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ZERO WASTE PRACTICES IN SMALL-SCALE ACCOMMODATION ENTERPRISES IN KALEİÇİ/ANTALYA^{††}

KÜÇÜK ÖLÇEKLİ KONAKLAMA İŞLETMELERİNDE SIFIR ATIK UYGULAMALARI: KALEİÇİ/ANTALYA ÖRNEĞİ

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ABSTRACT

This study examines the zero-waste practices of small-scale accommodation establishments operating in Kaleiçi, a conservation area rich in cultural heritage in Antalya, Türkiye. More specifically, it examines the managerial challenges of zero-waste practices, their benefits to enterprises, and the responsibilities of public institutions and organizations. The research focuses on individuals holding managerial positions in small-scale enterprises operating in Kaleiçi. In line with this purpose and scope, the study adopted a qualitative research design, with data collected from 12 face-to-face, semi-structured interviews conducted between September 1 and September 10, 2025. The data were examined using content analysis and descriptive analysis methods. These revealed that accommodation establishments in Kaleiçi have implemented certain basic operational zero-waste practices. These basic practices include the use of waste separation bins, the collection of waste oils, and the elimination of single-use products in guest rooms. However, certain factors are critical for increasing the effectiveness of zero-waste practices. These include the expansion of common waste collection areas, the complete elimination of single-use products, and the strengthening of inspection mechanisms. The main factors limiting adoption of zero waste practices by Kaleiçi's accommodation businesses were insufficient inspections and lack of coordination among relevant institutions.

Keywords: Tourism, Zero Waste Practices, Cultural Heritage Areas, Small-Scale Accommodation Enterprises, Kaleiçi.

Jel Codes: L80, L83, L89.

ÖZET

Bu çalışma, Türkiye'nin Antalya ilinde kültürel miras açısından zengin bir koruma alanı olan Kaleiçi'nde faaliyet gösteren küçük ölçekli konaklama işletmelerinin sıfır atık uygulamalarını incelemektedir. Daha spesifik olarak araştırmada, sıfır atık uygulamalarının yönetsel açıdan karşılaşılan zorlukları, işletmelere sağladığı faydalar ile kamu kurum ve kuruluşlarının bu süreçteki sorumlulukları ele alınmaktadır. Araştırmanın çalışma grubunu Kaleiçi'nde faaliyet gösteren küçük ölçekli konaklama işletmelerinde yönetici pozisyonunda görev yapan kişiler oluşturmaktadır. Bu amaç ve kapsam doğrultusunda araştırmada nitel araştırma deseni benimsenmiş; veriler, 1-10 Eylül 2025 tarihleri arasında gerçekleştirilen 12 yüz yüze yarı yapılandırılmış görüşme aracılığıyla toplanmıştır. Elde edilen veriler içerik analizi ve betimsel analiz

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yöntemleri kullanılarak incelenmiştir. Araştırma bulguları, Kaleiçi'ndeki konaklama işletmelerinin bazı temel operasyonel sıfır atık uygulamalarını hayata geçirdiğini ortaya koymuştur. Bu uygulamalar arasında atık ayrıştırma kutularının kullanılması, atık yağların toplanması ve misafir odalarında tek kullanımlık ürünlerin kaldırılması yer almaktadır. Bununla birlikte, sıfır atık uygulamalarının etkinliğinin artırılabilmesi için bazı unsurların kritik öneme sahip olduğu belirlenmiştir. Bu unsurlar arasında ortak atık toplama alanlarının yaygınlaştırılması, tek kullanımlık ürünlerin tamamen ortadan kaldırılması ve denetim mekanizmalarının güçlendirilmesi bulunmaktadır. Ayrıca, Kaleiçi'ndeki konaklama işletmelerinde sıfır atık uygulamalarının benimsenmesini sınırlandıran temel faktörlerin yetersiz denetimler ile ilgili kurumlar arasındaki koordinasyon eksikliği olduğu tespit edilmiştir.

Anahtar Kelimeler: Turizm, Sıfır Atık Uygulamaları, Kültürel Miras Alanları, Küçük Ölçekli Konaklama İşletmeleri, Kaleiçi.

Jel Kodu: L80, L83, L89.

1. INTRODUCTION

Increasing environmental problems, the gradual depletion of natural resources, and the growing emphasis on sustainable development goals have made it necessary to reconsider environmental management approaches in the tourism sector (Milanović Pešić et al., 2025). While tourism activities provide economic benefits, they can also exert significant pressure on natural and cultural heritage. Conservation areas where cultural heritage is densely concentrated are among the most affected by tourism activities due to their fragile structures. Therefore, it has become critical to develop sustainable tourism practices and adopt effective environmental management approaches in these areas (Pai et al., 2026).

Cultural heritage areas include elements like historic city centers, archaeological sites, protected structures, and traditional settlement patterns. These areas are of great importance in terms of identity, memory, and social values. At the same time, they are also significant for tourism because they offer various attractions (Wasela, 2023). However, as visitor numbers increase in these areas, intensive use pressure and inadequate infrastructure may cause various environmental problems, particularly regarding waste management. The lack of effective waste management, visual pollution, damage to the historical fabric, and environmental degradation are among the main factors threatening the sustainability of these areas. It is therefore essential to develop strategies to reduce the environmental impacts of tourism activities in conservation areas (Mekonnen et al., 2022).

The zero waste approach is an important tool for sustainable environmental management in cultural heritage areas. This approach offers a holistic model aimed at preventing waste generation at source, ensuring the efficient use of resources, and managing recycling processes effectively (Al Muqsit et al., 2024). From the perspective of accommodation establishments operating in cultural heritage areas, practices such as waste separation, reduced use of single-use products, and widespread implementation of recycling are important for sustainability. Moreover, in addition to contributing to sustainability, these practices may also indirectly support the preservation of cultural heritage (Radwan et al., 2010; Radwan et al., 2012).

Previous research has mostly considered zero waste practices in the context of large-scale tourism enterprises (Kattiyapornpong et al., 2023), whereas few studies have focused on conservation areas, where cultural heritage is concentrated and where small-scale enterprises predominantly operate. Accommodation establishments operating in conservation areas face particular challenges in implementing zero waste practices due to their limited physical capacity, infrastructure deficiencies, and conservation restrictions (Diaz-Farina et al., 2023). Furthermore, existing studies have primarily examined zero waste initiatives from a general sustainability perspective, with limited attention to how heritage conservation requirements, spatial constraints, and operational characteristics jointly shape the implementation of zero waste practices in historic urban destinations. Consequently, there remains insufficient empirical evidence on how accommodation enterprises balance environmental sustainability objectives with the preservation requirements of culturally sensitive environments. Accordingly, this study contributes not only by focusing on small-scale accommodation enterprises but also by extending the zero waste literature to heritage tourism contexts, where environmental sustainability and cultural heritage conservation objectives must be pursued simultaneously. To fill

this gap in the literature, it is therefore important to evaluate the implementation of such practices by small-scale accommodation establishments.

Kaleiçi, a historic district in Antalya, southern Türkiye, is an important destination in terms of its cultural heritage, and stands out as a conservation area with its historical texture, architectural features, and touristic attractiveness. The district's small-scale accommodation establishments play a significant role in both sustaining tourism activities and preserving Kaleiçi's cultural heritage. This makes it important to evaluate the implementation of zero waste practices by the district's accommodation establishments. Accordingly, the main aim of this study is to examine the zero waste practices of small-scale accommodation establishments operating in Kaleiçi, a conservation area with dense cultural heritage. By evaluating the current situation, the study aims to propose recommendations to support zero waste practices.

1.1. Conceptual Framework

Zero waste can be defined as a waste management approach that implements strategies such as minimizing the use of natural resources and reducing, reusing, and recycling waste (Zaman & Lehmann, 2011). For example, the Zero Waste International Alliance (ZWIA) defines it as “a set of systematic strategies that prevent the generation of waste, increase reuse and recycling rates, minimize final disposal, and prioritize the conservation of natural resources” (ZWIA, 2026). The roots of the zero waste approach date back to the 1970s. The increase in waste and the growing visibility of environmental problems in industrialized countries led to waste management evolving into a scientific and practical discipline. Since the 1990s, solid waste management policies and recycling targets have become more widespread in the European Union and the United States. In the early 2000s, concepts like the circular economy and sustainable production and consumption came to the forefront, bringing the zero waste approach to the center of global policies (Geissdoerfer et al., 2017). Today, zero waste is considered a holistic environmental management strategy that aims, as much as possible, to reduce waste, increase reuse and recycling rates, and reduce the amount of waste sent to final disposal (Fagerholm et al., 2025).

Theoretically, the zero waste approach is largely based on the circular economy model, which assumes that, because natural resources are limited, products, materials, and energy should be reused repeatedly within closed-loop systems (Veleva et al., 2017). Within this framework, waste is not defined as a residue that must be disposed of outside the system but rather as a resource that can be re-evaluated. Principles such as preventing waste generation at the design stage, extending product life cycles, and promoting repair and reuse practices are fundamental components of the zero waste philosophy within the circular economy model. Thus, zero waste can be defined, not only as a waste management policy, but also as a proposal for structural transformation to change production and consumption patterns (Kurniawan et al., 2021).

Another important foundation of this theoretical framework is hierarchical waste management models, such as 3R, 5R, and 7R. The traditional 3R approach (Reduce–Reuse–Recycle) has been expanded over time by adding dimensions like refuse, rethink, redesign, and repair. The resulting extended models do not view waste generation merely as a technical recycling issue. Instead, they evaluate waste management as a behavioral and managerial issue associated with consumption habits and institutional decision-making processes (Borah & Kumar, 2024). In addition, environmental management standards such as ISO 14001 help organizations systematically monitor their environmental impacts and improve their performance in line with the principle of continuous improvement. These standards support the sustainable implementation of zero-waste practices within an institutional framework through the plan–do–check–act cycle (Chan, 2009).

In the tourism literature, zero waste is closely associated with sustainable tourism and responsible tourism approaches. Given that tourism enterprises generate significant amounts of solid waste (Mehrotra et al., 2025), waste reduction has become a strategic priority for sustainable destination management. For small-scale accommodation enterprises, limited resources, cost sensitivity, and spatial constraints both complicate the implementation of zero-waste practices and create

opportunities for innovative solutions (Agyeiwaah, 2020). Programs and certification processes established by public institutions and organizations play an important role in the institutionalization of zero-waste practices. Such certification programs can transform zero-waste practices into a competitive advantage and a marketing tool (Prakash et al., 2024). Particularly for small-scale enterprises operating in cultural heritage areas, environmental sensitivity is important for enhancing both the image of the destination and their own organizational image (Radwan et al., 2012).

In Türkiye, accommodation enterprises that establish zero-waste systems are granted a zero waste certificate by the Provincial Directorates of Environment and Urbanization. In order to obtain a basic level zero waste certificate, applicants must fulfill certain elements in the zero waste management system scheme. These include preventing/reducing waste generation, separating waste at source, collecting accumulated waste and transporting it to temporary storage areas, recording the waste brought to temporary storage areas and placing it into appropriate containers, sending accumulated waste to environmentally licensed waste processing facilities, and producing compost from organic waste or sending it to municipal composting or bio-methanization facilities. Accommodation enterprises that meet these requirements can obtain a basic level zero-waste certificate. If the accommodation enterprise has more than 50 rooms, it is also required to obtain silver, gold, and platinum zero waste certificates after achieving the basic level (CBS, 2020).

A number of studies have examined zero waste practices in small-scale accommodation enterprises in various countries. Radwan et al. (2010) investigated the solid waste management practices of accommodation enterprises operating in the United Kingdom. They found that enterprises lacked awareness of waste reduction methods and had adopted very few practices, apart from reuse. Although the managers of these enterprises reported that they were willing to engage in recycling, they encountered barriers, such as the absence of collection services, waste separation problems, and high recycling costs. Radwan et al. (2012) examined the solid waste management practices of small-scale enterprises in Wales. They found that the managers of these enterprises were willing to develop environmental policies, conduct environmental audits, and create improvement plans. They were also attempting to comply with the waste management hierarchy, except for composting practices. Radwan et al. argued that these enterprises should be supported and encouraged by public institutions regarding solid waste management. Additionally, they suggested that certain practices could be beneficial, such as providing equipment and facilities, offering awareness training, introducing legal obligations, and increasing communication/interaction among small-scale enterprises.

Agyeiwaah (2020) reported that small-scale accommodation enterprises in Ghana rely on traditional waste management practices due to the lack of modern integrated waste management systems. These traditional practices included feeding animals with waste, separating waste (e.g., rubber, plastic, and food waste), and reusing empty bottles by giving them to collectors. However, they noted that the lack of integration could have negative environmental impacts and limit zero waste activities to basic waste separation practices. Ho et al. (2024) reported that the solid waste management practices of small-scale accommodation enterprises in Vietnam include complex waste separation, particularly in enterprises providing food and beverage services. They concluded that it is important to provide sufficient waste separation bins along with comprehensive guidelines for both staff and guests, while information centers and recycling facilities are also essential for the successful implementation of waste management practices.

Regarding Kaleiçi itself, no previous study has directly investigated zero waste practices, although there has been some research on Antalya, particularly in five-star hotels. Büyükkol and Bedük (2020), for example, concluded that the city's five-star hotels were significantly deficient in "providing necessary informational training on zero-waste management" and "separately collecting organic waste and food waste at points where they are intensively generated". Focusing on the zero waste practices of executive chefs in Antalya's five-star hotels, Hazarhun et al. (2020) found that waste is separated in garbage areas, used cooking oils are collected and separated, leftover food is sent to animal shelters, and training is provided to staff. However, they also concluded that the all-inclusive system makes waste management much more difficult.

2. METHOD

The primary aim of the present study is to reveal the zero-waste-related practices of small-scale accommodation enterprises operating in the district of Kaleiçi in Antalya, Türkiye. More specifically, it aims to identify the managerial challenges of zero-waste practices, their benefits to these enterprises, and the responsibilities of public institutions and organizations. The study focuses on individuals holding managerial positions in small-scale enterprises operating in Kaleiçi. In line with the study's aim and scope, a qualitative research design was adopted. This systematic framework for understanding the phenomenon in depth determines how the research will be conducted, specifically participant selection, data collection, and data analysis process (Maxwell, 2013).

Purposive sampling was preferred to identify the participants. This sampling method involves deliberately selecting participants with relevant experience or expertise regarding the phenomenon under investigation who can therefore provide rich information relevant to the study's purpose. Purposive sampling is widely used, especially in qualitative research, to obtain in-depth and meaningful data (Creswell & Poth, 2016). Because there is no publicly available database identifying the exact number of small-scale accommodation enterprises actively implementing zero waste practices in Kaleiçi, the accessible study population could not be determined precisely. Therefore, participants were selected purposively based on the following criteria: (a) holding a managerial position in a small-scale accommodation enterprise operating within the Kaleiçi conservation area, (b) being directly involved in or responsible for environmental management and waste-related practices, (c) possessing sufficient knowledge and experience regarding the enterprise's zero waste practices, and (d) voluntarily agreeing to participate in the study. Ultimately, 12 individuals participated in the study. Table 1 presents their demographic characteristics.

Data were collected from the 12 participants using face-to-face, semi-structured interviews based on an interview form (Table 2) based on both the study's purpose and the related literature (Agyeiwaah, 2020; Radwan et al., 2010; Radwan et al., 2012). The interviews, which took place between September 1 and 10, 2025, each lasted approximately 30 minutes. The data were then transcribed and examined using content analysis and descriptive analysis methods. The study received ethical approval from the Scientific Research and Publication Ethics Committee of Isparta University of Applied Sciences with decision no. 10, issued at meeting no. 200, dated 04.09.2024.

Table 1. Participants' Demographic Characteristics

	Gender	Marital status	Age	Education Level	Position/Department
P1	Female	Single	36	University	Manager
P2	Male	Single	39	University	Sales & Marketing Manager
P3	Male	Married	38	University	Manager
P4	Male	Single	33	University	Front Office Manager
P5	Male	Married	38	University	Manager
P6	Female	Single	39	College	Manager
P7	Male	Married	51	High School	Manager
P8	Male	Married	56	High School	Front Office Manager
P9	Female	Married	42	University	Manager
P10	Male	Single	34	College	Front Office Manager
P11	Male	Married	52	University	Manager
P12	Male	Married	44	University	Manager

The interview data were analysed using an inductive qualitative content analysis approach. Following the completion of the interviews, the written interview responses were reviewed repeatedly to achieve familiarity with the data. Meaningful statements relevant to the research objectives were identified and assigned initial codes. Similar codes were subsequently grouped into broader categories based on their conceptual similarities. The frequency of each category was then calculated to identify the most frequently reported zero waste practices and managerial opinions. Finally, representative quotations from the participants were included to illustrate and support the interpretation of each category. Throughout the analytical process, the emerging categories were continuously compared with the original written responses to ensure that the findings accurately reflected the participants' views (Graneheim & Lundman, 2004; Elo & Kyngäs, 2008).

Four strategies were followed to ensure the validity and reliability of the study's findings. First, detailed information was obtained from experts through the semi-structured interviews, and direct quotations were included in the analysis to ensure credibility. Second, transferability was supported by clearly presenting the research group, data collection process, and data analysis procedures. Third, to ensure dependability, data analysis was conducted systematically, with specific themes and codes developed and presented to the reader. Finally, to maximize confirmability, researcher interpretations were distinguished from participant statements, and the analysis was supported by the interview data (Guba & Lincoln, 1989).

Table 2. Interview Questions

What types of zero-waste practices are implemented in your enterprise, and in which operational areas are these practices carried out? In your opinion, which practices are more critical for the successful implementation of the zero-waste project? Please explain in detail.
Do business owners/managers monitor zero-waste practices within your enterprise? If yes, how frequently are these inspections conducted? Are employees encouraged to implement these practices? If so, what types of incentives are provided? Please explain in detail.
Have employees in your enterprise been informed or trained regarding the zero-waste program? Do employees attach importance to zero-waste practices? Within this context, what are the most commonly implemented practices by employees? Please explain in detail.
Are inspections carried out by relevant institutions/organizations regarding zero-waste practices? If so, which institutions conduct these inspections, how frequently are they carried out, and what aspects are primarily evaluated? Please explain in detail.
What kind of feedback (positive or negative) do you receive from your customers regarding the zero-waste project? What responsibilities do customers have within this process? Please explain in detail.
Do you use the zero-waste certificate obtained by your enterprise as a marketing and sales tool? If yes, please explain in detail how it is used.
In your opinion, which practices should be prioritized to ensure the success of the zero-waste initiative? What are the main shortcomings you have observed? Please explain in detail.

3. FINDINGS

This section reports the findings from the interview questions listed in Table 2. First, regarding the zero-waste-related practices that the participants implement in their enterprises, the most frequent were the use of separation bins (f:12; 38.7%), collection of waste oil (f:7; 22.5%), placement of informational signs (f:6; 19.4%), and removal of single-use products from guest rooms (f:6; 19.4%). Table 3 presents these zero-waste practices in detail.

Table 3. Zero Waste Practices in Kaleiçi's Small-Scale Accommodation Enterprises

Statements	f	%
Use of waste separation bins	12	38.7
Collection of waste oils	7	22.5
Placement of informational signs	6	19.4
Removal of single-use products from guest rooms	6	19.4
Total	31	100.0

Regarding these practices, the participants made various comments that provide more detail about them:

"There is a waste oil and garbage separation area in the kitchen within the hotel. At the same time, there are separation bins available in the hotel garden area for guest use" (P2, Male, Single, 39 years old, University, Sales & Marketing Manager).

"There are recycling waste bins in common areas. On the floors, waste collected from rooms is disposed of into separation bins using our blue and black bags. In the kitchen, we collect the liquid oils we use and have a collection area under the sink" (P4, Male, Single, 33 years old, University, Front Office Manager).

"There are separation bins for recycling. Since the amenities in the rooms are mostly single-use, they have been completely removed and replaced with materials that can be used multiple times. There are also separation bins in the kitchen and common areas" (P7, Male, Married, 51 years old, High School, Manager).

Second, regarding the participants' opinions about which practices were most important for making

their enterprise's zero-waste project successful, four responses were most frequent: identification/increase of common collection areas (f:8; 30.8%); complete removal of single-use products (f:7; 26.9%); increased inspections (f:6; 23.1%); and raising customer awareness (f:5; 19.2%). The responses provided by the participants are presented in Table 4.

Table 4. Most Important Practices for Successful Zero Waste Projects

Statements	f	%
Identification/increase of common waste collection areas	8	30.8
Complete elimination of single-use products	7	26.9
Conducting more frequent inspections	6	23.1
Raising customer awareness	5	19.2
Total	26	100.0

The participants made various comments that help explain their opinions:

"In order for the project to succeed, common areas where recyclable waste is collected should be established. If common areas are designated, the project can achieve its goal" (P3, Male, Married, 38 years old, University, Manager).

"With the removal of most amenity materials, single-use materials should be completely eliminated and materials that can be used multiple times should be preferred. Education and awareness should also be prioritized" (P8, Male, Married, 56 years old, High School, Front Office Manager).

"In order to achieve success, the responsible institutions/organizations should be inspected frequently. The accumulated waste is sometimes not collected despite our repeated calls" (P11, Male, Married, 52 years old, University, Manager).

Third, regarding the extent to which the participants believed that zero waste practices were monitored and employees encouraged to implement them, the responses were mixed. On the one hand, 10 participants stated that these practices were monitored, although the frequency varied between daily, biweekly, and monthly. On the other hand, they reported that no specific incentives were offered to ensure the regular implementation of zero-waste practices, although employees were given training because it is mandated by local regulations.

Fourth, regarding the level of awareness raising among employees regarding zero waste practices and the frequency of implementing them, the participants noted that training and awareness activities were conducted as part of mandatory programs. The most frequent practices were waste separation and removal of single-use products from rooms and their monitoring (f:6; 50%).

Fifth, regarding inspections of the enterprise's zero waste practices by external institutions or organizations, there were mixed responses. Seven participants said that there were no inspections, three said they were conducted once a year, and two said they were only conducted during the initial certification. The participants also reported that if inspections did not happen then they entered data regarding the enterprise's zero-waste practices into the relevant website themselves because inspections might take place if data were not entered for an extended period.

Sixth, regarding customer reactions to zero waste practices, the participants reported both positive and negative feedback, although generally the effect was neutral. While eight participants reported receiving positive feedback from customers regarding waste separation and cleanliness, they also noted that removing single-use products from guest rooms generally resulted in complaints (f:8; 66.7%). The participants also found that European tourists generally paid the most attention to zero-waste practices, whereas Turkish tourists were among the least attentive customer groups. Finally, two participants indicated that customers were not even aware of such practices and therefore provided no feedback.

Seventh, regarding the enterprise's use of its zero-waste certificate, four participants said that they used it in sales and marketing through intermediary businesses, three said that they were not currently using it but were considering doing so in future, and five stated that they were not considering doing so either now or in future.

Finally, regarding the participants' beliefs about which practices should be prioritized to make zero-waste projects successful, there were four main recommendations: inspections of waste management enterprises by relevant authorities (f:7; 25%), more frequent waste collection by waste management enterprises (f:5; 17.8%), more frequent inspections of accommodation enterprises (f:5; 17.8%), and raising public awareness (f:5; 17.8%). The practices that the participants believed should be prioritized are presented in Table 5.

Table 5. Practices to be Prioritized for Successful Zero Waste Projects

Statements	f	%
Inspection of waste management enterprises by relevant authorities	7	25.0
More frequent collection of waste by waste management enterprises	5	17.8
More frequent inspections of accommodation enterprises	5	17.8
Raising public awareness	5	17.8
Availability of sufficient containers in common areas	4	14.4
Incentivizing enterprises (e.g., awards, plaques, etc.)	2	7.2
Total	28	100.0

The participants made various comments explaining their views on ensuring the success of zero waste projects, particularly regarding waste management companies that win tenders from the municipality to collect waste from Kaleiçi's enterprises:

"Frequent inspections are necessary. If inspections are conducted and sanctions are applied, order can be established. At the point of inspection, not only accommodation establishments but also the companies that win the tenders should be inspected frequently. Even if accommodation establishments fulfill their responsibilities, it is not easy to reach the contracted companies" (P4, Male, Single, 33 years old, University, Front Office Manager).

"We experience problems due to the companies that have won the tenders. These companies need to be inspected frequently. One of the biggest deficiencies is lack of awareness. It would be better if incentives such as awards, bonuses, or plaques were included in the program based on the amount of waste collected and separated by enterprises" (P9, Female, Married, 42 years old, University, Manager).

"Education and awareness are necessary. This project should be frequently promoted through visual and audio channels" (P12, Male, Married, 44 years old, University, Manager).

4. CONCLUSION, DISCUSSION AND RECOMMENDATION

This study examined zero waste practices implemented by small-scale accommodation establishments operating in Kaleiçi, a historic city district in Antalya, Türkiye. Overall, the findings show that these accommodation establishments have implemented various basic and operational practices. The basic practices implemented by these enterprises include using waste separation bins, collecting waste oils, and removing single-use products from guest rooms. At the same time, the findings indicate that the success of these enterprises' zero waste practices also critically depends on factors like increasing common waste collection areas, completely eliminating single-use products, and strengthening inspection mechanisms. In particular, the lack of inspections and coordination problems with relevant institutions are key factors currently limiting the effectiveness of zero waste practices in Kaleiçi. That is, the external stakeholders responsible for waste management in the district play a decisive role in determining the system's success.

4.1. Theoretical Conclusions

The study's findings have five main theoretical implications. First, the findings clearly show that zero-waste practices are not merely technical and operational processes, but rather have a multidimensional structure that requires both individual behavioral and organizational cultural transformations. That is, apart from the adequacy of infrastructure and superstructure, the human factor is also highly significant in achieving the transformation to zero waste practices. These findings are consistent with those of previous studies in this area. For example, both Radwan et al. (2010) and Ho et al. (2024) concluded that it is essential to raise employee awareness through training in order

to advance zero-waste practices.

The second important implication is that the success of zero waste practices depends not only on internal organizational processes but also on the active participation of external stakeholders (municipalities, waste collection companies, regulatory institutions, and tourists). In particular, disruptions to waste collection processes highlight the importance of the multi-stakeholder structure of sustainable practices. This finding is consistent with the lack of integration identified by Agyeiwaah (2020).

Third, the findings indicate that businesses tend to implement zero waste practices largely in line with legal obligations and regulations. That is, institutional obligations play an important role in encouraging the implementation of such practices, suggesting that coercive measures can contribute to their successful implementation. This finding is consistent with those reported by Radwan et al. (2012), who emphasized the importance of legal obligations in achieving success.

The fourth theoretical implication concerns consumer behavior. The findings indicated that while customers have a generally neutral attitude toward zero waste practices, they may react negatively to some practices, such as eliminating single-use products. This creates a dilemma for the enterprise because these complaints may also reduce customers' intentions to revisit.

Finally, overall, the findings suggest that small-scale enterprises can only implement zero waste practices to a limited extent due to resource constraints, lack of knowledge, and operational challenges. This implication is consistent with Agyeiwaah (2020), who argued that limited resources, cost sensitivity, and spatial constraints make the implementation of zero-waste practices more difficult for small-scale accommodation establishments.

4.2. Practical Conclusions

The findings of the present study suggest five main practical recommendations to make zero waste practices more effective. First, one of the most critical issues is strengthening inspection mechanisms. The findings reveal that existing inspection processes are insufficient and irregular. Both accommodation establishments and waste management companies should be regularly monitored by transparent and independent institutions. Inspections should not be limited to certification itself but should be transformed into a continuous monitoring and evaluation system (Liu et al., 2024).

Second, infrastructure deficiencies need to be addressed. In particular, one of the primary issues limiting the effectiveness of zero waste practices is insufficient common waste collection areas. Local authorities should establish sufficient waste collection points in accessible locations (Izuchukwu Precious & Zino, 2025). In addition, it is essential that the authorities ensure regular collection of waste and uninterrupted operation of waste management processes (Agyeiwaah, 2020).

Third, it is important to develop incentive mechanisms. The present findings indicate that businesses tend to implement zero-waste practices primarily due to obligations rather than voluntarily. Their motivation could be increased by introducing incentives like awards, certifications, tax reductions, or financial support (Agyeiwaah, 2020).

Fourth, education and awareness activities need to be strengthened. The present findings showed that most enterprises in Kaleiçi only provide superficial training to employees as a formality. Therefore, training programs should be transformed into continuous, practice-oriented processes that focus on behavioral change. Similarly, information and awareness-raising activities targeting customers should be increased (Radwan et al., 2012). Particularly for practices like eliminating single-use products, it is necessary to develop effective communication strategies to maintain customer satisfaction.

Finally, it is critical to increase collaboration among stakeholders. In particular, coordination among local authorities, the private sector, non-governmental organizations, and tourism enterprises should be strengthened. This should also involve developing a more integrated, cooperative system to address disruptions in waste management processes (Frempong-Jnr et al., 2023).

4.3. Limitations and Suggestions for Future Research

While the present study provided significant findings by examining the zero waste practices of small-scale accommodation establishments operating in a conservation area with a dense cultural heritage, it has three main limitations. First, the research was limited to accommodation establishments operating in one area, namely Kaleiçi, which may restrict the generalizability of the findings to cultural heritage areas in different destinations. Studies conducted in destinations with different geographical, cultural, and managerial characteristics may provide more comprehensive results for comparative analysis. Second, the present study relied on a relatively small sample, while the exclusion of large hotels, boutique hotels, and other accommodation types may prevent the findings from being generalized to the sector as a whole. Third, the data were collected through interviews, which can also be considered a limitation. Future studies using direct observation and collecting quantitative data may contribute to obtaining more reliable and comprehensive results.

For future research, it is also important to conduct multidimensional studies that include a range of stakeholder groups (e.g., local authorities, tourists, non-governmental organizations, and waste management companies). In particular, examining tourists' perceptions, attitudes, and behaviors toward zero waste practices may provide critical insights to increase the success of sustainable practices. Finally, studies addressing the relationship between sustainability practices and visitor experience in cultural heritage areas can make significant contributions to the literature.

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