongside what can be done to reduce it, in all-inclusive hotels in Antalya, Turkey.

Pre-paying for food and drinks allows tourists to better enjoy travel, encouraging them to relax further as they need not worry about spending additional money on-site (Yolal et al., 2017). This ‘all-inclusive’ holiday concept has become popular in Turkey due to the region’s comparative value, where accommodation in four- and five-star hotels is often priced similarly to three-star hotels elsewhere (Ozturk, et al., 2017). To this end, Turkey offers high quality all-inclusive packages and attracts many visitors, predominantly from Europe, the Middle East, and Russia. The all-inclusive model has benefits for budget-conscious tourists; helping to avoid confusion around cultural tipping norms and offering convenient access to food and beverages at no extra cost at the point of service (Yolal et al., 2017).

Nonetheless, operating all-inclusive hotels creates issues for hoteliers, particularly with regards to food and beverage waste. This is often considered an unfortunate byproduct of the all-inclusive concept, where food is prepared and served near-continuously at restaurants and catering outlets throughout these resorts (Ozdemir et al., 2012). Therefore, this study aims to explore excessive food waste and the key stages in which it emerges from the perspective of managers, chefs, and other relevant employees within the all-inclusive resort hotel context. In doing so, it provides a nascent exploration of employee perceptions of food waste in all-inclusive hotels, with a range of scholarly and practical implications. With regards to structure, current literature on food waste is first critically reviewed. Second, the research design and methodology is explained. Following this, key exploratory research findings are presented and discussed. Finally, conclusions and recommendations for future research are provided.

2. LITERATURE REVIEW

2.1 Food Loss and Waste

The volume of waste generated in the food consumption process (more precisely via ‘non’-consumption) presents a significant environmental issue. However, difficulty in addressing this often stems from knowing where to start and how to make the most profound economic and environmental impact (Nixon, 2015). For the foodservice industry, this remains a pressing concern (Porter et al., 2016). Within this context, food loss and waste (FLW) is typically assessed via the food supply chain (FSC). While *food loss* (FL) refers to reduction in food quality during production (Parfitt et al., 2010), *food waste* (FW) encompasses food that is discarded or spoiled at the consumer level (Aschemann-Witzel et al., 2015). Four key stages contribute to FLW: (1)

agricultural production; (2) post-harvest handling and storage; (3) processing and packaging; and (4) ('non')-consumption (Salihoglu et al., 2018). Parfitt et al. (2010) condense this further, suggesting FLW emerges in the (i) pre-consumer stage (i.e., harvesting, distribution, storage, and processing), and (ii) post-consumer stage (i.e., preparing, recipe design, cooking, consumer behaviors, and disposal).

To this end, around one third of all food produced is never consumed, and reducing global waste by 20-50% could save \$120-\$300 billion per year (Porter et al., 2016). As such, the cost of FLW totals around US\$680 billion in industrialized nations and US\$310 billion in developing countries (Food and Agriculture Organization of the United Nations, 2018). Here, FLW in developed countries amounts to around 222 million tons; almost the entire net annual food *production* of Sub-Saharan Africa (Food and Agriculture Organization of the United Nations, 2018). Thus, while FLW continues to receive attention from policy makers, practitioners, and academics alike, significant volumes of food is still lost and wasted via production, distribution, and non-consumption (Schilt, 2014). Therefore, it is essential to investigate *how* each of the aforementioned stages can be improved in order to reduce FLW (Kantor et al., 1997). Given the extent of the problem (and the lack of research focused thus), we turn towards the all-inclusive resorts as a particularly illuminating example of the interplay between the crucial role of foodservice in high-quality hospitality service provision and the environmental and economic impact of food waste.

2.2 Food Waste in the Hotel Industry

Taking advantage of new trends to attract guests represents a key challenge of innovative service design and provision across the hospitality and tourism industry (Bowie, 2018; Gil-Soto et al., 2019; Goh and Jie, 2018). Alongside opportunities driven by technological advancement, new food and culinary offerings therefore assist hoteliers in increasing guest satisfaction (Erkus-Oztürk and Terhorst, 2016; Filimonau and De Coteau, 2019; Heikkilä et al., 2016). However, while culinary innovation and round-the-clock food service can better-satisfy guests, such facilities pose economic and environmental threats due to the considerable volumes of avoidable waste generated (Wyngaard and de Lange, 2013). The hotel industry contributes to food and energy consumption, and is hamstrung by the financial issues inherent to bulk food processing (Juvan et al., 2018).

Therefore, food waste is generated frequently and the quest for effective recycling and reduction solutions is of key concern (Alonso-Almeida et al., 2017).

To this end, one fundamental challenge underpinning contemporary hotel and restaurant provision is driven by excessive and/or unlimited food and beverage services. For example, a well-known US-based restaurant chain has faced criticism for failing to correct declining revenues; with investors suggesting this is partly due to the provision of ‘unlimited breadsticks’ - a practice both impacting revenues and increasing food waste (Choi, 2014). Yet, avoidable losses such as leftovers and partly-consumed food can be minimized through training and monitoring. However, unavoidable losses (e.g., preparation offcuts and bones) cannot be eradicated completely. As such, the distribution, transportation, and processing of food and beverages is a complicated process, vulnerable to varying conditions in supply and demand. Nevertheless, the California Environmental Protection Agency (2013) contends that waste in the foodservice industry mostly occurs in the (1) planning, (2) storage, and (3) product handling/food preparation stages. However, limited data distinguishes the volume of food wasted during the service and after-serving stages in hotels and restaurants (Fieschi and Pretato, 2018). Nonetheless, the food service industry represents the second highest source of food waste, comprising about 17% of total losses in Germany and around 18% of total losses in Switzerland (Betz et al., 2015).

Menu planning and food purchasing are therefore also vital in minimizing food waste (FWHKC, 2013). While attractive to consumers, extensive menu choices require greater on-hand inventory, planning, and workforce involvement (Gunders, 2012). As with planning, storage is also crucial, as poor distribution, handling, and storage protocols can cause deterioration in fresh dairy, meat, and produce (Adenso-Diaz and Mena, 2014). Therefore, foodservice employees are typically encouraged to monitor the rotation of foods following FIFO (first-in, first-out) to minimize losses (Marthinsen et al., 2012). Frequent handling, preparation errors, and failure to follow food safety regulations also contribute to food waste through contamination, particularly with perishable foods (Parfitt et al., 2010).

Food safety notwithstanding, cooking and serving errors, over-preparation, and large portions also contribute to food waste (Halloran et al., 2014). According to the National Resource Defense Council (NRDC) and Food and Agriculture Organization, diners typically leave around 17% of their food uneaten. Fruits and vegetables (52%), seafood (50%), grain products (38%),

meat (22%), and milk (20%) are regularly wasted in restaurants (Ferdman, 2014). To this end, while some service providers recognize the potential benefits of *quality prevailing over quantity* and its inherent influence over portion sizes (Riis, 2014), recent studies note that the hospitality industry has yet to move fully away from facilitating consumer over-indulgence with regards to portion sizes in general terms (Papargyropoulou et al., 2016; Pirani and Arafat, 2016), with many also keeping more food than required ‘on-hand’ to ensure the availability of all menu items at all times (Gunders, 2012).

Further, due to strict hygiene rules, some restaurant chains dispose of unused food with little regard for wastage. McDonald's, for instance, requires unserved fries to be disposed of after seven minutes, and around 10% of fast food is wasted in this manner (Ferdman, 2014). However, when compared to other foodservice concepts, buffets generate a considerable amount of waste (Juvan et al., 2018), while also making it nearly impossible to reuse and donate excess food due to strict health regulations and food legislation (Halloran et al., 2014). Synonymous with the all-inclusive resort hotel concept, buffet-style restaurants often fall foul of the aforementioned portion sizes, with self-administered servings typically two-eight times USDA and FDA standards (Young and Nestle, 2003). Accordingly, large portions, unnecessary menu choices, employee behaviors, restaurant and kitchen culture, unpredictable demands, consumer behaviors, and the normalization of disposing of “leftovers” combine to generate food waste across foodservice outlets (Freedman and Brochado, 2010).

Yet, smaller plate sizes and social cues for employees and guests can help reduce food waste and its environmental impact (Kallbekken and Saelen, 2013). Purchasing and menu planning can also minimize avoidable food waste. Therefore, collecting daily feedback from guests is crucial in planning subsequent menus (Marthinsen et al., 2012), and effective waste reduction programs and procedures may provide a boon for the industry (Immanuel et al., 2013). However, while many restaurants are committed to reducing food costs and increasing the efficiency of their food and beverage operations, losses attributed to food waste continue to rise. Thus, exploring the possible reasons underpinning food waste from the perception of employees may assist in the implementation of effective kitchen operations and waste management initiatives within the all-inclusive hotel context.

2.3 Food Waste Management Practices in Restaurants and Hotels

Recognizing concerns surrounding excessive food waste, many organizations actively tweak operational actions to reduce resource consumption and to control their adverse effect on the environment. However, given the sensitivity of such information, precise data is often obfuscated, with previous studies estimating that a typical hotel guest produces approximately 1kg of solid waste per day (Zorpas et al., 2012). Disposing of this waste is costly, exceeding the organizational costs attributed to energy consumption (Todd and Hawkins, 2007). Some governments have increased taxation in order to reduce the cumulative impact of waste (Fullerton and Kinnaman, 1996), yet solid waste management, especially in hotels, is not widely considered a realistic sustainability practice (Radwan et al., 2010). For example, Ball and Taleb (2011) suggest that while some waste management practices have successfully contributed to minimizing waste production in hotels in Egypt, current legislation need to be improved to increase the efficiency of these initiatives. To achieve this, tackling food waste is considered a strategic priority in order to generate sustainable resolutions that can be realistically adopted by hospitality organizations (Wan, Hsu, Wong and Liu, 2017).

As such, consensus remains that hotels and restaurants should collectively incorporate an effective system to manage waste in their foodservice operations. As “approximately 1.3 billion tons of food – one third of all food produced for human consumption every year – is wasted or lost” (Tatlidil et al., 2013, p.4), it is necessary to ensure proper purchasing, handling, preparation, and storage protocols. Another key contributor to food waste is a lack of awareness. As per psychology discourse, a lack of awareness can have serious consequences on individuals’ consumption behaviors (Taheri, et al., 2019). Therefore, effective communication tactics such as feedback, education, and media campaigns can influence and alter both the pre-contemplation (unaware) and contemplation (aware) stages of consumption (Wells et al., 2015). Moreover, maintaining partnerships with companies and organizations, identifying challenges, supporting sustainability, controlling and separating excesses, monitoring, employing innovative ideas, involving guests appropriately, and promoting green-labeling can contribute to both profitability and efficient resource management (Ellis et al., 2013). As such, this study extends extant research by considering the aforementioned food waste issues in the context of all-inclusive resort hotels.

3. METHODOLOGY

To identify employees' perceptions of the key challenges, practices, stages, and stimulants of food waste in all-inclusive resort hotels, a qualitative research strategy was employed (Creswell and Creswell, 2018). As few studies explore food waste in the all-inclusive context (e.g., Martin-Rios et al., 2018), it was decided that a qualitative approach would provide a richer and more detailed exploration, cognizant of the research aim, when compared to a quantitative research design. A combination of purposeful and snowball sampling (Creswell and Creswell, 2018) was employed to recruit knowledge-rich respondents who could provide contemporaneous insight into the characteristics of food waste in all-inclusive hotels in the Mediterranean coastal region of Antalya, Southwest Turkey.

There are approximately 790 hotels, motels, and resort hotels in Antalya (Ministry of Culture and Tourism, 2019). However, following dialogue with the Ministry of Culture and Tourism, it was established that there are no precise figures with regards to how many of these accommodation providers can be classified as 'all-inclusive', as many tweak their operational model for service provision depending on seasonal demands. Therefore, data derived from TripAdvisor was used to reveal the closest possible approximation of the number of all-inclusive resorts within Antalya. Of the 30 all-inclusive hotels in the region (TripAdvisor, 2018), data was collected from eight. Antalya is renowned for its upscale hotels, proving popular with tourists due to their high quality service underpinned by reasonable prices (Taylan et al., 2014). The participating hotels were representative of the all-inclusive concept in the area more generally, and were consistent in terms of facilities, size, service, and quality.

Antalya attracts tourists from across the globe, but is particularly popular for visitors from Europe, the Middle East, Ukraine, and Russia. As such, it is one of the most visited destinations in Turkey. Finally, Antalya was deemed appropriate as the research team holds strong industrial networks within the region, which helped with regards to accessing and engaging potential respondents. Regarding the initial sampling approach, hotel managers, chefs, food and beverage managers, and other relevant employees were approached to participate in this study, with interviews conducted on-site. It was believed that individuals holding each of these roles were likely to provide rich data concerning their own experiences of food waste from multiple perspectives. Regarding snowball sampling, after completing each interview, respondents were asked to recommend other potential participants - either within the same hotel or in other all-inclusive hotels in Antalya.

In-depth semi-structured interviews were conducted, using open-ended questions to encourage respondents to speak using their own words and narrative structures (Creswell and Creswell, 2018). Interviewees were encouraged to explain their experiences with examples. Given the exploratory nature of this study, the first three interviews took the form of open-ended conversations in order to gain a clearer picture regarding FLW and to further develop and structure the interview guide (Jafari et al., 2013). The interview guide (Appendix 1) was underpinned by the above, and the in-depth literature review, and was used throughout as a reminder of key topics of discussion.

Interviews were audio recorded and transcribed verbatim, with participant confidentiality guaranteed throughout. Interviews were conducted in Turkish and back-translated to English as the research team is fluent in both languages. Additionally, as per Hogg, Laio and O’Gorman (2014), and employing translation theory method, attention was paid when translating Turkish interview responses into English, with both versions subsequently cross-checked for meanings and consistency by another two scholars fluent in both languages. This process ensured that the translation retained the subtlety and meanings of the original responses. Each interview lasted between 35-60 minutes. If clarifications or additional questions were required, respondents were approached again. Following preliminary data analysis, data saturation was met, with a total of 33 semi-structured interviews conducted at the close of the data collection phase. The interviews focused on catalysts of food waste; the importance of reducing food waste; regularly wasted foods; the challenges of reducing food waste; and present strategies to reduce food waste.

Table 1 presents background information on the participants, all of which worked in the all-inclusive resorts. Participants held a variety of roles relevant to this study, with the F&B managers, executive chefs, restaurant managers, operation managers, and general managers interviewed having worked in their current Antalya-based resort hotels for between 1 and 16 years, with many working in the industry more generally for significantly longer. This allowed a variety of perspectives to emerge, providing a more holistic exploration of the reasons underpinning food waste within all-inclusive hotels, as this service concept differs from that available in regular hotels and other food service establishments.

Table 1. Participant Overview (n=33)

	Number	%
Job Title		
Executive Chef	9	27.3
Chef/Sous Chef	7	21.2
Restaurant Manager	2	6
F&B Manager	1	3
General Manager	6	18.2
Quality and Learning Director	4	12.1
Operations Manager	4	12.1
Education		
High School	22	66.7
Associate Degree	4	12.1
Undergraduate Degree	5	15.2
Graduate Degree	2	6
Experience (Current Company)		
1-5 years	17	51.5
6-10 years	9	27.2
11-15 years	7	21.2
Experience (Industry)		
1-5 years	1	3
6-10 years	4	12
11-15 years	1	3
16 years+	27	82
Gender		
Male	31	93.9
Female	2	6.1

Echoing Strauss and Corbin (1998), this study used systematic analytic techniques to probe qualitative data. This procedure is designed to focus on participants’ experiences and working processes. Here, the aim was to investigate and evaluate the reasons for, and perceived characteristic causes of, food waste in all-inclusive resort hotels from employees’ perspectives. Therefore, this study employed a dual analysis strategy for each response, employing open then axial coding to identify patterns among responses. Both coding processes employed the ‘constant comparative method’; an iterative process, in which the researchers go ‘back-and-forth’ from the data (i.e., from one answer to the next one and back again), systematically looking for differences and similarities (Gannon et al., 2019).

As per the interview protocol, each question was scrutinized independently. This started with open coding; utilized to determine the ‘building blocks’ that the interviewees explained. After each interview finished, the authors examined and open coded the data prior to the next interview

(Strauss and Corbin, 1998). The researchers then proceeded with axial coding by relating similar categories/themes into sub-themes, nested within a wider theme (Cordina et al., 2019). In the final selective coding stage, the researchers completed the analysis, before subsequently determining whether the results were consistent with prior studies (Creswell and Creswell, 2018). The findings revealed that three closely related characteristics emerged from the interactive process and the researchers employed a side-by-side analysis of each question to establish a clear link between participants' perceptions of the main reasons for food waste and related concepts in all-inclusive resort hotels in Turkey. Next, key themes were redefined, the range and nature of phenomena were mapped, and associations or explanations were sought. Finally, the results of the coding process, along with coded transcripts, were shared between the research team, increasing the validity and consistency of the analysis process (Jafari et al., 2013).

4. FINDINGS

4.1 Food Waste in All-Inclusive Resort Hotels

Three main themes emerged from the research findings as key stimulants of, and areas contributing to, food waste in all-inclusive resort hotels from employees' perspectives. Each theme was comprised of multiple sub-themes, with a detailed overview of the final template of themes provided in Table 2. Representative data for each sub-theme is presented and discussed below.

Table 2: Sources of Food Waste

Main Themes	Sub-themes
1. In-House/Management Operations	<ul style="list-style-type: none"> ➤ Employee hiring process ➤ 24/7 F&B service ➤ Dinner shows and buffet provision ➤ Purchasing inexpensive food and beverage items ➤ Ineffective communication ➤ “Pre-paid” and “no tip” payment systems
2. Guest Behaviors/Characteristics	<ul style="list-style-type: none"> ➤ Diverse cultures and backgrounds ➤ Eating habits ➤ Lack of awareness ➤ Lack of interest (i.e., the “Vacation mindset”)

3. Kitchen Operations	<ul style="list-style-type: none"> ➤ Lack of suitable/no training for kitchen employees ➤ Long working hours ➤ Seasonality ➤ Excessive menu offerings ➤ Lack of awareness
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All-inclusive resort hotels typically include all amenities and offer the majority of items to guests for a fixed, pre-determined price, with extant research contending that they serve as a major producer of waste. While there is a small body of research into the reasons for, and stages of, food waste specific to all-inclusive resort hotels, prior literature (Martin et al., 2018; Parfitt et al., 2010; Wan et al., 2017) prioritizes how distinct pre- and post-consumption stages contribute to food waste in the hospitality industry more generally. These stages include ordering, receiving, storage, preparation, cooking, serving, and post-service, with each discussed with the research participants.

The majority of respondents commented that the cost of purchasing perishable food (e.g. meat, milk and dairy, seafood, fish, fruit) is relatively high in Turkey. They stated that executive chefs and hotel managers therefore closely monitor food ordering, storage, and preparation processes. Many of the respondents thus contended that kitchen operations do not significantly contribute to food waste in all-inclusive resorts. In order to minimize poorly implemented operations such as over-ordering, inadequate inventory management, and food preparation errors, operation managers and chefs focus on daily control and monitoring practices. Here, the participants indicated that they believed kitchen practices only contribute 5-15% of total food waste. This percentage emerged as an approximation based on participant predictions, as food waste specific to kitchen operations is not quantitatively measured by the all-inclusive hotels nor the Antalya municipality. For example, one executive chef explained:

We sometimes hire unqualified kitchen staff during the high season and they produce unavoidable waste. We know it's necessary, but there isn't enough time for proper kitchen training due to the volume of guests. However, back of house operations still wastes less food when compared to our guests.

Here, the term “unavoidable” is presented in parallel with the perceived lack of training and kitchen experience inherent to many seasonal employees, with the above participant recognizing the importance of education and training in stimulating the efficient use of food, but

conceding that this is not always possible due to the operational pressures of the hospitality industry. Another participating food and beverage manager highlighted the scope and scale of the problem “After employee costs, food and beverage costs come second. It is a serious amount [of money] for us. We try to minimize this. We have a strict inventory management process in place to reduce food waste in our resort. However, the waste generated by our guests is huge and sometimes uncontrollable”. Yet this is not unusual, with food and beverages representing the major expensive for food service business, alongside staff costs, across the globe. Nonetheless, some food costs, such as proteins (e.g., meat, egg, dairy, seafood) are particularly expensive in Turkey, exacerbated by the recent trend of consumer demand for higher-quality meat products within the all-inclusive context (Antonschmidt, 2019). Further, the all-inclusive concept is often contingent on 24/7 free (at the point of service) food and beverage provision, with customer satisfaction often derived from plentiful and abundant access to food and beverages, irrespective of wastage and subsequent cost to the all-inclusive service provider (Ozdemir et al., 2012).

As such, as continuous food and beverage services are typically available within all-inclusive resort hotels (e.g. buffets, dinner shows, and quick service), managing kitchen operations is critical to reduce costs. Guests’ psychographic profiles, consumption habits, eating behaviors, and lifestyles can trigger food waste. Further, in some cases wasting food can become a habit - an unconscious and irrational behavior that is difficult to change (Lanfranchi et al., 2016). Further, some guests are simply unaware of the extent and impact of wasted food. This sentiment is captured by one participating food and beverage manager:

The buffets, dinner shows, and the “all-you-can-eat” concept produces a lot of waste. Our guests have different cultural backgrounds, which shape their eating behaviors. Since they pay in advance, they want to eat and drink without thinking about what goes into the garbage. I strongly believe that to reduce waste, we should focus on consumer behavior in all-inclusive hotels.

The participants thus suggest that the number of times a guest visits the buffet and the inherent unlimited nature of all-inclusive foodservice also increases food waste. Accordingly, some guests generate more food waste than others. For example, one participating manager stated:

Women are more sensitive than men; seniors are more conscious than young people; Europeans visit the buffet less regularly... However, most of our local and international guests, except Europeans, visit our buffets and food outlets more than needed to try different food and beverages. After one sip or small piece, they leave their plate or cup. This continues almost 24/7 – there is no limit and the perception is “serve endless, eat endless”.

Participating chefs typically suggested that the use of improper equipment and storing food at the wrong temperature contribute to food waste. Here, employee behavior is critical as the majority of kitchen employees, who are often hired based on seasonal demand, have little prior experience. All-inclusive resorts are generally considered a temporary workplace or ‘summer job’ in Turkey. To this end, while tourists enjoy private beaches and unlimited alcohol and food, workers behind the scenes often struggle to secure a livable wage. Hence, loyalty and engagement are often low and labor turnover is typically high in back-of-house operations. One respondent (Chef, 10 years’ experience) explained:

Poor food preparation normally generates a large amount of waste. One of the biggest reasons for this is hiring inexperienced kitchen staff, with no time to train them. Although we are careful in the back of the house and we try to minimize kitchen errors, just imagine, we sometimes have to hire people during high season who barely know back of the house operations, particularly in such a huge million-dollar resort. This is a bleeding wound in our sector.

As established, short and effective educational programs can increase employee, manufacturer, retailer, and consumer awareness of food waste (Kantor et al., 1997). While few studies examine the negative effects of hiring processes and insufficient training on improper kitchen operations, many participants agreed that hiring, training, and monitoring food and beverage operations are essential to reduce food waste in all-inclusive hotels. Therefore, maintaining employee satisfaction and changing employee perceptions of food service provision (i.e., from a seasonal to professional career), may reduce employee turnover. The hiring and training process is thus crucial to ensure robust management practices and minimize food waste. These reported barriers and challenges are similar to those highlighted in previous studies (Wan et al., 2017), but other important challenges emerged from the findings.

As per Table 3, participants shared their observations of the reasons for food waste in their workplaces. Accordingly, all participants categorized the determinants of food waste under three closely related areas: (1) guest-related, (2) management-related, and (3) kitchen-related. The participants indicated that many all-inclusive resort hotels source inexpensive food and beverages to reduce their costs and to meet visitor expectations with regards to food ‘quantity’ and non-stop service. However, some participants contend that this also generates food waste. Here, there is consensus that lower-quality brands may actually increase food and beverage costs, as customers may feel less-concerned about wasting them. For example, one food and beverage manager (8 years’ experience) stated:

The key factor is the quality of the product. Sometimes our guests want to try more than one product in the bar. If they don’t like the taste, they want to try new ones and we cannot interfere with their orders...We know that high quality products decrease food and beverage waste along with costs.

Table 3: Challenges and reasons for food waste in all-inclusive hotels

<p>Guests</p> <ul style="list-style-type: none"> • High guest expectations • Speed of service expectations (i.e., low waiting times at 24/7 food outlets) • Lack of awareness of food waste • Cultural backgrounds and eating behavior • Age, gender, socio-economic profiles, nationality, and culture
<p>Management</p> <ul style="list-style-type: none"> • All-day food and beverage service provision to stimulate higher guest satisfaction • Lack of effective communication with guests on reducing food waste • Serving low quality food and beverages to reduce costs • Lack of communication between management and employees • Poor inventory management
<p>Kitchen</p> <ul style="list-style-type: none"> • Hiring of inexperienced/under-skilled employees • Lack of or insufficient training • Menus offering extensive variety • Lack of international cuisine offerings for guests • Poor recycling and reuse of leftovers

4.2 Commonly wasted food in all-inclusive hotels

The majority of participants indicated that the *type* and *amount* of wasted food in all-inclusive resort hotels is difficult to predict due to seasonal variability and a lack of certainty with regards to what guests will opt to consume. However, the findings suggest a degree of consistency concerning the most commonly wasted food items (Table 4).

Table 4: Commonly wasted food items in all-inclusive hotels

<p><i>Kitchen</i></p> <ul style="list-style-type: none"> • Fresh vegetables • Fresh fruits • Oil (used for fried foods) • Water
<p><i>During and After Service</i></p> <ul style="list-style-type: none"> • Fish, chicken, beef, eggs and cheese <ul style="list-style-type: none"> ○ Meat and fish not cooked according to guests' expectations ○ Eggs, cheese, olives are generally wasted during breakfast by international guests due to their different breakfast perceptions • Hot and cold meals if not served at the right temperature • Desserts such as baklava, filo dough, dairy desserts wasted by international guests • Local salads, mezes and appetizers are wasted by international guests • International dishes are wasted by domestic guests • Rice and bakery items • Sauces • Soups
<p><i>Beverages</i></p> <ul style="list-style-type: none"> • Bottled water • Cocktails • Low quality wine, whisky, brandy, liquors, and other alcoholic beverages • Soft drinks • Milk
<p><i>Meal Time</i></p> <ul style="list-style-type: none"> • Dinner: due to all-day food and drink service guests may not be hungry, but often still opt to attend pre-paid on-site restaurants at set 'dinner' times.

Some participants suggested that significant kitchen food waste comes from vegetables and fruits due to human error (i.e., improper cutting and peeling), improper storage, or major temperature changes from shipping to serving. Nonetheless, the participants contend that buffet

provision also increases food waste in all-inclusive resorts. While the participants believe that it is difficult to estimate the amount of food wasted accurately per year, based on their experience and observations they suggested that anywhere up to 35% of food is wasted in total during a single mealtime. Some suggested that the extent of food waste often depends on the type and size of buffets and whether dinner shows offer local food and beverage items (e.g. dairy products, ice-cream, packaged juices, alcoholic beverages) salads, traditional local desserts, hot meals, and bread, as these items are wasted most often during such events. As such, as participants contend that service-side food waste is a major contributor to food waste, the operational waste-reducing steps highlighted in food waste literature, such as preparation, employee experiences, using new technology, cooking utensils, ovens, serving style, and management involvement for training at both back and front of house will not be sufficient by themselves if guest awareness and behaviors are not moderated by hotel management teams.

4.3 Recommendations for Tackling Food Waste in All-Inclusive Hotels

Participants often stated that they found it difficult to follow existing, well-documented preventative plans and practices during busy periods. Many therefore considered it impossible to operate a kitchen without any food waste. However, there was some consensus amongst participants that it is still possible to reduce food waste in the all-inclusive hotel context. Some suggested that food and beverage costs represent the most fundamental concern for all-inclusive hotels, impacting upon both managerial and kitchen staff. Here, the findings indicate that managers often ‘pull rank’ on kitchen staff to select and purchase inexpensive food and beverage items to reduce costs. As a result, reducing food waste should be cost effective in order to reduce the possibilities of using inferior food and beverage items. Beyond cost, a myriad of ethical and sustainability concerns also play an important role (Rasoolimanesh et al., 2019).

Nonetheless, while gaining popularity, sustainability is not yet a ubiquitous trend for all-inclusive resort hotel operators, and our findings reflect this. The majority of respondents indicated a belief that, although there is no guaranteed solution for reducing food waste in all-inclusive hotels, some management practices may help to control it. Table 5 lists several key areas where participants provided their own experiences and recommendations on how best to manage and reduce food waste across all-inclusive hotels. Participants highlighted the need to balance operational concerns with guest-related concerns, emphasizing the need to raise awareness in order

to furnish guests with the requisite prior knowledge to reduce food waste. They suggested that this is exacerbated by the key role played by the hedonic nature of all-inclusive hotels, whose excesses typically differ from guests' everyday lives. To this end, extant literature echoes the participants in suggesting strategies which can contribute to reducing food waste in the service setting (Cvelbar et al., 2017; Dolnicar et al., 2017).

Table 5. Recommendations on managing and reducing food waste in all-inclusive resorts

<p>Management</p> <ul style="list-style-type: none"> • Increase collaboration and communication between back- and front-of-house from <i>ordering</i> to <i>service</i> steps • Encourage awareness of food waste at every level across the organization • Scale down large menus and prepare menu items to suit international and local guests' demands • Be more cautious during the kitchen employee hiring process • Train and monitor kitchen and service employees regularly (concerning proper food preparation, service, and after-service). • Encourage employees to care about their professional kitchen careers • Maintain employee satisfaction by improving benefits to embrace the notion of "career" and reduce turnover • Develop effective communication methods during pre-shift and post-shift periods • Recognize and use recycling and reuse options • Sell excess buffet items at the employee cafeteria • Provide untouched food to local organizations where possible • Invest in technology to reduce over-purchasing, preparation waste, and improper cooking
<p>Kitchen</p> <ul style="list-style-type: none"> • Use different containers to separate foods • Avoid low quality brands • Ensure proper cooking techniques and ingredients to maximize taste and flavor • Properly use first-in-first-out (FIFO) and use time-sensitive items first • Use some products in multiple recipes and across multiple food service outlets • Serve food at the proper temperature and reinforce the use of food hold timer • Store and label products correctly • Serve hot and cold food at the correct temperature • Provide accurate ingredient information for guests

Guests

- Develop and implement communication techniques to raise guests' awareness of food waste (using advertisements, booklets and social media)
- Communicate with guests about food waste reduction at different stage (i.e., check-in, in room, and in restaurants)
- Educate guests about the flavor and taste of local food and beverages
- Emphasize the importance of sustainability and waste reduction
- Provide smaller plate and portion sizes
- Regularly tweak buffet items according to guests' demographics, nationality and cultural backgrounds

Nonetheless, many participants implied that accurately forecasting and analyzing customer segments and understanding the importance of recycling and composting practices are essential to sustain efficient waste management in all-inclusive hotels. In most cases, participants contend that their organizational culture could incorporate some of these practices, including using leftover food for other recipes. However, in contrast to extant literature, many participating managers steadfastly believed that these practices do not effectively reduce food waste, and it thus remains a complex issue within all-inclusive resorts. Some participants indicated that their kitchens use chefs' reports to forecast how different demographics of customer are likely to behave in the future, alongside which foods are likely to be most popular. However, all respondents indicated that as technology continues to advance, food waste may decrease commensurate to the adoption of more accurate levels of inventory management and monitoring within the kitchen setting. This is consistent with the general move within the hospitality industry towards the integration of technological innovations into food service provision, with multi-function appliances, web-enabled apparatus, and mobile integration increasingly incorporated into the contemporary professional kitchen in order to streamline efficiency (Foodservice and Hospitality, 2017).

For example, with waste at times perceived as inevitable thanks to the all-inclusive sector's 'serve endless, eat endless' model, the adoption of new food composting techniques using advanced yet increasingly accessible innovative chemical and biological approaches could help to reduce the impact of guest-related food waste within this context. Emergent physical methods, underpinned by synthetic enhancements to the permeability of food spores, can be incorporated into extant composting initiatives in order to improve the quality and speed of the process (Awasthi

et al., 2020). Here, “the hospitality food waste hierarchy highlights food composting as a subset of food recycling; in turn, food recycling is understood as a broad set of processes that have the ability to not only compost food, but also to alter food into useful items” (Filimonau and De Coteau, 2019, p.242). Further, contemporary composting techniques could provide supplementary revenue streams for all-inclusive hotels, via the sale of biofertilizer (Filimonau and De Coteau, 2019; Sealey, & Smith, 2004). Filimonau and De Coteau (2019) also recommend the use of smartphone apps to quantify the volume and characteristics of food waste in order to design mitigation measures relevant to the sector (e.g., ‘Wise UP on Waste’ and ‘Too Good To Go’ applications). This is in contrast to the findings of this study, which reveal that the Turkish all-inclusive hotel industry relies upon traditional cooking/inventory management facilities and past information to predict possible guest numbers and preferences. Thus, integrating extant technological advances in food monitoring and tracking could prove crucial in tackling food waste within the all-inclusive sector.

Further, per Table 2, participants contend that the extent of food waste is contingent on a combination of: managerial/operational decisions; guest behaviors; and kitchen operations. Accordingly, per Table 5, the findings highlight some key areas of focus in order to reduce food waste in all-inclusive resorts. While the recommended measures may appear typical of the industry more generally, some have specific relevance to the all-inclusive hotels in Turkey: “Scaling down large menus to suit international and local guests’ demands” or “Encourage employees to care about their professional kitchen careers”. This is underpinned by cognizance that the hospitality industry has not typically been considered a vessel for ‘long-term’ careers in Turkey. Accordingly, participants contend that they tolerate poor working conditions, long shifts, short-term contracts, economic vulnerability in low seasons, unpaid overtime, low salaries, and exposure to verbal abuse; with food waste emerging as a secondary concern.

Indeed, suggestions such as “Providing untouched food to local organizations” (or food banks) is not a common practice within Turkey, and could represent a sea change for the domestic industry. While “Avoiding low quality brands” may seem impossible for all-inclusive hotels hoping to lower food costs for 24/7 food and beverage services, the findings reveal that an over-reliance on low quality, cheaper alternatives could be stimulating food waste. Finally, the recommendation to “Develop and implement communication techniques to raise guests’

awareness of food waste...” is proposed cognizant that this is not typically practiced by Turkish all-inclusive hotel resorts.

5. DISCUSSION AND CONCLUSIONS

This study aimed to investigate why and how food waste occurs in all-inclusive resort hotels, what employees perceive the reasons behind food waste to be, and how food waste can be reduced in this context. While many studies investigate this topic, this is one of the first to investigate food waste gaps in all-inclusive resort hotels from an employee perspective. This study thus provides a nascent exploration of employee perceptions of food waste in this context, identifying multiple closely-related causes of food waste. Food waste represents a sociocultural, economic, and environmental problem, underpinned by the central conceit of the all-inclusive concept: non-stop food and beverage services. Although in-house operations can contribute to food waste, guest-related reasons and the nature of the all-inclusive business model are perceived as the primary sources of food waste by participants. Unfortunately, the volume of this waste has not been robustly quantitatively measured yet. However, this study attempted to reveal employees’ observations about food waste in order to aid this process. The findings and discussions emerging from this study provide clear theoretical and practical implications, provided below.

5.1. Theoretical Implications

The study findings emphasize the relevance of a number of issues raised across extant literature investigating food waste in the hospitality sector in an under-researched context (Bowie, 2018; Filimonau and De Coteau, 2019; Gil-Soto et al., 2019; Goh and Jie, 2018; Heikkilä et al., 2016). For example, Filimonau and De Coteau (2019) argue that the industry lacks standardized methods of managing inventory, with this impacting upon the ability of those therein to quantify the characteristics and extent of extant food waste. However, the findings suggest that some practices can be tweaked and introduced to minimize hospitality food waste, including: re-designing kitchen processes, consumer awareness programs, recycling and advanced composting, food redistribution techniques, and the use of technology. Guided by prior literature, this study thus contributes to extant knowledge in several areas. *First*, previous studies state that food waste occurs from inventory through to service, with every step in the process generating unnecessary waste (Filimonau and De Coteau, 2019; Salihoglu et al., 2018). However, our findings suggest that while employees recognize that organizational practices and processes contribute to food waste,

customers' desire for hedonic, "serve endless, eat endless" experiences and 24/7 provision are also to blame. While the "prepaid, no tips" concept, excessive menu choice, open buffets, and dinner shows offer variety to patrons, customers' behaviors and attitudes are unpredictable, and such service offerings go some way to contributing to food waste. *Second*, cultural backgrounds and demographic differences, wider food choices, and unfamiliar gastronomic opportunities encourage visitors to 'eat differently' during vacation. The findings thus echo extant research in suggesting that European guests waste less food with smaller portions, while guests from Eastern regions (Middle East, North Africa, Russia) prefer greater variety and self-administer larger portions by visiting buffets multiple times during mealtimes. This echoes previous studies highlighting that national culture and cultural background may regulate how consumers perceive wasted food based on their cultural values and norms (Filimonau and De Coteau, 2019; Heikkilä et al., 2016). Therefore, management and guests should focus on co-creating responsibilities to reduce food waste, as per the guest-related recommendations outlined in Table 5.

Third, the findings highlight the importance of developing and implementing effective communication and information channels to convince guests to engage in sustainable eating behaviors. However, eating behaviors are formed from birth and are difficult to change (Vermeir and Verbeke, 2006). Yet, recent studies indicate that they can be influenced by knowledge, awareness, happiness, satisfaction and stress (Erdogan and Baris, 2007; Filimonau and De Coteau, 2019; Fischer et al., 2017; Papargyropoulou et al., 2016). Thus, increasing guest awareness of food waste through consumer awareness programs and re-designing kitchen processes (e.g., applying portion control approaches by offering seasonal items or preferred portion sizes) can reduce waste across the sector (Filimonau and De Coteau, 2019; WRAP, 2018). Such measures are contingent on increasing "staff awareness and dialogue with consumers to ensure that both stakeholders understand their role in reducing food waste" (Filimonau and De Coteau, 2019, p.241). Here, information sharing, training, and education are crucial. However, as vacation time is typically limited, with an emphasis on relaxation, increasing guest awareness of food waste is not necessarily straightforward. Therefore, simple, short but regular reminders of the importance of food waste across multiple mediums on-site are necessary (Rush, 2018).

Fourth, customers are identified by the participating hotel employees as the main source of food waste, and it is suggested that they should be regularly reminded about the importance of

reducing food waste. However, all-inclusive hotel management teams may avoid this option as it may be perceived as interfering with their customers' comfort, needs, and expectations. The importance of customer satisfaction and loyalty has been discussed extensively across hospitality discourse (Diffley et al., 2018; Kasim and Ismail, 2012; Yolal et al., 2017) and all-inclusive resort hotels may wish to avoid upsetting or losing their customers with such messages. For example, in 2014 Turkey was ranked as the sixth most popular tourist destination globally welcoming 41.4 million visitors. However, due to internal and external political reasons, it welcomed only 31.4 million tourists in 2016 and 38.6 in 2017 (Ministry of Culture and Tourism, 2018). Given this, customer satisfaction and loyalty are more important than ever for all-inclusive resort hotels in Turkey, perhaps to the detriment of food waste reduction initiatives. Many customers purchase all-inclusive package tours, with unlimited pre-paid food and beverages services central to this concept. As this concept offers everything on-site, there is little incentive for visitors to leave the confines of the resort to pour money into local businesses, stimulating consumption activities and subsequent waste (almost) exclusively on-site. Under such circumstances, food waste may be seen as an unavoidable byproduct of high quality all-inclusive hospitality and tourism experiences.

Fifth, the research findings suggest that along with guest behaviors, managerial and employee behaviors also contribute to food waste (Table 5). Thus, clear communication with employees about the key determinants of food waste is also crucial. This includes the importance of maintaining inventory, desirable food costs, correct storage procedures, and promoting training across the organization. Previous studies suggest that preparing and analyzing daily inventory is key (Reboucas et al., 2017). Filimonau and De Coteau (2019, p.239) note that “through interactive marketing, employees are better positioned to dialogue with consumers to raise public awareness of hospitality food waste, ‘nudge’ more responsible consumer food choice and encourage preventative behavior”. Here, the findings suggest that such collaboration efforts can allow chefs to focus on redesigning menu cycles, with reducing food waste in mind. Additionally, paying closer attention to both the *quantity* and *quality* of food may allow decision makers to accurately forecast future consumption.

Finally, the study findings imply that employees and managers in all-inclusive hotels play important roles in reducing food waste. While managers and kitchen staff are responsible for recipe design, purchasing, and preparation, serving staff can inform and educate guests about portion

sizes, tastes (particularly with local foods served to international guests), and food allergens - reducing the volume of food returned to the kitchen (Filimonau and De Coteau, 2019). Although public law in developed countries often requires restaurants and foodservice business to provide information to customers about ingredients and food allergens (e.g., USDA, 2006), many developing countries have yet to introduce similarly robust regulations (cf. Heikkilä et al., 2016). Yet, national legislation may hinder the willingness of hospitality businesses to mitigate food waste by, for example, prohibiting the redistribution of unsold food (Filimonau and De Coteau, 2019; Thyberg, and Tonjes, 2016). Therefore, food service businesses and hotels rely on their service staff alone to advise consumers of allergens and ingredients, with the findings revealing that many – particularly those classified as seasonal workers - lack the necessary training and experience to do so.

5.2. Practical Implications

While recent innovations such as “pay by weight” (WRAP, 2018) go some way to tackling food waste in the hospitality sector by recognizing the complex interplay between guest behaviors, employee behaviors, and managerial protocols, such initiatives are difficult to apply within all-inclusive resort hotels as the payment method, 24/7 food service provision, and guest expectations differ from traditional hospitality outlets (Safe Q, 2017). Further, all-inclusive tourism concentrates large groups of visitors in insulated resorts. Yet this is not necessarily at the bequest of host regions. For example, Tourism Concern (2014) suggests that Turkish hotel associations “succumb to pressure from UK operators to transform their hotels into all-inclusive(s)”, with only “10% of tourist spend from all-inclusive holidays [finding] its way into the regional economy, with even less reaching the immediate local area”. This, coupled with the low rates achieved by all-inclusive hotels for each room due to intense competition among tour operators, has created a situation where Turkish all-inclusive hotels spend little on developing their employees, with focus instead centered on lowering food and beverage in line with the 24/7 concept, subsequently increasing “tasting and wasting” and limiting sustainability practices in the process (Tourism Concern, 2014). This study thus proposes the following practical recommendations for reducing food waste in the all-inclusive hotel sector:

- 1- Analyze reasons for food waste for each food serving unit within all-inclusive resorts: This includes measuring waste by using separate waste bins within kitchens for preparation and

food decay, and in service areas for plate waste in order to identify the most common places food waste arises.

- 2- Develop specific guidelines for the critical steps resulting in avoidable waste: This is contingent on frequent inventory and stock control, FIFO, reducing plate and cups sizes. Managers should open internal communication channels and establish employee reward systems.
- 3- Explore the best way to identify and counteract the reasons for this waste: While the ‘3Rs’ (i.e., “Reduce, Reuse and Recycle”) are known and commonly practiced in developed contexts, many developing countries overlook this. Multiple channels (e.g., social media, TV, magazines) should be used to emphasize the relevance of the 3Rs within the all-inclusive context.
- 4- Focus on employee-related causes of food waste (before, during, and post service): Although hiring seasonal and unqualified employees to all-inclusive hotels is common practice, short training programs to offer knowledge and/or skills are crucial. Since time is restricted for training due to the demands of the all-inclusive context, gamification, simulation, and online short training courses should be used to engage employees and increase awareness of food waste. Implementing more robust back- and front-of-house training regarding dietary requirements and allergens, alongside increasing all-staff knowledge of the nature of the dishes being served, wrong orders and the volume of food returned to the kitchen can be reduced.
- 5- Focus on guest-related causes of food waste (during and post-service):
 - a) Increase guest awareness with friendly messages to reduce their food waste: Social media (Twitter, Instagram, Facebook and Snapchat) posts, small information cards, and colorful banners in foodservice areas should be used to increase food waste awareness among guests. All-inclusive resort hotels’ management teams can collaborate with professional advertising companies, tour operators and travel agencies to inform guests about the volume of food wasted in all-inclusive resort hotels, and how they can alter their behaviors in order to reduce food waste.
 - b) Limit 24/7 food and beverage service provision: Although, all-inclusive vacation packages typically offer unlimited food and beverages for one up-front price, hotels hoping to limit waste could restrict the unlimited nature of this outside of traditional mealtimes.

6. LIMITATIONS AND FUTURE RESEARCH

Despite offering an emergent exploration of food waste in the all-inclusive resort hotel context, this study contains several limitations that offer avenues for further research. First, data was collected from all-inclusive resort hotels in Antalya, Turkey. Future studies should evaluate possible relationships and factors (using both qualitative and quantitative approaches) influencing food waste in different nations and cultures, making comparisons accordingly. Second, this study offers insights into the determinants of food waste from multiple perspectives within the all-inclusive resort hotel context. However, this approach does not consider the potential for limiting food waste from a guest perspective. Future studies should therefore collect data from guests and other stakeholders (e.g., tour operators, travel agents, tour guides and local retailers) to expand our knowledge of the different stakeholders' perceptions of food waste. Third, future studies could undertake participant and non-participant observation to collect data from kitchens, restaurants, and other food outlets to observe whether employees' perceptions of the causes of food waste are reflected in practice. Successful food waste reduction efforts in all-inclusive hotels can be investigated through case study research design and be shared with the industry at large. Finally, social desirability occurs when employees face embarrassment, unease, distress and being influenced by senior staff that socially undesirable answers might bring (Richman et al., 1999). This might influence employees to misreport their own shortcomings in face-to-face interviews. To avoid this, interviewees were approached in different places in all-inclusive hotels and confidentiality was guaranteed. Nonetheless, future studies could employ a quantitative approach to further reduce the likelihood of social desirability bias, particularly in junior staff.

References

- Adenso-Díaz, B., and Mena, C. (2014). Food industry waste management. *Sustainable Food Processing*, 435-462.
- Alonso-Almedia, M.M., Robbin, C.F., Pedroche, M.S.C., and Astorga, P.S. (2017). Revisiting green practices in the hotel industry: A comparison between mature and emerging destinations. *Journal of Cleaner Production*, 140, 1415-1428.
- Antonschmidt, H. (2019). A Review of Definitions of Sustainable Food and Their Implications for All-Inclusive Holidays. *Journal of Gastronomy and Tourism*, 3(4), 229-246.

- Aschemann-Witzel, J., de Hooge, I., Amani, P., Bech-Larsen, T., and Oostindjer, M. (2015). Consumer-related food waste: causes and potential for action. *Sustainability*, 7(6), 6457-6477.
- Awasthi, S.K., Sarsaiya, S., Awasthi, M.K...and Zhang, Z. (2019). Changes in global trends in food waste composting: Research challenges and opportunities. *Bioresource Technology*, 122555.
- Ball, S., and Taleb, M.A. (2011). Benchmarking waste disposal in the Egyptian hotel industry. *Tourism and Hospitality Research*, 11(1), 1-18.
- Betz, A., Buchli, J., Gobel, C., and Muller, C. (2015). Food waste in the Swiss food service industry – Magnitude and potential for reduction. *Waste Management*, 35, 218-226.
- Bowie, I. (2018). Innovation and 19th century hotel industry evolution. *Tourism Management*, 64, 314-323.
- California Environmental Protection Agency (2013). Restaurant guide to waste reduction and recycling food for thought. California Environmental Protection Agency, Integrated Waste Management Board.
<http://www.calrecycle.ca.gov/publications/Documents/BizWaste/44198016.pdf>
- Creswell, J.W., and Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage, USA.
- Choi, C. (2014). Olive Garden investor: Back off on breadsticks. USA Today.
<http://www.usatoday.com/story/money/business/2014/09/12/olive-garden-darden-starboard-value/15510761/>.
- Cordina, R., Gannon, M.J., and Croall, R. (2019). Over and over: local fans and spectator sport tourist engagement. *The Service Industries Journal*, 39(7-8), 590-608.
- Cvelbar, L.K., Grun, B., and Dolnicar, S. (2017). Which hotel guest segments reuse towels? Selling sustainable tourism services through target marketing, *Journal of Sustainable Tourism*, 25, 7. <https://doi.org/10.1080/09669582.2016.1206553>
- Diffley, S., McCole, P., and Carvajal-Trujillo, E. (2018). Examining social customer relationship management among Irish hotels. *International Journal of Contemporary Hospitality Management*, 30(2), 1072-1091.
- Dolnicar, S., Cvelbar, L.K., and Grun, B. (2017). Do Pro-environmental Appeals Trigger Pro-environmental Behavior in Hotel Guests? *Journal of Travel Research*, doi: <https://doi.org/10.1177/0047287516678089>
- Ellis, E., Lee, J., Reeder, J., and Yip, C. (2013). Overcoming the barriers to zero waste in Durham restaurants. National Restaurant Association, Sanford School of Public Policy, Duke University.
- Erdogan, N., and Baris, E. (2007). Environmental protection programs and conservation practices of hotels in Ankara, Turkey. *Tourism Management*, 28, 604–614.
- Emrullah, E.R.U.L., and Woosnam, K.M. (2016). Explaining Perceived Impacts of All-Inclusive Resorts through Community Attachment. *Advances in Hospitality and Tourism Research (AHTR)*, 4(2), 83-106.
- Ferdman, R.A. (2014). Americans throw out more food than plastic, paper, metal, and glass. The Washington Post:
<http://www.washingtonpost.com/blogs/wonkblog/wp/2014/09/23/americans-throw-out-more-food-than-plastic-paper-metal-or-glass/>.
- Fieschi, M., and Pretato, U. (2018). Role of compostable tableware in food service and waste management. A life cycle assessment study. *Waste Management*, 73, 14-25.

- Filimonau, V., and De Coteau, D. A. (2019). Food waste management in hospitality operations: A critical review. *Tourism Management*, 71, 234-245.
- Fischer, S., Breithaupt, L., Wonderlich, J., Westwater, M. L., Crosby, R.D., Engel, S.G., and Wonderlich, S. (2017). Impact of the neural correlates of stress and cue reactivity on stress related binge eating in the natural environment. *Journal of Psychiatric Research*, 92, 15-23.
- Food and Agriculture Organization of the United Nations (2018). Key facts on food loss and what you should know! <http://www.fao.org/save-food/resources/keyfindings/en/>
- Foodservice and Hospitality (2017). New Trends In Smart Kitchen Equipment. <https://www.foodserviceandhospitality.com/new-trends-in-smart-kitchen-equipment/>.
- Freedman, M.R., and Brochado, C. (2010). Reducing portion size reduces food intake and plate waste. *Obesity*, 18(9), 1864-1866.
- Fullerton, D., and Kinnaman, T.C. (1996). Household responses to pricing garbage by the bag. *The American Economic Review*, 86(4), 971-984.
- Gannon, M., Taheri, B. and Olya, H. (2019). Festival quality, self-connection, and bragging. *Annals of Tourism Research*, 76, 239-252.
- Gil-Soto, E., Armas-Gruz, Y., Morini-Marrero, S., and Ramos-Henríquez, J.M. (2019). Hotel guests' perceptions of environmental friendly practices in social media, *International Journal of Hospitality Management*, 78, 59-67.
- Griffiths, S. (2015). Trends in food sensory science. *The Journal of the Institute of Food Science and Technology*. <https://fstjournal.org/features/29-1/sensory-science>.
- Goh, E., and Jie, F. (2018). To waste or not to waste: Exploring motivational factors of Generation Zhospitality employees towards food wastage in the hospitality industry, *International Journal of Hospitality Management*, 80, 126-135.
- Gunders, D. (2012). Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill. *Natural Resources Defense Council*, 1-26.
- Halloran, A., Clement, J., Kornum, N., Bucatariu, C., and Magid, J. (2014). Addressing food waste reduction in Denmark. *Food Policy*, 49, 294-301.
- Heikkilä, L., Reinikainen, A., Katajajuuri, J.-M., Silvennoinen, K., & Hartikainen, H. (2016). Elements affecting food waste in the food service sector. *Waste Management*, 56, 446-453.
- Hogg, G., Liao, M-H., and O'Gorman, K. (2014). Reading between the lines: Multidimensional translation in tourism consumption. *Tourism Management*, 42, 157-164.
- Immanuel, M., Hartopo, R., Anantodjaya, S.P.D., and Saroso, T. (2013). Food waste management: 3R approach in selected family-owned restaurants. *Journal of Management Studies*, 2(1), 18-37.
- Jafari, A., Taheri, B., and vom Lehn, D. (2013). Cultural consumption, interactive sociality, and the museum. *Journal of Marketing Management*, 29(15-16), 1729-1752.
- Juvan, E., Grün, B., and Dolnicar, S. (2018). Biting off more than they can chew: food waste at hotel breakfast buffets. *Journal of Travel Research*, 57(2), 232-242.
- Kallbekken, S., and Sælen, H. (2013). "Nudging" hotel guests to reduce food waste as a win-win environmental measure. *Economics Letters*, 119(3), 325-327.
- Kasim, A., and Ismail, A. (2012). Environmentally friendly practices among restaurants: Drivers and barriers to change. *Journal of Sustainable Tourism*, 20(4), 551-570.
- Kantor, L.S., Lipton, K., Manchester, A., & Oliveira, V. (1997). Estimating and addressing America's food losses. *Food Review*, 20(1), 2-12.
- Lanfranchi, M., Calabrò, G., De Pascale, A., Fazio, A., and Giannetto, C. (2016). Household food waste and eating behavior: empirical survey. *British Food Journal*, 118(12), 3059-3072.

- Lo, S.H., Peters, G.J.Y., and Kok, G. (2012). A review of determinants of and interventions for proenvironmental behaviors in organizations. *Journal of Applied Psychology*, 42(12), 2933-2967.
- MacKenzie, N. and Gannon, M. (2019). Exploring the Antecedents of Sustainable Tourism Development. *International Journal of Contemporary Hospitality Management*. Doi: 10.1108/IJCHM-05-2018-0384
- Marthinsen, J., Sundt, P., Kaysen, O., and Kirkevaag, K. (2012). Prevention of food waste in restaurants, hotels, canteens, catering. Nordic Council of Ministers Copenhagen.
- Martin-Rios, C., Demen-Meier, C., Gössling, S., and Cornuz, C. (2018). Food waste management innovations in the foodservice industry. *Waste management*, 79, 196-206.
- Ministry of Culture and Tourism (2018). Tourism Statistics. Republic of Turkey Ministry of Culture and Tourism. <http://www.kultur.gov.tr/EN-153018/number-of-arriving-departing-visitors-foreigners-and-ci.html> accessed on November 20 2018.
- Ministry of Culture and Tourism (2019). Ministry License Establishments. <https://www.ktb.gov.tr/EN-153023/ministry-licenced-establishments.html>
- NHLBI (2013). Serving size and portions. <https://www.nhlbi.nih.gov/health/educational/wecan/eat-right/distortion.htm>.
- Nixon, R. (2015). Food waste is becoming serious economic and environmental issue, report says. New York Times, February.
- Ozdemir, B., Cizel, B., and Cizel, R.B. (2012). Satisfaction with all-inclusive tourism resorts: The effects of satisfaction with destination and destination loyalty. *International Journal of Hospitality and Tourism Administration*, 13(2), 109-130.
- Ozturk, Y., Allahyari San, R., Okumus, F., and Rahimi, R. (2017). Travel motivations of Iranian tourists to Turkey and their satisfaction level with all-inclusive package tours. *Journal of Vacation Marketing*, <https://doi.org/10.1177/1356766717725562>
- Papargyropoulou, E., Wright, N., Lozano, R., Steinberger, J., Padfield, R., and Ujang, Z. (2016). Conceptual framework for the study of food waste generation and prevention in the hospitality sector. *Waste Management*, 49, 326-336.
- Parfitt, J., Barthel, M., and Macnaughton, S. (2010). Food waste within food supply chains: Quantification and potential for change to 2050. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), 3065-3081.
- Pirani, S.I., and Arafat, H.A. (2016). Reduction of food waste generation in the hospitality industry. *Journal of Cleaner Production*, 132, 129-145.
- Porter, S.D., Reay, D.S., Higgins, P., and Bomberg, E. (2016). A half-century of production-phase greenhouse gas emissions from food loss and waste in the global food supply chain. *Science of the Total Environment*, 571, 721-729.
- Radwan, H.R., Jones, E., and Minoli, D. (2010). Managing solid waste in small hotels. *Journal of Sustainable Tourism*, 18(2), 175-190.
- Rasoolimanesh, S.M., Taheri, B., Gannon, M., Vafaei-Zadeh, A., and Hanifah, H. (2019). Does living in the vicinity of heritage tourism sites influence residents' perceptions and attitudes? *Journal of Sustainable Tourism*, 27(9), 1295-1317.
- Reboucas, L.T., Santiago, L.B., and de Castro Almeida, R.C. (2017). Food safety knowledge and practices of food handlers, head chefs and managers in hotel's restaurants of Salvador, Brazil. *Food Control*, 73, 372-381.

- Richman, W.L., Kiesler, S., Weisband, S., and Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*, 84(5), 754-775.
- Riis, J. (2014). Opportunities and barriers for smaller portions in food service: lessons from marketing and behavioral economics. *International Journal of Obesity*, 38(S1), S19.
- Safe Q (2017). Factors relevant to food waste. <https://blogs.commons.georgetown.edu/safeq/factors-relevant-to-food-waste>.
- Salihoglu, G., Salihoglu, N.K., Ucaroglu, S., and Banar, M. (2018). Food loss and waste management in Turkey. *Bioresource Technology*, 248, 88-99.
- Sealey, K. S., and Smith, J. (2014). Recycling for small island tourism developments: Food waste composting at Sandals Emerald Bay. *Exuma. Resources, Conservation and Recycling*, 92, 25–37.
- Schilt, K. (2014). Preventing food waste: Opportunities for behaviour change and the expansion of food recovery and donation in Metro Vancouver. <http://summit.sfu.ca/item/14104>
- Strauss, A., and Corbin, J. (1998). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, 2nd Ed. London: Sage Publications.
- Taheri, B., Olya, H., Ali, F., & Gannon, M.J. (2019). Understanding the influence of airport servicescape on traveler dissatisfaction and misbehavior. *Journal of Travel Research*. Doi:10.1177/004728751987725
- Tatlidil, F.F., Dellal, I and Bayramoglu, Z. (2013). Food losses and waste in Turkey, Country report. The regional office for Europe and Central Asia- Food and Agriculture Organization of the United Nations. <https://docplayer.net/45164961-Food-losses-and-waste-in-turkey-country-report-prepared-by-f-f-tatlidil-i-dellal-z-bayramoglu.html>.
- Taylan, I., Varinli, I., and Kitapci, O. (2014). How do international tourists perceive hotel quality? An exploratory study of service quality in Antalya tourism region. *International Journal of Contemporary Hospitality Management*, 26(3), 470-495.
- The Municipality of Antalya (2019). Kizilli waste and recycling facilities. <https://www.turkiyeguzelantalyacokguzel.com/kizilli-entegre-kati-atik-ve-enerji-uretim-tesisi-1>
- Thyberg, K. L., and Tonjes, D. J. (2016). Drivers of food waste and their implications for sustainable policy development. *Resources, Conservation and Recycling*, 106, 110–123.
- TripAdvisor(2018). Antalya Turkish Mediterranean Coast Hotels. https://www.tripadvisor.com/Hotels-g297962-Antalya_Turkish_Mediterranean_Coast-Hotels.html
- Trung, D.N. and Kumar, S. (2005). Resource use and waste management in Vietnam hotel industry. *Journal of cleaner production*, 13(2), 109-116.
- Todd, M. and Hawkins, R. (2007) Waste counts: A handbook for accommodation operators. http://www.business.brookes.ac.uk/research/groups/files/waste_counts_ebook.pdf
- Tourism Concern (2014). All Inclusive. <http://www.tourismconcern.org.uk/all-inclusives/>.
- Vermeir, I., and Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude–behavioral intention” gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169-194.
- Wan, T. H., Hsu, Y. S., Wong, J. Y., and Liu, S. H. (2017). Sustainable international tourist hotels: the role of the executive chef. *International Journal of Contemporary Hospitality Management*, 29(7), 1873-1891.

- Wells, V.K., Manika, D., Gregory-Smith, D., Taheri, B., and McCowlen, C. (2015). Heritage tourism, CSR and the role of employee environmental behavior. *Tourism Management*, 48, 399-413.
- Wells, V.K., Taheri, B., Gregory-Smith, D., and Manika, D. (2016). The role of generativity and attitudes on employees' home and workplace water and energy saving behaviors. *Tourism Management*, 56, 63-74.
- WRAP (2018). Waste and Resources Action Programme, <http://www.wrap.org.uk/search-results#stq=The+Composition+of+Waste+Disposed+of+by+the+world+Hospitality+Industry&stp=1>
- Wyngaard, A.T., and De Lange, R. (2013). The effectiveness of implementing eco initiatives to recycle water and food waste in selected Cape Town hotels. *International Journal of Hospitality Management*, 34, 309-316.
- Yolal, M., Chi, C.G.Q., and Pesämaa, O. (2017). Examine destination loyalty of first-time and repeat visitors at all-inclusive resorts. *International Journal of Contemporary Hospitality Management*, 29(7), 1834-1853.
- Young, L.R., and Nestle, M. (2003). Expanding portion sizes in the US marketplace: implications for nutrition counseling. *Journal of the American Dietetic Association*, 103(2), 231-240.
- Zorpas, A.A., Lasaridi, K., Voukkali, I., Loizia, P., and Inglezakis, V.J. (2012). Solid waste from the hospitality industry in Cyprus. *WIT Transactions on Ecology and the Environment*, 166, 41-49.
- Zorpas, A.A., Voukkali, I., and Pedreno, J.N. (2018). Tourist area metabolism and its potential to change through a proposed strategic plan in the framework of sustainable development. *Journal of Cleaner Production*, 172, 3609-3620.

Appendix 1: Food Waste Interview Questions

1. Please tell me about yourself/your background.
2. Please tell me about your role and duties here at this company.
3. Overall, how do you feel about food waste in the foodservice business?
4. Why should food waste be reduced in the food services businesses?
5. Based on your experiences/observations, how much food is wasted in foodservice businesses?
6. If you consider different stages such as ordering, receiving, storage, preparation, cooking, serving guests, and after serving guests, in which stage/stages do you think food is wasted more and why?
7. Following the above questions, what types of foods are wasted more and WHY?
8. In your opinion, what are the main reasons for food waste in foodservice businesses?
9. In your opinion, what are the challenges/barriers to reducing food waste in food service businesses?
10. What are the best practices in managing and reducing food waste here at your organization (and other organizations)?
11. Overall, how can food waste be further reduced in foodservice businesses?
12. How can technology help reduce food waste in foodservice businesses? Can you give any examples please?
13. What should senior managers do to reduce food waste in foodservice businesses?
14. What should executive/head chefs do to reduce food waste?
15. What should chefs and frontline employees in kitchens do to reduce food waste?
16. What should the serving staff do to reduce food waste in foodservice businesses?
17. What should customers do to reduce food waste?
18. Do you have any other comments/recommendations on reducing food waste in foodservice establishments?