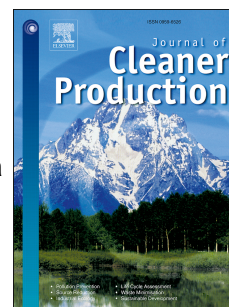


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Exploring managerial approaches to mitigating solid waste in hotels of Lagos, Nigeria

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1 **Exploring managerial approaches to mitigating solid waste in hotels of Lagos, Nigeria**

2

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1 **Abstract**

2 Due to a steady growth of tourism, hotels in Nigeria generate disproportionate amounts of
3 solid waste. Little is however known about what approaches, if any, Nigerian hoteliers
4 adopt for its mitigation. This study has set to establish the approaches to managing solid
5 waste and evaluate their effectiveness in a sample of hotels in Lagos. To this end, it has
6 applied the method of in-depth, semi-structured interviews with 17 hoteliers to reveal the
7 role of organisational (managerial and staff attitudes, corporate policies), institutional
8 (governmental policies) and consumption market related (consumer attitudes) factors in
9 shaping the scope of solid waste mitigation. The interview results have demonstrated that
10 Lagos hotels do very little to mitigate solid waste generation. This was attributed to the
11 insufficient support received from the government, but also to the disinterest of hotel
12 guests, managers and employees in environmental conservation. To improve the quality of
13 solid waste management in Nigerian hotels, it is necessary to raise environmental
14 commitment of managers and improve environmental awareness of guests and staff.
15 Governmental involvement is required in the form of educating hotel guests and providing
16 environmental training and 'green' incentives to hoteliers.

17

1 **Keywords**

2 Environmental impact; solid waste management; hotel; developing economy; Africa;

3 Nigeria

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1 **Highlights**

- 2 • Approaches to solid waste management are explored in a sample of Lagos hotels
- 3 • Extensive waste disposal practices dominate while prevention is not prioritised
- 4 • Lack of governmental support and low environmental awareness of consumers are
- 5 the prime reasons
- 6 • Managerial action framework to optimise solid waste management is proposed

7

1. Introduction

Although hotels generate disproportionate amounts of solid waste (Arbulu *et al.* 2015), the scope and the scale of related research remain limited (Mateu-Sbert *et al.* 2013). Past studies have focused on the quantification and characterisation of solid waste generated by hotels (Radwan *et al.* 2012) whilst approaches adopted by hoteliers to its management have been examined to a much lesser extent (Pirani and Arafat 2014). This shortcoming is particularly pronounced in the context of hotels in developing countries (Singjai *et al.* 2018) where a steady growth of international and domestic tourism brings about substantial wastage (Myung *et al.* 2012). The lack of understanding of how/why solid waste occurs and is subsequently managed in the hotel sector of developing countries hampers progress of their national economies towards the goal of environmental sustainability (Filimonau *et al.* 2020).

Solid waste management (SWM) constitutes an integral element of environmental strategies in hotels which aims to: 1) understand the drivers of solid waste generation; 2) identify (internal and external) stakeholders to be engaged in prevention and reduction; and 3) comprehend the determinants of successful mitigation (Pirani and Arafat 2014). Effective SWM is critical for hotels as it can affect corporate reputation (Filimonau and de Coteau 2019), operational profit (Papargyropoulou *et al.* 2016), market competitiveness and customer loyalty (Pirani and Arafat 2016). Hotel managers represent an important stakeholder of SWM in hotels (Park *et al.* 2012) as the success of SWM adoption can be influenced by such socio-demographical characteristics of managerial staff as their educational and functional background, but also by personal attitudes of hotel managers towards sustainability (Goll and Rasheed 2005). Managerial support is therefore paramount for the effective adoption of SWM practices in hotels (Bohdanowicz *et al.* 2011).

To-date, SWM practices in hotels have primarily been studied from the perspective of developed economies (Manomaivibool 2015). A limited number of studies have looked at SWM practices adopted in hotels in Africa (Mensah 2020) which is an important drawback given that the African context is substantially different from the context of other countries. Low living standards; insufficient levels of public environmental awareness; lack of resources; and poor governance prevent effective SWM in Africa (Mensah 2014). More research is therefore necessary to understand the SWM practices adopted by hotels in specific African countries and how these can be improved (Mensah and Blankson 2013).

Nigeria is a large developing economy and the most populous country in Africa with circa 180 million residents (Mbachu and Alake 2016). Tourism plays an important role in the Nigerian economy as it catalyses economic growth and represents an industry of strategic and highly profitable business investment (Aniah *et al.* 2009). The on-going tourism development in Nigeria has accelerated solid waste generation whose management remains, however, under-studied (Mbah and Nzeadibe 2017).

With its 15 million residents, the Lagos State is the 4th most populated city in the world (Oyeniyi 2011). It is forecasted that Lagos will permanently accommodate 25 million residents by 2025 with further 5 million people commuting to the State on a daily basis (Olusola and Ikorodu 2016). The important role of tourism in the local economy of Lagos has been acknowledged (Akinyemi and Oduntan 2014) and the tourism industry has been identified as a major revenue earner of the State (Fattah and Fasinro 2017). This is reflected in a steady growth of the local hotel market: since 2003, in terms of the total number of hotel rooms available, the hotel sector in Lagos has increased almost fivefold and its further rise is anticipated (Olusola and Ikorodu 2016). In 2015 the Lagos State was home to 1,164 hotels (Lequte 2015) which represented almost a quarter of the hotel market

in Nigeria. Most of these hotels were chain-affiliated, but the share of independent hotel brands was also significant (Nwosu 2016). In terms of size, most hotels were medium-to-large but small hotels occupied a sizeable portion of the market (Nwosu 2016). Solid waste generation is a key challenge for Lagos and tourism holds a stake in its acceleration (Chikwendu *et al.* 2019).

No research has attempted to-date to shed light on the SWM practices adopted by hotels in Lagos, thus hindering an understanding of how the growing challenge of solid waste generation is tackled by hoteliers. This paper aims to at least partially plug this knowledge gap by exploring SWM in a sample of Lagos hotels. It is hoped that this study will spark subsequent research on solid waste and its management in the hotel sector of Lagos, and other cities of Nigeria, thus prompting an understanding of how SWM in hotels can be improved.

Drawing upon the conceptual framework proposed by Guerrero *et al.* (2013) which highlights the particular complexity of SWM when applied in the context of developing countries, this study has set to answer the following research questions:

1. How big is the challenge of solid waste generation in the Lagos hotels and how is it managed on the ground?
2. What are the main, internal and external, facilitators and inhibitors of SWM in the Lagos hotels?
3. What measures need to be applied to facilitate more effective SWM practices in the Lagos hotels?

2. Methods and materials

To achieve the aim of this study, a qualitative research paradigm was adopted. Despite a known issue of limited generalisability and restricted representativeness of its outcome, qualitative research is best suited for exploratory studies of the phenomena that

1 have been under-researched (Moriarty 2011). This is to build an initial understanding of
2 the issue under review, which can subsequently be conceptualised and investigated in
3 depth by applying a quantitative research paradigm (Veal 2006). Qualitative research fits
4 the scope of this project as no prior study of SWM in Nigerian hotels has been undertaken.
5 Qualitative research is best used when reaching for audiences whose population is limited
6 and that are difficult to recruit (Ellard-Gray *et al.* 2015). The difficulties in accessing
7 managers in general, and hospitality managers in particular, have been recognised
8 (Poulston and Yiu 2010), which further justifies the choice of a qualitative research
9 paradigm for this study. Lastly, earlier studies have revealed that quantitative surveys
10 adopted for investigation of certain sensitive issues in business operations, such as
11 environmental management practices, tend to be inconclusive which is attributed to low
12 response rates achieved, ambiguous responses provided or social desirability biases
13 recorded (Kelley *et al.* 2003). Hence, this project has opted for a qualitative research
14 paradigm to study SWM practices in hotels in the Lagos State of Nigeria. This is in line
15 with previous studies on SWM in hotels conducted in the context of developed economies
16 that have all used qualitative methods for primary data collection and analysis (see, for
17 example, Erdogan and Baris 2007; Radwan *et al.* 2010; Radwan *et al.* 2012).

18 Within the portfolio of qualitative research instruments, semi-structured interviews
19 were chosen due to their proven methodological robustness and flexibility (Snape and
20 Spencer 2003). An interview schedule was devised based on the outcome of the literature
21 review. It incorporated the following main themes: the magnitude of solid waste
22 generation in hotels; environmental management initiatives adopted in hotels (generic and
23 those related to SWM); perceived impacts of adopting effective SWM practices in hotels;
24 opportunities and challenges of SWM in hotels; the role of stakeholders. Any new themes

that were emerging from interviews were integrated into the interview schedule and the schedule was regularly revised to maintain relevance and currency.

For recruitment, purposive sampling was adopted. Purposive sampling necessitates the use of personal judgements in the selection of suitable cases that will best meet the research scope and objectives (Saunders *et al.* 2009). Participants were recruited from among managers of hotels in Lagos. The selection criterion was that willing participants would be managers dealing with SWM practices in their hotels on a regular basis who would be able to elaborate upon their perception of the determinant factors for the SWM adoption in their hotels. The hotel sector is highly diverse and represented by accommodation facilities of different sizes, affiliation and comfort categories, which have been found to impact the success of environmental management initiatives applied within the sector (Rivera 2004). This holds true for the Lagos State and, hence, a sample of hotels which is broadly representative of the different segments of the local hotel market as described by Nwosu (2016) was sought (Table 1). For the maximum breadth of managerial opinions, every effort was made to ensure the sample contains the main hotel categories in terms of comfort (budget-upmarket-luxury), size (small to large) and affiliation (chain or non-chain affiliated). Furthermore, given that the socio-demographic profile of managers affects the success of environmental management programmes in hotels (Goll and Rasheed 2005), interview participants were purposefully recruited to represent major socio-demographic characteristics of the managerial population of hotels in Lagos in terms of gender, age, educational level and managerial experience (Table 1).

1 Table 1. Interview participants (n=17).

Pseudonym	Gender	Approx. age	Education level Degree = University degree	Hotel type	Hotel size Small (< 50 rooms) Medium (51-100 rooms) Large (> 100 rooms)	Chain-affiliated?	Experience in a managerial role + Limited (< 2 years) ++ Medium (2-5 years) +++ Extensive (> 5 years)
Emiola	Male	In their 40s	Below Degree level	Upmarket	Large	Yes	+++
Jeff	Male	In their 40s	Degree and above	Luxury	Medium	No	+++
Yomi	Female	In their 30s	Degree and above	Upmarket	Large	Yes	++
Charity	Female	In their 30s	Below Degree level	Luxury	Medium	Yes	++
Christian	Male	In their 40s	Degree and above	Luxury	Medium	Yes	+++
Emeka	Male	In their 40s	Degree and above	Upmarket	Large	Yes	++
Mary	Female	In their 20s	Degree and above	Budget	Small	No	++
Faramade	Female	In their 40s	Below Degree level	Luxury	Medium	No	+++
Thomas	Male	In their 20s	Degree and above	Luxury	Medium	No	+
Levi	Male	In their 30s	Below Degree level	Upmarket	Large	Yes	++
Clinton	Male	In their 30s	Degree and above	Budget	Small	No	+
Moses	Male	In their 20s	Below Degree level	Budget	Small	No	++
Sandra	Female	In their 20s	Below Degree level	Budget	Small	No	+
John	Male	In their 40s	Below Degree level	Upmarket	Medium	No	+++
Frederick	Male	In their 40s	Below Degree level	Budget	Medium	No	++
Clair	Female	In their 30s	Degree and above	Luxury	Medium	Yes	++
Emily	Female	In their 30s	Degree and above	Upmarket	Medium	Yes	++

Interviews were conducted in July-August 2016 and then again in January-February 2017 which was due to poor response rate to the first wave of interviews. In total, 17 participants were recruited and this number was determined by the ‘saturation’ effect (Guest *et al.* 2006). This effect was detected through the application of iterative analysis and interviewing was drawn to a close after no new themes were found to be emerging from the material collected. Table 2 shows the frequency of occurrence of specific codes/themes in interview transcripts. The effect of ‘saturation’ can be observed with the higher pattern of frequency of responses. Marshall *et al.* (2013) argues that ‘saturation’ is usually achieved with 10-30 interviews and this study fits into this range. Interviews lasted between 25 and 60 minutes; they were conducted in English, recorded and subsequently transcribed. No financial incentives were offered.

Table 2: The coding structure with themes and sub-themes. The two very right columns show 1) the number of text passages assigned to each sub-theme (N) and 2) the proportion of participants (in %) who raised a particular theme in interviews.

Themes	Sub-themes	Total	
		N	%
Managerial commitment	Poor managerial knowledge on the environmental repercussions of solid waste generation in hotels	15	88
	Lack of understanding of the waste management hierarchy and its benefits for a hotel	12	71
Role of the government	Weak public solid waste collection system	17	100
	Poor financial incentives / Disincentivisation	13	76
Role of staff and customers	Poor consumer awareness of the issue of solid waste generation	16	94
	Staff disengagement	10	59

The study adopted thematic theory for data analysis, which represents the most popular approach to analyse and interpret the outcome of semi-structured interviews (Braun and Clark 2006). Analysis started with transcribing, reading through the text and coding the data. Relevant data were then identified and categorised into different segments (Creswell 2009). These segments were then labelled with the terms that describe the data

on the different levels of abstraction. Table 2 presents the coding structure devised for this study. Open coding of sentences and phrases were drawn from the transcribed interviews, from which three main themes emerged. Verbatim quotations were employed to support selection of the themes.

3. Results and discussion

3.1. Managerial commitment

The interviews began with probing questions designed to understand the significance of the issue of solid waste generation for the Lagos hotels. All managers agreed that their hotels generated substantial wastage where solid waste, in particular food waste, constituted a main fraction. Despite the probes made, hoteliers were unable to provide accurate assessments of the quantities of solid waste produced on their premises. Instead, the challenges of solid waste generation were described in qualitative terms, such as ‘large’, ‘substantial’ and ‘significant’. This is in line with Filimonau *et al.* (2019) who found that precise waste estimates are not always available among hospitality managers as other operational issues are deemed to be of more importance. Managing hotel’s solid waste in Lagos was considered a routine operational burden and most hotels dealt with it on an ad-hoc and ‘when and if required’ basis, without integrating it into established corporate policies.

The lack of environmental commitment among managers was identified as a determinant of ineffective SWM in hotels in the Lagos State. In part, this was driven by poor managerial knowledge about the environmental repercussions of solid waste generation which is in line with Guerrero *et al.* (2013). Businesses need to understand how their operations affect the environment, but the lack of environmental education often hinders pro-environmental intentions of hotel administration (Simpson *et al.* 2004). Imam *et al.* (2008) posit that public recognition of solid waste generation in Nigeria is limited

and governmental efforts to increase consumer and business awareness of solid waste are insufficient. Drawing upon Bohdanowicz (2006), it is argued that, to enhance managerial commitment to adopt effective SWM practices in the Lagos hotels, it is important for the national government in Nigeria to improve public environmental awareness by designing targeted awareness-raising and educational campaigns:

'You know, it does not make sense if there are over a thousand hotels in the state and only a few hotels are spending their money on the environment while others are not. There needs to be a tip of education or awareness raising programme given to all hotel owners, managers and prospective investors on why it is important and profitable for them to actually care about the environment and reduce waste generation' (Levi)

Most participants claimed to prioritise other business matters, such as profit-making, human resource management and customer service over implementing environmental management programmes, including SWM which is in line with Kasavan *et al.* (2019). The lack of resources is a known inhibitor of SWM (Guerrero *et al.* 2013), but this issue is particularly pronounced in the hotel sector given the small-to-medium size of many hospitality enterprises. Limited resources are therefore a major off-putting factor for hotels to engage in environmental conservation (Leonidou *et al.* 2013). The issue persists across the sector, but is particularly pronounced in developing countries where hotel managers are foremost concerned with short-term profits for the purpose of meeting business objectives and satisfying shareholder expectations, while other aspects of business operations are often left unattended (Mensah 2020). This is well articulated by Mary:

1 *'Hotels have many things to invest in and protecting the environment might*
 2 *not therefore be their priority. The management have to spend their time*
 3 *thinking about how to maintain the hotel, how to increase the quality of*
 4 *room service and make profit, thinking about how to train and pay their*
 5 *staff. So, they do not want to create another challenge and headache by*
 6 *thinking how to implement and maintain the environmental management*
 7 *measures in the hotel, no'*

8
 9 As a result, with two exceptions discussed below, the sample hotels did not have any
 10 environmental policies, let alone the SWM policies, in place. The positive impact of
 11 sustainability interventions in hospitality enterprises on business profitability (Nicholls and
 12 Kang 2012), employee engagement (Chou 2014), consumer satisfaction (Lee *et al.* 2010)
 13 and public image (Dimara *et al.* 2017) has long been recognised, but these benefits do not
 14 look obvious to the Lagos hotels. By highlighting the advantages of environmental
 15 conservation in hotels and showcasing good business practices in its implementation, the
 16 national government can contribute to the development of sound SWM programmes in the
 17 hotel sector of Nigeria. Academic research should supplement these governmental efforts
 18 by demonstrating the benefits of adopting SWM in hotels, drawing upon good business
 19 practices from developed and developing countries, especially those in Africa.

20 Next to insufficient managerial commitment to sustainability, limited knowledge and
 21 understanding of the waste management hierarchy and how it can be implemented in
 22 hotels was identified as a barrier. This is in line with studies conducted in both developed
 23 (Radwan *et al.* 2010) and developing countries (Pirani and Arafat 2014), which suggests
 24 its 'universal' significance. Most hoteliers did not know the exact volume and the precise
 25 character of the solid waste generated on their premises and no separation and recycling

were undertaken on-site. Waste audit is a basic step towards the design of SWM in hotels (Camillieri-Fenech *et al.* 2020), but it does not exist in the Lagos hotels where managers tend to assign a basic financial value to the amount of waste generated, rather than to know its size and composition:

‘OK, we know what volume of waste we produce, but it is not measured. I mean it is measured by erm... a number of big rubbish bins. So, on a weekly basis, waste collection company comes to carry away not more than four rubbish bins. So, anytime it is more than four, we have to pay, they will charge us more. But do I know the capacity of those bins? No, I do not. But there is a certain amount. And once you have exceeded that amount, then you have to pay extra charges, this is the only thing that matters to me’
(Moses).

Prevention is at the top of the waste management hierarchy (Papargyropoulou *et al.* 2016) and, among other measures, can be facilitated by ‘green’ procurement. Most participants agreed that the ‘green’ product market was non-existent in Nigeria and considered the product price and its quality as the only determinants of hotel’s purchasing decisions. Some hotels did not buy ‘green’ products deliberately as they feared that these would be too expensive and of low quality, and might subsequently damage consumer experience and the hotel image. This is in line with Revell and Blackburn (2007) who argue that product quality and price are the most important drivers of business procurement with recycled products being viewed negatively due to their association with a lower quality and a higher cost.

A probe was made into the opportunities that exist in the Lagos hotels to prevent on-site solid waste generation in an attempt to reduce the amount prepared for collection, thus minimising the collection costs. All managers were positive about the minimisation of the solid waste flows but did not see much scope for managerial intervention here. Practical examples of managerial actions that could enhance SWM in hotels include, among others: reducing plate size in hotel restaurants (Kallbekken and Sælen 2013), reusing textiles and toiletries (Legrand *et al.* 2016) and offering ‘doggy bags’ to restaurant customers (Sirieix *et al.* 2017). Consumer behaviour was blamed for the generation of excessive amounts of solid waste in the Lagos hotels while implementing operational changes to ‘nudge’ more responsible consumer behaviour was rejected for financial reasons. Similar observations are made by Radwan *et al.* (2012) in the context of a developed country, which indicates that this problem persists globally:

‘Well, it is difficult to say how we can pro-actively minimise waste. You can only do that here when the hotel has a policy. A policy that says that lodgers cannot go outside and buy food or drink and bring it inside the hotel. But we do not have such a policy. So, you can go out and buy whatever, because you do not want to eat at the hotel as it is expensive. You are generating waste and we cannot control that, because you have paid for your room and there is no policy like that’ (Sandra)

The waste management hierarchy prioritises reuse over disposal (Papargyropoulou *et al.* 2016) and there are numerous opportunities for hotels to reuse solid waste (Phu *et al.* 2019). Most managers acknowledged the substantial potential of reuse and claimed to occasionally make use of this approach. Toiletries were reused by many and some donated

1 obsolete in-room electronics and furniture to staff. As the theme of donation emerged, a
 2 probe was made into donating unsold and excess food from hotel restaurants to the people
 3 in need, a topic which has attracted substantial attention in Europe to-date (Filimonau and
 4 de Coteau 2019). Some managers agreed it would be a feasible practice but all were
 5 concerned about the health and safety implications of food donations to the public.
 6 Governmental intervention was called for to facilitate the process of food donation for the
 7 Lagos hotels by simplifying the national legal system in terms of health and safety
 8 liabilities. This underlines the critical role of national government as an important
 9 facilitator of effective SWM practices across all economic sectors (Guerrero *et al.* 2013).

10 When a product cannot be reused, it should be recycled (Papargyropoulou *et al.*
 11 2016). Most participants did not engage in recycling as no recycling facilities were
 12 available in Lagos, which is in line with Kofoworola (2007). On-site recycling was not
 13 considered feasible due to high operational costs and space constraints. Irresponsible
 14 consumer behaviour also played a role in the limited adoption of recycling with some
 15 managers stating that recycling bins installed in hotel rooms were abused by hotel guests.
 16 Many hotels embraced recycling indirectly as they provided waste bins for inspection to
 17 the street scavengers, known as the ‘diky-diky’ in Nigeria. The scavengers were allowed to
 18 take items from the bin for recycling or resell, thus reducing the cost of waste collection
 19 for hotels:

20
 21 *‘You know, there is actually a recycling bin in our hotel, which I observe*
 22 *people do not really use. They think, oh, there is a recycling bin, so what?*
 23 *Even if they put the right waste into certain holes, they know that beyond*
 24 *that it is not going anywhere to be processed, so what is the point?’*

25 (Emiola)

1
2 *'Recycling... I do not think it is our work, but there are local people around*
3 *in charge of that. We call them the "diky-diky". The diky-diky are in charge*
4 *of plastics, any refuse plastics. Maybe you are not financially buoyant and*
5 *your bath has a leakage. Then you call them to help you patch it. People of*
6 *their calibre are in charge of plastics, iron, bottles here. So, when we put*
7 *the trash bin out and these people are passing by, they take some things out.*
8 *That is the only thing they use as their source of living here'* (Clinton)

9
10 Landfilling is a major method for solid waste disposal in Nigeria and the least
11 preferred option in the waste management hierarchy (Papargyropoulou *et al.* 2016). Most
12 Nigerian businesses discharge their solid waste to landfills (Kofoworola 2007) which was
13 confirmed in this study. In the Lagos State, municipal solid waste is also treated by open
14 incineration, which imposes detrimental effects on local air quality (Kofoworola 2007).
15 Most hotels were aware about these waste disposal methods and expressed certain
16 concerns over their environmental repercussions for the locals. Hotels did not associate the
17 growing environmental footprint of the Nigerian hotel sector with their own business
18 operations, especially with the amount of solid waste generated on their premises. This
19 was a logical consequence of having no corporate or government-reinforced environmental
20 policy in place for the majority of hotels in Nigeria.

21 In contrast, two managers in the sample demonstrated better environmental
22 knowledge and stronger environmental commitment, which was reflected in the dedicated
23 environmental policies adopted by their hotels. Waste minimisation was an integral
24 element of these policies and both hoteliers claimed to have conducted regular waste audits
25 and implemented SWM practices. This confirms Sourvinou and Filimonau (2018) who

posit that a corporate environmental policy is a cornerstone of effective environmental management programmes in hotels as it demonstrates the shareholder and managerial commitment to reduce the environmental repercussions of business operations. Both hotels with dedicated SWM practices were upmarket and chain affiliated hotels. This is in line with Chan (2008) who argues that budget hotels lack resources which hinders their engagement with sustainability interventions.

3.2. The role of the government

Implementation of sustainability interventions in hotels should be supported by the national government and local authorities (Pirani and Arafat 2014). National institutions of power are a key stakeholder in SWM in developing countries (Guerrero *et al.* 2013) and, in this study, the lack of support from the Nigerian government was seen as a major barrier towards the adoption of effective SWM practices in the Lagos hotels. The key shortfalls were attributed to the inefficient solid waste collection system and financial (dis)incentivisation of business engagement with SWM.

Most participants agreed that the public system for solid waste collection in Lagos was poorly organised due to immature environmental legislation and ineffective implementation of national environmental policies. This confirms Idowu *et al.* (2011) who recognise the need for the reinforcement of the environmental planning and management measures in Nigeria, including in the area of SWM. Formerly, the Lagos hotels were allowed to use private solid waste carriers, known as the “aboki”, but this practice was banned by the government as private companies were dumping solid waste in any location of their choice, thus having significant implications for the local ecosystems and public health (Onwughara *et al.* 2010). However, private solid waste carriers were cheaper and more reliable compared to the newly introduced public collection service provided by the local authorities. Managers of large hotels that generated substantial volumes of solid

waste on a daily basis were particularly apprehensive towards the new practice because they were charged on a ‘per bin’ basis. Besides high costs, most hotels mentioned infrequent and irregular pickups as the shortfalls of public waste collection service. Obsolete, unsafe and aesthetically unpleasant waste collection vehicles were also raised as an issue. This supports Gladding (2002) who refers to the under-developed and poorly maintained infrastructure as a key challenge to implement SWM in Africa. This is a logical implication of capital shortage (Ogu 2000) while effective SWM requires steady funding (Abila and Kantola 2013). Because of these drawbacks, some hotel managers claimed to still be using private waste carriers or bribing public collectors in an attempt to reduce their business operational costs:

‘You know, in the Lagos State, there is no real organised waste collection thing. I had an issue with them, actually, because they come just, like, twice a week but charge a lot. You cannot come to a hotel to carry waste twice a week and expect us to pay you seventy-two thousand naira [£188] a month, it is no good! Instead, I will be daily paying 2,400 [£6] to the aboki so that they come to carry the waste when and if required... So, it is [public solid waste collection] expensive and it is not properly organised. It is not even done twice a week as you often come to the street and you see dustbins everywhere. That is why everywhere is dirty. And if you call them, and tell them, hey, this place has filled up, you are supposed to have come on Monday and you did not, so what happens, they will say erm... our motor broke down, for example, or erm... we do not have enough fuel. And whether they carry it [waste] or not, we pay them!’ (Yomi)

Next to optimising the cost-effectiveness and improving the quality of public solid waste collection services, the Nigerian government should incentivise hotels that are willing to engage in SWM. Sustainability interventions in hotels necessitate significant initial investments while the return is relatively low and largely long-term (Chan 2008). As the sector is made up by small-to-medium, usually independent enterprises, hotel managers have limited resources and often fail to implement SWM despite possible managerial commitment (Chan and Hawkins 2010). Dedicated financial support mechanisms (for example, interest-free loans or loans with a low interest rate) are necessary to incentivise the Lagos hotels and enable investments in SWM. Lastly, given the growth of business travel in Nigeria, the national government could facilitate competition among hotels for the right to accommodate civil servants who travel for business. This competition can be underpinned by environmental considerations and only those hotels can be contracted that have effective SWM practices implemented. Hotels can also be selected based on their environmental credentials as demonstrated by eco-label awards and environmental management certification (Chan 2008). In particular, external recognition, such as the ‘Africa’s Leading Green Hotel Award’ (World Travel Awards 2018) can be employed as a tool to enhance managerial commitment towards implementing more effective SWM practices. Such prestigious, cross-boundary, awards can prompt hotels in Lagos to invest in SWM as external recognition holds significant potential to improve corporate reputation in Nigeria, but also internationally, and to showcase managerial effectiveness:

‘We operate in such a tough environment where there is little support from the authorities, at all three levels, federal, state, local. They just see hotels as a source of revenues from taxes. There is no support from the government. We are in business and for us the priority is to make profit, pay

1 *the bills and pay the salaries. So, prioritising the environment is difficult*
 2 *because we do not get any help from their [government] side. Their mind is*
 3 *just on increasing taxes and catching the revenues, not on saving the*
 4 *environment’ (Jeff)*

5
 6 To summarise, the crucial role of the national government in Nigeria is seen
 7 in showcasing to local hoteliers the benefits of implementing effective SWM
 8 practices. For example, tangible evidence of financial savings and political
 9 preferences that the hotels can achieve should they engage in solid waste
 10 separation, recycling, and composting should be provided. The national
 11 government in Nigeria should reinforce environmental regulations to ensure they
 12 meet the expectations of the hotels regarding solid waste collection and recycling
 13 practices. Without strong and consistent governmental support, any SWM related
 14 initiatives undertaken by hoteliers are unlikely to succeed and sustain.

15 **3.3. The role of staff and customers**

16 *3.3.1. Staff*

17 Employees play a critical role in implementing sustainability interventions in
 18 companies (Sourvinou and Filimonau 2018). Employees can further be positively affected
 19 by hotel’s environmental initiatives through a so-called ‘spill-over’ effect, thus underlining
 20 the importance of staff as a key stakeholder for effective SWM (Guerrero *et al.* 2013).
 21 Hotel managers should therefore engage staff in environmental management programmes
 22 and ensure that employees understand and actively partake in hotel’s sustainability actions
 23 (Kim and Choi 2013). Long-term operational commitment to sustainability in hotels can
 24 only be achieved when managers and staff share corporate pro-environmental vision
 25 (Govindarajulu and Daily 2004).

Many managers saw staff as a barrier towards the implementation of effective SWM practices in hotels. This was attributed to low environmental awareness of employees and to the lack of environmental management training provided in-house. This supports Sharma (2000) who posits that hotel staff do not always embrace SWM practices due to insufficient knowledge of the benefits they bring and because of the fear that SWM may impose extra work. Bohdanowicz *et al.* (2011) show that financial incentives are positively correlated with pro-environmental commitment of hotel employees and can facilitate staff participation in environmental management programmes. When probed on managers, the idea was rejected by all hotels for financial reasons. Same argument was used by managers when explaining why no environmental management training was provided to staff.

The lack of internal and external expertise on SWM in hotels which hampered employee training on how SWM should be implemented was also noted. The effective adoption of environmental management programmes in hotels requires investment in staff training to enhance employee environmental knowledge and build commitment (Dias-Angelo *et al.* 2014). It is therefore important that the Lagos hotels understand the value of environmental training and allocate dedicated budgets for SWM training of staff. The Nigerian government can assist by providing expert advice and offering qualified coaching service. Managerial workshops can be organised by the government free-of-charge and the international experts in sustainability can be invited to share their experience with Nigerian hotels:

‘...Trust me, training for things like waste management is not a factor here. But do not get me wrong, the staff appreciate the investment when they’re trained for customer service, when they are trained for, you know, those things that can directly impact on their job. But for the peripheral things,

1 *such as waste management, it will not make much of a difference. It will be*
 2 *too expensive and there is no expertise, be it within the hotel or among the*
 3 *government’ (Christian)*

4 5 3.3.2. Customers

6 Evidence suggests that consumer environmental awareness is gradually growing
 7 around the globe, which is reflected in the increased willingness of hotel guests to embrace
 8 more environment-benign products and services during their stay (Bruns-Smith *et al.*
 9 2015), appraise early industry adopters of sustainability initiatives (Fraj *et al.* 2015) and
 10 pay a premium for responsible practices in hotels (Dimara *et al.* 2017). There are however
 11 significant geographical variations in the level of customer engagement with pro-
 12 environmental initiatives in hotels (Pirani and Arafat 2014). In Nigeria, public
 13 environmental awareness is low and there is a widespread cultural belief that solid waste
 14 represents a useless and invaluable material which cannot be recycled or reused (Abila and
 15 Kantola 2013). According to Karatu and Mat (2015), this cultural vision of waste drives
 16 irresponsible public attitudes and is depicted in excessive street littering in Nigeria.
 17 Consumer attitudes can therefore affect the success of the SWM adoption in Nigerian
 18 hotels and the important role of consumers outlined by (Guerrero *et al.* 2013) was tested in
 19 this study.

20 Most participants viewed customers as a hindrance towards the SWM adoption. This
 21 was partially attributed to the low levels of public environmental awareness in Nigeria. In
 22 part it was also due to managerial unwillingness to compromise hotel guest comfort. This
 23 is in line with the literature, which argues that hotels often tend to shift environmental
 24 responsibility from themselves to consumers, thus ignoring the important role played by

hospitality businesses in ‘nudging’ and architecting more responsible customer behaviour (Filimonau and Krivcova 2017).

One manager viewed consumers in a positive light and as a driver of potential pro-environmental change in hotel operations. However, it was an opinion of a luxury, chain-affiliated hotelier catering for international tourists and the representatives of the Nigerian ‘middle class’. This indicates that upmarket and luxury hotels can become the ‘role models’ in driving the SWM implementation in Nigeria, subject to the corporate and governmental reinforcement as outlined in sections 3.1 and 3.2. The Nigerian government should educate tourists about the environmental repercussions of their consumer decisions, thus aiding hotels in their quest towards sustainability:

‘Well, there are middle class local and international people in our hotel and they are people who are more exposed to these interventions [SWM]. I think they would actually welcome these interventions. These are the people who travel, who have seen these things in action in other, more advanced countries, and they would probably like to see these here as a term of further development. So, if there is right equipment invested in and sufficient public knowledge, I see no reason why people would not participate [in SWM practices]’ (Charity).

3.4. Facilitating more effective SWM practices in the Lagos hotels

Managerial interviews enabled the design of an action framework for the adoption of more effective SWM practices in the Lagos hotels (Figure 1). The framework consists of four managerial action blocks underpinned by pro-active corporate and governmental

policies. Managerial commitment to a long-term SWM programme in a hotel represents a cornerstone of all subsequent actions (Filimonau and de Coteau 2019). Once it has been built, a comprehensive waste audit should be undertaken in a hotel, highlighting the areas for mitigation intervention (Kularatne *et al.* 2019). The intervention measures should be designed based on the waste management hierarchy where solid waste prevention should be prioritised over disposal, where possible (Papargyropoulou *et al.* 2016). The outcome of these intervention measures should be regularly monitored and utilised to enhance the quality of a SWM programme in a hotel (Filimonau *et al.* 2019). Both consumers and staff are instrumental in the success of SWM actions in a hotel and their engagement should be encouraged via dedicated awareness raising campaigns and training (Okumus 2020). The feedback from consumers and staff should be utilised by hotels to enhance the effectiveness of their SWM interventions.

4. Conclusions

This study contributed to knowledge with an exploratory analysis of the approaches to SWM in hotels of the Lagos State, Nigeria. It revealed that the challenge of solid waste generation here was substantial but highlighted limited managerial actions towards its mitigation. The study found that SWM practices in the Lagos hotels were largely extensive and disposal-focused with very limited adoption of the preventative vision. Governmental disinterest in facilitating SWM in Nigerian hotels was reflected in passive corporate environmental policies that, in turn, hindered managerial commitment towards sustainability interventions. Low public environmental awareness and staff disengagement imposed further obstacles. Thus, the contribution of this work to knowledge is in that it is the first study to highlight the main inhibitors of effective SWM in the Lagos hotels and to outline measures required to reduce the impact of these inhibitors.

By exploring a sample of hotels in the Lagos State, Nigeria, the study provided further evidence in support of the conceptual framework proposed by Guerrero *et al.* (2013) which revealed the complexity of SWM when applied in developing countries. In terms of practical contribution, the study showed that, for effective SWM application in the Lagos hotels, integrated stakeholder effort was necessary. Within the pool of stakeholders, the national government should take the lead to improve the quality of the SWM infrastructure in the country as well as to educate consumers and managers. Governmental reinforcement should shape corporate environmental policies, especially in international chain hotels. International chain hotels could then serve as 'role models' to set an example for other Nigerian hotels to follow. Growing environmental awareness of Nigerian consumers could subsequently push the national hotel sector towards the adoption of more environmentally-benign patterns of business operations in an attempt to seize the gradual changes in customer purchasing preferences.

Another practical contribution is in that the study demonstrated that the local hotel associations should aid the Nigerian government in incentivising the adoption of more effective SWM practices in hotels. This aid could take the form of awareness-raising campaigns for hotel managers and in training provision for hotel managers and staff. Local hotel associations could organise regular workshops for hotel managers in Nigeria where foreign speakers (for example, those from Europe and North America) would share their first-hand experience and 'best business' practices in tackling the issue of SWM in hotels. Nigerian hoteliers could subsequently consider how this foreign experience might be adopted for application in the local context.

Whilst the outcome of this exploratory study is most representative of the Lagos hotels in Nigeria, it is argued that it can be utilised by industry professionals and decision-makers in other developing countries within the wider region of Sub-Saharan Africa. The

1 political and socio-economic conditions in this region are fairly homogeneous, thus
2 implying that the determinants of effective SWM could be similar among the region's
3 hotels. When properly adopted to account for the national political and socio-economic
4 circumstances, the managerial action framework proposed in this study can inform
5 managerial and policy-making practice in the neighbouring states of Nigeria, such as
6 Togo, Benin and Ghana.

7

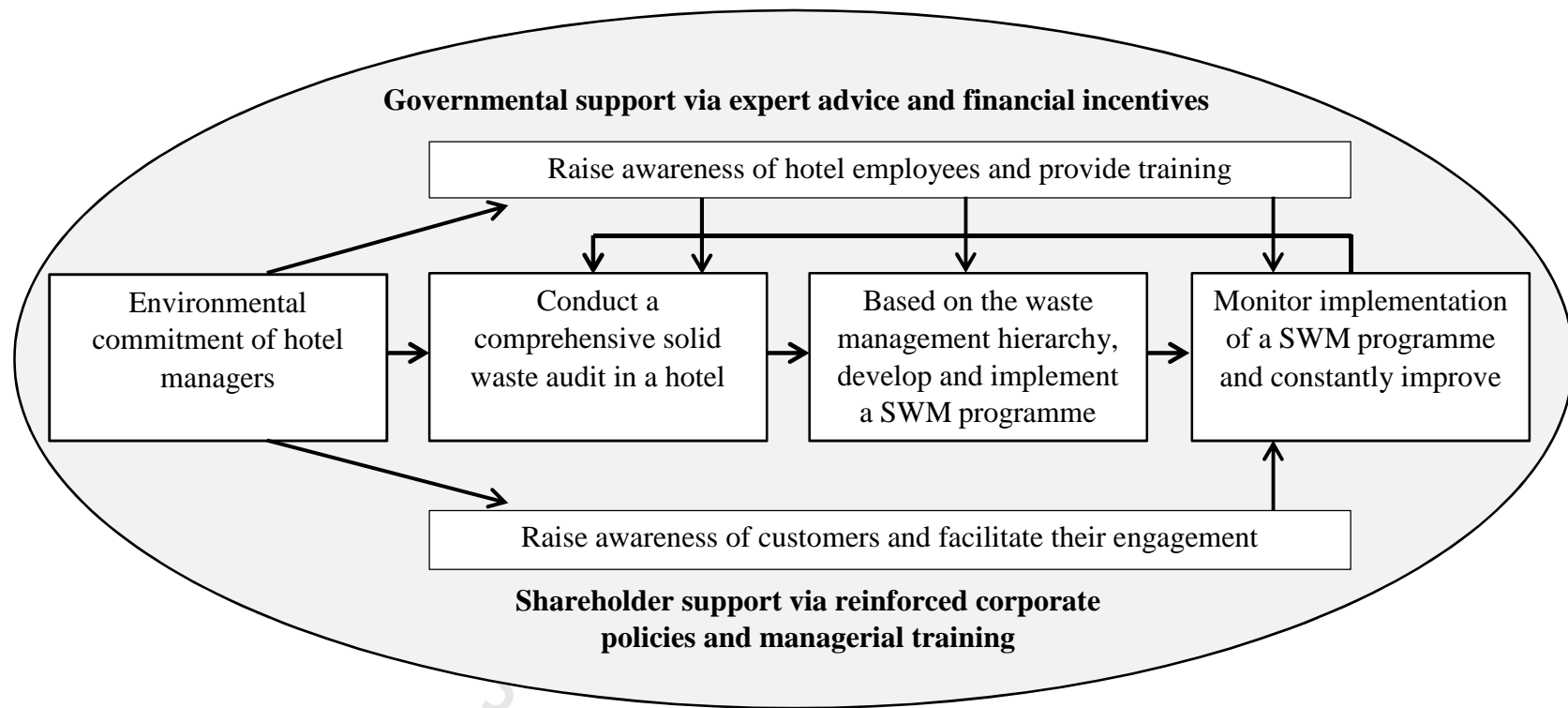


Figure 1. The managerial action framework towards the adoption of more effective SWM practices in Nigerian hotels.

The study revealed a number of promising research avenues. First, given that SWM practices in the hotel sector of developing countries have never been comprehensively assessed, future studies should look into this issue in the context of other emerging economies in Africa, Asia and South America. Such studies should be conducted from both, quantitative and qualitative, research perspectives. Whilst quantitative research would provide data on the amount of solid waste generated in hotels in the above countries, thus highlighting the magnitude of the problem under review, qualitative studies would critically evaluate managerial approaches to its minimisation. The outcome of qualitative research could subsequently be used to inform large-scale, cross-sectoral quantitative managerial surveys. This is to ensure better generalisability and representativeness of results. Comparative analysis with a view to outline ‘best business’ models and assess the feasibility of their adoption in various national contexts should also be conducted. This is particularly important in the context of the emerging concept of the circular economy where managerial attitudes to solid waste minimisation often represent a major driver (and inhibitor) of corporate sustainability agenda. Second, this study indicated that upmarket and chain-affiliated hotels in the Lagos are more advanced in terms of their SWM adoption. Future research should therefore investigate managerial approaches to SWM in the above hotel categories to better understand how this enhanced corporate and managerial commitment could be replicated in budget and independently-owned hotels in Nigeria. Next, future research on the effective adoption of SWM practices in Nigerian hotels should encompass opinions of other stakeholders. Hotel employees, local tourism and environmental policy-makers and hospitality suppliers should be engaged in future discourse on SWM given the important role they play in solid waste prevention and minimisation. In particular, opinions of the government should be heard on how the extant system of solid waste collection, recycling and disposal functions in the Lagos State and how/if its design meets the growing needs of the local hotel sector. Further, voices of the

1 sanitation workers, who deal with the solid waste collection on the ground with subsequent
2 solid waste recycling and disposal, and opinions of the representatives of the local
3 environmental authorities, who reinforce the operation of solid waste collection and
4 disposal practices in Lagos, should be listened to as they hold potential to provide a useful
5 insight into the practical challenges, operational constraints, and functional barriers of
6 SWM implementation in hotels. Lastly, national culture may determine wasteful consumer
7 behaviour. Hence, future research could look into the cultural drivers of solid waste
8 generation in hotels by monitoring the amounts of waste produced by the guests from the
9 different cultural backgrounds and developing appropriate mitigation strategies.

10

References

- Abila, B., and Kantola, J., 2013. Municipal solid waste management problems in Nigeria: evolving knowledge management solution. *In: Proceedings of World Academy of Science, Engineering and Technology*, 78, 292.
- Adedeji, A.A., and Ako, R.T., 2009. Towards achieving the United Nations' Millennium Development Goals: The imperative of reforming water pollution control and waste management laws in Nigeria. *Desalination*, 248(1), 642-649.
- Akinyemi, A.F., and Oduntan, O.O., 2014. Recreation participation and conservation attitudes of tourists and residents of Lagos Mainland, Nigeria. *African Journal of Hospitality, Tourism and Leisure*, 4(2), 1-10.
- Aniah, E.J., Eja, E.I., Otu, J.E., and Ushie, M.A., 2009. Patronage of ecotourism potentials as a strategy for sustainable tourism development in Cross River State, Nigeria. *Journal of Geography and Geology*, 1(2), 20-27.
- Arbulu, I., Lozano, J., and Rey-Maqueira, J., 2015. Tourism and solid waste generation in Europe: A panel data assessment of the Environmental Kuznets Curve. *Waste Management*, 46, 628-636.
- Arbulu, I., Lozano, J., and Rey-Maqueira, J., 2016. The challenges of municipal solid waste management systems provided by public-private partnerships in mature tourist destinations: The case of Mallorca. *Waste Management*, 51, 252-258.
- Bohdanowicz, P., 2006. Environmental awareness and initiatives in the Swedish and Polish hotel industries—survey results. *International Journal of Hospitality Management*, 25(4), 662-682.

- 1 Bohdanowicz, P., Zientara, P., and Novotna, E., 2011. International hotel chains and
2 environmental protection: an analysis of Hilton's we care! programme (Europe, 2006–
3 2008). *Journal of Sustainable Tourism*, 19(7), 797-816.
- 4 Braun, V., and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative*
5 *Research in Psychology*, 3(2), 77-101.
- 6 Bruns-Smith, A., Choy, V., Chong, H., and Verma, R., 2015. Environmental sustainability
7 in the hospitality industry: Best practices, guest participation, and customer satisfaction.
8 *Cornell Hospitality Report*, 15(3), 6-16.
- 9 Camillieri-Fenech, M., Sola, J.O., Farreny, R., and Durany, X.G., 2020. A snapshot of solid
10 waste generation in the hospitality industry. The case of a five-star hotel on the island of
11 Malta. *Sustainable Production and Consumption*, 21, 104-119.
- 12 Chan, E., 2008. Barriers to EMS in the Hotel Industry. *International Journal of Hospitality*
13 *Management*, 27, 187- 196.
- 14 Chan, E.S.W., and Hawkins, R., 2010. Attitude towards EMSs in an international hotel: an
15 exploratory case study. *International Journal of Hospitality Management*, 29(4), 641-651.
- 16 Chan, W.W., and Lam, J., 2001. Environmental accounting of municipal solid waste
17 originating from rooms and restaurants in the Hong Kong hotel industry. *Journal of*
18 *Hospitality & Tourism Research*, 25(4), 371-385.
- 19 Chikwendu, M.U., Uchendu, U.I., and Kanu, C., 2019. Solid Wastes Composition and
20 Generation in Selected Hotels at Aba and Umuahia, Abia State, Nigeria. *Journal of*
21 *Applied Sciences and Environmental Management*, 23(9), 1665-1669.
- 22 Chou, C.J., 2014. Hotels' environmental policies and employee personal environmental
23 beliefs: interactions and outcomes. *Tourism Management*, 40, 436-446.

- 1 Creswell, J.W., 2007. *Qualitative inquiry & research design: Choosing Among Five*
- 2 *Approaches*. 2nd ed. Thousand Oaks, CA: Sage.
- 3 Dias-Angelo, F., Jabbour, C.J.C., and Caderaro, J.A., 2014. Greening the workforce in
- 4 Brazilian hotels: The role of environmental training. *Work*, 49, 347-356.
- 5 Dimara, E., Manganari, E., and Skuras, D., 2017. Don't change my towels please: Factors
- 6 influencing participation in towel reuse programs. *Tourism Management*, 59, 425-437.
- 7 Ellard-Gray, A., Jeffrey, N.K., Choubak, M., and Crann, S.E., 2015. Finding the hidden
- 8 participant: solutions for recruiting hidden, hard-to-reach, and vulnerable populations.
- 9 *International Journal of Qualitative Methods*, 14(5), 1-10.
- 10 Erdogan, N., and Baris, E., 2007. Environmental protection programs and conservation
- 11 practices of hotels in Ankara, Turkey. *Tourism Management*, 28(2), 604-614.
- 12 Fattah, A.A.O., and Fasinro, O., 2017. Association of Lagos State Origin (Nigeria)
- 13 Hamburg e.V. Tourism. Available from: [http://association-of-lagos-state-origin-hamburg-](http://association-of-lagos-state-origin-hamburg-ev.com/contents/tourism)
- 14 [ev.com/contents/tourism](http://association-of-lagos-state-origin-hamburg-ev.com/contents/tourism) [Assessed 5 February 2017].
- 15 Ferri, G.L., Chaves, G.L.D., and Ribeiro, G.M., 2015. Reverse logistics network for
- 16 municipal solid waste management: The inclusion of waste pickers as a Brazilian legal
- 17 requirement. *Waste Management*, 40, 173-191.
- 18 Filimonau, V., and de Coteau, D.A., 2019. Food waste management in hospitality
- 19 operations: a critical review. *Tourism Management*, 71, 234-245.
- 20 Filimonau, V., and Krivcova, M., 2017. Restaurant menu design and more responsible
- 21 consumer food choice: An exploratory study of managerial perceptions. *Journal of*
- 22 *Cleaner Production*, 143, 516-527.

- 1 Filimonau V., Krivcova, M., and Pettit, F., 2019. An exploratory study of managerial
2 approaches to food waste mitigation in coffee shops. *International Journal of Hospitality
3 Management*, 76, 48-57.
- 4 Filimonau, V., Zhang, H., and Wang, L., 2020. Food waste management in Shanghai full-
5 service restaurants: a senior managers' perspective. *Journal of Cleaner Production*, 258,
6 120975. Fraj, E., Matute, J., and Melero, I., 2015. Environmental strategies and
7 organizational competitiveness in the hotel industry: The role of learning and innovation as
8 determinants of environmental success. *Tourism Management*, 46, 30-42.
- 9 Geoffrey, I.N., 2005. The urban informal sector in Nigeria: towards economic
10 development, environmental health, and social harmony. *Global Urban Development
11 Magazine*, 1(1), 1-11.
- 12 Gladding, T., 2002. Health Risks of Materials Recycling Facilities. *Environmental and
13 Health Impact of Solid Waste Management Activities*, 53-72.
- 14 Goll, I., and Rasheed, A.A., 2005. The Relationships Between Top Management
15 Demographic Characteristics, Rational Decision Making, Environmental Munificence, and
16 Firm Performance. *Organization Studies*, 26(7), 999-1023.
- 17 Govindarajulu, N., and Daily, B.F., 2004. Motivating employees for environmental
18 improvement. *Industrial Management and Data Systems*, 104(4), 364-372.
- 19 Guerrero, L.A., Maas, G., and Hogland, W., 2013. Solid waste management challenges for
20 cities in developing countries. *Waste Management*, 33(1), 220-232.
- 21 Guest, G., Bunce, A., and Johnson, L., 2006. How Many Interviews are Enough?: An
22 Experiment with Data Saturation and Variability. *Field Methods*, 18(1), 59-82.

- 1 Idowu, O.B., Omirin, M.M., and Osagie, J.U., 2011. Outsourcing for sustainable waste
2 disposal in Lagos metropolis: Case study of Agege Local Government, Lagos. *Journal of*
3 *Sustainable Development*, 4(6), 116-131.
- 4 Imam, A., Mohammed, B., Wilson, D.C., and Cheeseman, C.R., 2008. Solid waste
5 management in Abuja, Nigeria. *Waste Management*, 28(2), 468-472.
- 6 Kallbekken, S., and Sælen, H., 2013. 'Nudging' hotel guests to reduce food waste as a
7 win-win environmental measure. *Economic Letters*, 119, 325-327.
- 8 Karatu, V.M.H., and Mat, N.K.N., 2015. Predictors of green purchase intention in Nigeria:
9 The mediating role of environmental consciousness. *American Journal of Economics*, 5(2),
10 291-302.
- 11 Kasavan, S., Mohamed, A.F., and Halim, S.A., 2019. Drivers of food waste generation:
12 Case study of island-based hotels in Langkawi, Malaysia. *Waste Management*, 91, 72-79.
- 13 Kelley, K., Clark, B., Brown, V., and Sitzia, J., 2003. Good practice in the conduct and
14 reporting of survey research. *International Journal of Quality in Health Care*, 15(3), 261-
15 266.
- 16 Kim, S-H., and Choi, Y., 2013. Hotel Employees' Perception of Green Practices.
17 *International Journal of Hospitality and Tourism Administration*, 14(2), 157-178.
- 18 Kofoworola, O.F., 2007. Recovery and recycling practices in municipal solid waste
19 management in Lagos, Nigeria. *Waste management*, 27(9), 1139-1143.
- 20 Kularatne, T., Wilson, C., Mansson, J., Hoang, V., and Lee, B., 2019. Do environmentally
21 sustainable practices make hotels more efficient? A study of major hotels in Sri Lanka.
22 *Tourism Management*, 71, 213-255.

- 1 Lee, J.S., Hsu, L.T., Han, H., and Kim, Y., 2010. Understanding how consumers view
2 green hotels: how a hotel's green image can influence behavioural intentions. *Journal of*
3 *Sustainable Tourism*, 18(7), 901-914.
- 4 Legrand, W., Sloan, P., and Chen, J.S., 2016. *Sustainability in the hospitality industry.*
5 *Principles of sustainable operations*. Routledge, Oxon.
- 6 Leonidou, L.C., Leonidou, C.N., Fotiadis, T.A., and Zeriti, A., 2013. Resources and
7 capabilities as drivers of hotel environmental marketing strategy: Implications for
8 competitive advantage and performance. *Tourism Management*, 35, 94-110.
- 9 Lequte, 2015. *Business [LIST] Nigerian States with the Highest Number of 5 Star Hotels.*
10 *Nigerian Bulletin*. Available from: [https://www.nigerianbulletin.com/threads/list-nigerian-](https://www.nigerianbulletin.com/threads/list-nigerian-states-with-the-highest-number-of-5-star-hotels.115770/)
11 [states-with-the-highest-number-of-5-star-hotels.115770/](https://www.nigerianbulletin.com/threads/list-nigerian-states-with-the-highest-number-of-5-star-hotels.115770/) [Accessed 5 February 2017].
- 12 Manomaivibool, P., 2015. Wasteful tourism in developing economy? a present situation
13 and sustainable scenarios. *Resources, Conservation and Recycling*, 103, 69-76.
- 14 Marshall, B., Cardon, P., Poddar, A., and Fontenot, R., 2013. Does Sample Size Matter in
15 Qualitative Research?: A Review of Qualitative Interviews in IS Research. *Journal of*
16 *Computer Information Systems*, 54(1), 11-22.
- 17 Mateu-Sbert, J., Ricci-Cabello, I., Villalonga-Olives, E., and Cabeza-Irigoyen, E., 2013.
18 The impact of tourism on municipal solid waste generation: The case of Menorca Island
19 (Spain). *Waste Management*, 33(12), 2589-2593.
- 20 Mbah, P.O., and Nzeadibe, T.C., 2017. Inclusive municipal solid waste management
21 policy in Nigeria: engaging the informal economy in post-2015 development agenda.
22 *Local Environment*, 22(2), 203-224.
- 23 Mbachu, D., and Alake, T., 2016. Nigeria Population at 182 Million, With Widening
24 Youth Bulge. *Bloomberg*, 8 November 2016. Available from

- 1 <https://www.bloomberg.com/news/articles/2016-11-08/nigerian-population-hits-182->
- 2 [million-with-widening-youth-bulge](#) [Accessed 22 March 2017].
- 3 Mensah, I., 2014. Different shades of green: Environmental management in hotels in
- 4 Accra. *International Journal of Tourism Research*, 16(5), 450-461.
- 5 Mensah, I., 2020. Waste management practices of small hotels in Accra: An application of
- 6 the waste management hierarchy model. *Journal of Global Business Insights*, 5(1), 33-
- 7 46. Mensah, I., and Blankson, E.J., 2013. Determinants of hotels' environmental
- 8 performance: Evidence from the hotel industry in Accra, Ghana. *Journal of Sustainable*
- 9 *Tourism*, 21(8), 1212-1231.
- 10 Moriarty, J., 2011. *Qualitative methods overview*. NHS, London.
- 11 Myung, E., McClaren, A., Li, L., 2012. Environmentally related research in scholarly
- 12 hospitality journals: Current status and future opportunities. *International Journal of*
- 13 *Hospitality Management*, 31, 1264-1275.
- 14 Nicholls, S., and Kang, S., 2012. Going green: the adoption of environmental initiatives in
- 15 Michigan's lodging sector. *Journal of Sustainable Tourism*, 20(7), 953-974.
- 16 Nwosu, B., 2016. A review of the hotel industry in Nigeria: size, structure and issues.
- 17 *Worldwide Hospitality and Tourism Themes*, 8(2), 117-133.
- 18 Okanlawon, S.A., Odunjo, O.O., and Soyibo, O.O., 2015. Challenges of Sustainable
- 19 Environmental Management in Nigeria. *Journal of Economics and Sustainable*
- 20 *Development*, 6(5), 244-252.
- 21 Okumus, B., 2020. How Do Hotels Manage Food Waste? Evidence from Hotels in
- 22 Orlando, Florida. *Journal of Hospitality Marketing & Management*, 29(3), 291-309.

- 1 Olusola, M.O., and Ikorodu, L., 2016. Infrastructure for tourism and hospitality: a tool for
2 employment creation in Lagos State. *Journal of Research in National Development*, 14(1),
3 1-12.
- 4 Onwughara, N.I., Nnorom, I.C., Kanno, O.C., and Chukwuma, R.C., 2010. Disposal
5 methods and heavy metals released from certain electrical and electronic equipment wastes
6 in Nigeria: adoption of environmental sound recycling system. *International Journal of*
7 *Environmental Science and Development*, 1(4), 290-297.
- 8 Oyeniyi, B.A., 2011. Waste management in contemporary Nigeria: the Abuja example.
9 *International Journal of Politics and Good Governance*, 2 (2.2), 1-18.
- 10 Papargyropoulou, E., Wright, J., Lozano, R., Steinberger, K., Padfield, R., and Ujang, N.,
11 2016. Conceptual framework for the study of food waste generation and prevention in the
12 hospitality sector. *Waste Management*, 49, 326-336.
- 13 Park, J., Kim, H.J., and McCleary, K.W., 2012. The impact of top management's
14 environmental attitudes on hotel companies' environmental management. *Journal of*
15 *Hospitality & Tourism Research*, 38(1), 95-115.
- 16 Phu, S.T.P., Fujiwara, T., Hoang, M.G., Pham, V.D., and Tran, M.T., 2019. Waste
17 separation at source and recycling potential of the hotel industry in Hoi An city,
18 Vietnam. *Journal of Material Cycles and Waste Management*, 21(1), 23-34.
- 19 Poulston, J., and Yiu, A.K., 2010. Profit or principles: why do restaurants serve organic
20 food? *International Journal of Hospitality Management*, 30, 184–191.
- 21 Pirani, S.I., and Arafat, H.A., 2014. Solid waste management in the hospitality industry: A
22 review. *Journal of Environmental Management*, 146, 320-336.
- 23 Pirani, S.I., and Arafat, H.A., 2016. Reduction of food waste generation in the hospitality
24 industry. *Journal of Cleaner Production*, 132, 129-145.

- 1 Radwan, H.R., Jones, E. and Minoli, D., 2010. Managing solid waste in small hotels.
2 *Journal of Sustainable Tourism*, 18(2), 175-190.
- 3 Radwan, H.R., Jones, E., and Minoli, D., 2012. Solid waste management in small hotels: a
4 comparison of green and non-green small hotels in Wales. *Journal of Sustainable Tourism*,
5 20(4), 533-550.
- 6 Revell, A., and Blackburn, R., 2007. The business case for sustainability? An examination
7 of small firms in the UK's construction and restaurant sectors. *Business Strategy and the*
8 *Environment*, 16, 404–420.
- 9 Rivera, J., 2004. Institutional pressures and voluntary environmental behavior in
10 developing countries: Evidence from the Costa Rican Hotel Industry. *Society & Natural*
11 *Resources*, 17, 779-797.
- 12 Saad, S., and Bugaje, I.M., 2016. Biomass Consumption in Nigeria: Trends and Policy
13 Issues. *Journal of Agriculture and Sustainability*, 9(2), 127-157.
- 14 Saunders, M., Lewis, P., and Thornhill, A., 2009. *Research methods for business students*.
15 5th ed. Harlow: Financial Times Prentice Hall.
- 16 Sharma, S., 2000. Managerial interpretations and organizational context as predictors of
17 corporate choice of environmental strategy. *Academy of Management Journal*, 43(4), 681-
18 697.
- 19 Simpson, M., Taylor, N., and Barker, K., 2004. Environmental responsibility in SMEs:
20 does it deliver competitive advantage? *Business Strategy and the Environment*, 13(3), 156-
21 171.
- 22 Singjai, K., Winata, L., and Kummer, T.F., 2018. Green initiatives and their competitive
23 advantage for the hotel industry in developing countries. *International Journal of*
24 *Hospitality Management*, 75, 131-143.

- 1 Sirieix, L., Lala, J., and Kocmanova, K., 2017. Understanding the antecedents of
2 consumers' attitudes towards doggy bags in restaurants: Concern about food waste, culture,
3 norms and emotions. *Journal of Retailing and Consumer Services*, 34, 153-158.
- 4 Snape, D., and Spencer, L., 2003. *The foundations of qualitative research*. In: J. Ritchie
5 and J. Lewis (Eds.), *Qualitative research practice: A guide for social science students and*
6 *researchers*, London, Sage.
- 7 Sourvinou, A., and Filimonau, V., 2018. Planning for an environmental management
8 programme in a luxury hotel and its perceived impact on staff: an exploratory case study.
9 *Journal of Sustainable Tourism*, 26(4), 649-667.
- 10
- 11 Veal, A.J., 2006. *Research methods for leisure and tourism: a practical guide*. Pearson
12 Education Limited 2006.
- 13 World Travel Awards, 2018. *Africa's Leading Green Hotel 2018*. Available from:
14 <https://www.worldtravelawards.com/award-africas-leading-green-hotel-2018> [Accessed 23
15 January 2019].
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The authors hereby declare no conflict of interest

Journal Pre-proof

Note on contributions:

Viachaslau Filimonau contributed to the literature review and data analysis and wrote up the manuscript.

Cynthia Oluchi Tochukwu contributed to the literature review, data collection and analysis.