The Impact of Environmental Accounting Disclosure on Environmental Practices (Water, Energy and Wastes) in Hotels

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الملخص :

تم إجراء الدراسة الحالية للتحقق من تأثير الإفصاح المحاسبي البيئي على ممارسات الاداء البيئى مثل المياه والطاقة بالإضافة إلى النفايات في الفنادق. وكانت أداة الدراسة عبارة عن استبيان حول البيانات الديموجرافية، وقياس الإفصاح عن التكاليف البيئية ، ومقاييس ممارسات المياه والطاقة والنفايات. وتكونت العينة من 220 مديرا من فنادق خمس نجوم في مدينة شرم الشيخ، مصر. تم استخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (IBM SPSS Statistics 25) لمعالجة البيانات. وجدت نتائج ارتباط سبيرمان وجود علاقة إيجابية كبيرة بين الإفصاح المحاسبي البيئي والممارسات البيئية فى إدارة المياة ، أيضا وجود ارتباط إيجابي كبير بين الإفصاح المحاسبي البيئي والممارسات البيئية فى إستخدام مصادر الطاقة. إلى جانب ذلك ، هناك علاقة قوية بين الإفصاح المحاسبي البيئي والممارسات البيئية فى إدارة النفايات. كما أظهرت النتائج على معامل بيتا للنموذج الناتج أن هناك علاقات معنوية بين المتغير المستقل والممارسات البيئية. بناء على كل من الأدبيات التي تمت مراجعتها ونتائج الدراسة الميدانية، يجب على الفنادق رفع مستوى الإفصاح المحاسبي البيئي بكفاءة من خلال: إنشاء مجموعة من الدورات والبرامج التدريبية التي تساعد الموظفين والمديرين على تحسين مهاراتهم الشخصية والعملية والسلوكية للحصول على مستوى عال من تنفيذ الإفصاح المحاسبي البيئي الذي يدعم الممارسات البيئية.

الكلمات المفتتاحية : الإفصاح المحاسبى للتكاليف البيئية ، إدارة المياة ، إدارة الطاقة ، إدارة النفايات

Abstract:

The study was designed to investigate the effect of environmental accounting disclosure on water, energy and waste practices in hotels. The instrument of the study was a questionnaire about demographic data, environmental accounting disclosure scale and water, energy and waste practices scales. The sample consisted of 220 mangers from five-star hotels in Sharm El-Shiekh, Egypt. Statistical Package for Social Sciences (IBM SPSS Statistics 25) was used for data processing. The results of Spearman correlation found a significant positive correlation between environmental accounting disclosure and environmental water practices. Also, a significant positive association between environmental accounting disclosure and environmental energy practices. Besides, there is a significant relationship between environmental accounting disclosure and environmental wastes practices. The results on the beta coefficient of the resulting model show that there are significant relationships between the independent variable and Environmental practices.Based upon both the literature reviewed and the field study findings, hotels should raise the level of environmental accounting disclosure efficient through: establishing a set of training courses and programs that help employees and managers to improve their personal,

practical, and behavioral skills to have a high level of implementation of environmental accounting disclosure which support environmental practices.

Key words: Environmental accounting disclosure, water, energy and waste practices.

1. Introduction

The issues of environmental accounting disclosure of environmental practices information have been a growing issue in recent decades in response to social pressures stemming from increased environmental awareness of individuals and organizations (**Mousa et al., 2019**). As a result of the absence of standards, laws and regulations that require companies to disclose environmental practices information. This leads to the contrariety of scope and importance of this information **(Lucky et al., 2017).** Therefore, this study explains the effect of this environmental accounting disclosure on environmental practices such as water, energy and waste. The main objective of this study is to attempt to address four dimensions (environmental accounting disclosure, water management practices, energy management practices and waste management practices). This study will attempt to measure the environmental accounting disclosure and its effect on the application of environmental practices such as water, energy and waste. The problems of the environment resulting from the economic activity of hotels companies have received more attention from researchers. The studies focus on the negative effects resulting from pollution caused by these companies in various forms such as (air pollution, water, soil, reflection on human health etc.). Also, the society asks the companies to act in a more responsible manner. All groups would like to know the impact of these units in the environments in which they work in order to adjust their performance through appropriate decision making. A number of studies have been

conducted about environmental accounting and its importance, obstacle to apply it in hotels companies. So, the researcher seeks to clarify the effect of environmental accounting disclosure on the application of environmental practices.

2. LITERATURE REVIEW

2.1. Environmental Accounting Disclosure

Environmental cost accounting disclosure is a commitment to reveal all facts and information related to the activity of companies that may affect investment decisions. Disclosure in its wide meaning refers to the disclosure of confidential information and its approval. Environmental disclosure is a technique or means by which firms can inform the public about their many aspects, such as environmental activities, using financial statements or reports, as this is the most appropriate vehicle for achieving this goal (**Tahar, 2011)**. Because of the growing need for environmental disclosure among financial statement users and the shortcomings of traditional disclosure, the accounting disclosure through its current form does not meet the needs for information and data on the institution's social responsibility to environmental protection, so there was an immediate need to develop a standard accounting disclosure thought to include environmental disclosure in the form of supplements lists and independent reporting (**Ben Bouzian et al., 2012).**The application of environmental accounting disclosure will lead to long-term profits for hotels through optimal manage to water, energy and wastes. Besides the

hotels that disclose their environmental data may enjoy a competitive advantage distinguish them from the rest of the hotels. Environmental accounting disclosure of hotel companies contributes to improve the pricing of services and raise the efficiency of the cost system in these companies (**Azhar and Meiryani, 2019).** The publishing environmental accounting information will boost the company's financial performance. The experiences of certain industrial businesses in the fields of environmental revenue, industrial waste, and accounting disclosure of environmental accounting information may enhance the company's image to **(Al-Thaher et al., 2011**).Organizations that disclose environmental accounting information may gain a competitive advantage, making it easier to acquire various bids and tenders, since many companies and interested parties want to do business with companies that have a strong environmental reputation **(Saleh et al.,2019).**

2.2. Environmental Impacts of Hotels

Literature indicates that, while their consequences have not been pronounced like the conventional extractive industries such as mining, aircraft, cars, cruise ships. Hotel industry has played an important role in environmental degradation (**Timothy et al., 2009**). In addition, water and waste products both solid and liquid from hotels across the globe are pumped into ponds, lakes and streams, causing environmental threats and unpleasantness in their local environment **(Lozano et al., 2012).**The negative effects on the environment caused by hotels around the world can be

summarized as “water use (kitchen cold water, drinking water, washing, gardening, guest heating water); Usage of energy/ consumption (24-hour lightings, air conditioning, water heating, and cooling), Solid/Liquid generation of waste (paper, leftover foods, plastics and all liquid waste from washrooms, kitchen, laundry etc.”. These negative environmental impacts have led to several ecological challenges such as the increase in solid and liquid waste, water shortages and pollution, as well as an increase in water sanitation and hygiene (WASH) diseases etc. It is also appropriate that management of these hotels integrates green business models into their companies due to detrimental externalities from hotel operations. A variety of studies have been carried out on how hotels should follow sound green business practices to cope efficiently and effectively with the detrimental environmental issues resulting from their activities.

2.3. Environmental Practices in Hotels

Sultan (2018) said that the environmental practices is the steps of the organization to minimize negative impacts and maximize positive impacts to achieve environmental and resource protection in order to achieve sustainable growth where there are many environmental activities that help businesses boost their environmental performance, contributing to improving environmental performance such as waste management ,water management ,energy management environmental Procurement and environmental certification programs.

2.3.1. Water Management in Hotels

The hotel industry uses a lot of water; hence water conservation is an essential management concern for companies (**Gossling, 2015).** Tourism accounted for less than 1% of global water consumption. However, Consumption varies by location and can be higher if tourism is a bigger part of the economy (**DeSouza, 2016**). Tensions between tourists and locals over water consumption are especially noticeable in nations where tourism is a major sector and source of money (**Guarino, 2017).**Tourism will use more water as a result of increased tourism, hotel development, and water-related recreation **(Becken, 2014).** Total hotel water use was determined by the climate, service quality, number of rooms, occupancy, and variety of services. Reception areas, restaurants, kitchens, lounges, pools, and gyms accounted for roughly half of all hotel water consumption. The usage of hot water in guestrooms accounts for approximately a third of total water use **(Barberan et al., 2013).** Hotel water usage necessitated higher energy consumption, especially where desalinated water was used (**Becken, 2014)**.

There is considerable scope for improving efficiency and lowering the cost of water consumption in hotels (water accounts for 10% of many hotels' utility bills, and most of them pay for the water they use twice: once when they buy fresh water and again when they dispose of it as wastewater (**Jauhari, 2014**).The methodology to reducing water consumption is to train employees on how they can help with

simple measures on a regular basis. On the other hand, water policy should not have a negative impact on a hotel's hygiene and sanitation. All employees should be focused on reducing water usage and correcting any leaks that result in quick gains (hundreds of liters of water can be lost each week in a toilet system that isn't working properly **(Sloan et al., 2009; Beken et al., 2016).**

Water-efficient landscaping: such as native plants irrigated with 100% recycled water and high-efficiency irrigation systems; Sewage Treatment Plant (STP): the hotel recycles the water it uses. The landscaping and flushing systems use about 30% of this reclaimed water; Guest engagement program: all rooms include a water-saving poster that calculates how much water each guest may save by not having their linens changed every day**. (Jauhari, 2014).**

2.3.2. Energy Management in Hotels

The hotel sector is one of the most tourist industries using energy for Providing comfort and services to guests, many of whom are accustomed to paying for exclusive luxuries, service, and entertainment, thus, consumes a lot of energy.

The impacts on the environment are caused by excessive consumption of local/imported resources (e.g., water, food, electricity, and fuels), as well as emissions released into the air, water, and soil, due to high energy consumption in hotels. The huge amounts of waste produced by hotel facilities offer an additional huge environmental hazard (**Al-Aomar et al., 2017).** Hotels can be seen as the architectural combination of three distinct zones, all serving distinctly

different purposes such as: The guest room area (guest rooms, bathrooms/showers, and toilets) - distinct spaces with significant glazing, asynchronous use, and changing energy loads; The public area (reception hall, lobby, bars, restaurants, meeting rooms, swimming pool, sauna, etc.) - areas with a high rate of heat exchange with the outdoors (high thermal losses) and high inside loads (occupants, appliances/equipment, and lights);The service area (kitchens, offices, storage rooms, laundry, staff facilities, machine rooms, and other technical sections) – high-energy zones that often require complex air treatment **(Zhang et al. (2010).**

In hotels, energy costs typically account for 3%: 6% of total operating costs and an even smaller percentage of total operating costs. While energy costs are frequently dismissed as minor, they do account for a large amount of controllable costs - often second only to labor costs **(Mendes, 2012; Abdel-Maksoud et al., 2016).**Here some adopting techniques to regulate energy use and reduce it such as: Chilled water reset using building automation, to reduce electricity consumption necessary for cooling the building; Heat pumps for heat recovery and residential water heating; LED lighting uses a fraction of the energy that traditional lighting does; The Key Tag Energy Saver System saves energy in rooms that aren't in use; Day lighting cuts power consumption significantly; Vacuum Sealed Double Glazed Windows: saves energy and lowers noise **(Kosalay (2017)**.Photovoltaic solar panels are the best method to get the sun's energy. These panels, which contain solar cells that

convert sunlight into electricity, can be installed on roofs or integrated into the side of buildings as sunscreens, reducing the use of air conditioning. The electricity generated can be used directly in the building or sold to the local electrical energy provider in many situations (**Agarwal et al., 2010; Jauhari, 2014).**

2.3.3. Wastes Management in Hotels

The conventional concept of waste management, which focuses on the collection of trash from a private house or company premises, is known to most people. The breadth of this term is expanding in the hotel sector as operators embrace the '**3Rs**' of reuse, recycling, and reduction (**Sloan et al., 2009; Pham Phu, Hoang, and Fujiwara, 2018).** Due to the extreme key significance of wastes in different environmental issues, sustainable waste management has become a critical element within green practices. The hotel sector can contribute by implementing recycling facilities and programs, employing environmentally friendly cleaning supplies and procedures, and purchasing locally produced goods and services to save money on transportation. The hotel sector, like other industries, places a premium on maintaining high levels of customer satisfaction (**Hussain et al., 2016).**Within the hospitality industry, food and beverage operations account for a substantial amount of waste. This waste can be defined as: Pre- and post-consumer food waste, packaging, and operating supplies are all examples of this waste. Pre-consumer waste includes spoiled food and other kitchen items that wind up in the trash before the final menu

item reaches the client; post-consumer waste (**Environmental Protection Agency, 2017**).

3. Research Objectives, Conceptual framework and Hypotheses

The objectives of this study are to determine:

1. The effect of environmental accounting disclosure on water practices.
2. The effect of environmental accounting disclosure on energy practices.
3. The effect of environmental accounting disclosure on waste practices.

Figure (1) shows the relationship among variables of the study.

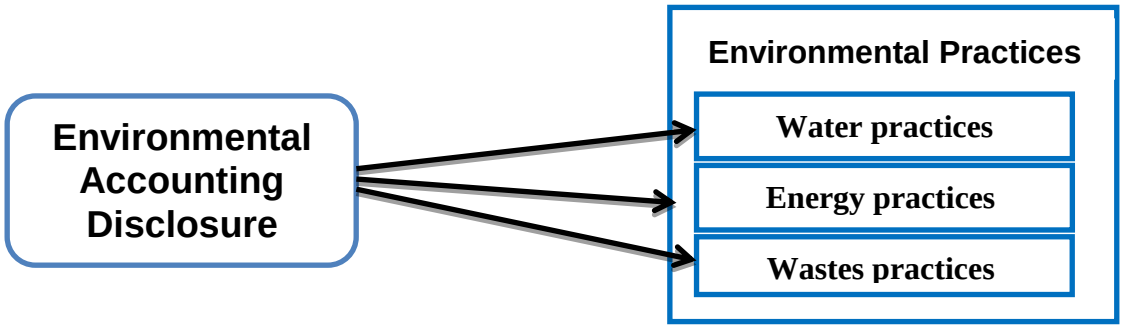

Fig. 1: Conceptual Framework

As for the research hypotheses, alternate hypotheses were used to identify if there is a significant relationship between the variables mentioned above. The following hypotheses are formulated:

H1: Environmental accounting disclosure affects positively on water practices.

H2: Environmental accounting disclosure affects positively on energy practices.

H3: Environmental accounting disclosure affects positively on wastes practices.

3. Research Methodology

The questionnaire forms were prepared for a random sample of the managers and distributed in investigated five star hotels in Sharm El sheikh. According to **Chamber of Hotel Establishments (2021)**, there are about 34 five star hotels in sharm el sheikh . Out of 34 hotels, 24 hotels were chosen to carry out the field study as show in Table 1:

Table1: The Investigated Sample of five stars hotel in Sharm- El sheikh.

Investigated Hotels		
Stella Sharm	Renaissance golden view	Baron Sharm
Sultan gardens	Reef oasis Blue bay	Baron palms
Tropitel Naama bay	Novotel	Concorde El Salam
Scarros resort (Marriot)	Movenpick resort	Diamond Sharm
Savoy Sharm	Monte Carlo Sharm	Dreams beach
Royal elbatros moderna	Kiroseiz resort	Four seasons
Rixos Sharm	Sunrise Arabian resort	Grand plaza
Grand Rotana	Hyatt regency	Ibrotel palace

Table 2: Questionnaire Forms for the Sample of the Study.

No	Questionnaire Forms	No of Distributed Forms	Lost Forms	Returned Forms	Excluded Forms	Valid Forms
1	Managers	231	6	225	5	220

The Statistical Package for the Social Sciences (SPSS) version 25.0 for windows was used to analyze the valid forms. Among its many modules for statistical data analysis, including descriptive statistics such as frequencies, charts, and categorical data analysis. Frequency counts, percentage distributions. The analysis included the following statistical methods:

1. **Alpha Cronbach's test:** to know the reliability of the study tool.
2. **Descriptive analysis:** Frequencies, percentages, means, standard deviations, and ranking on the basis of the most homogeneity values to describe the characteristics of the sample of the study. And to identify the response to the study dimensions.
3. **Spearman correlation coefficients:** to test the correlation among the study variables and the validity of hypotheses. It is used in the case of nonparametric tests and in the case of the ordinal data.

Regression coefficients: linear and multiple regression models was used as laid below where the independent variables were regressed against the dependent variable to obtain inferential results.

4. Results and Discussion

4.1. Reliability and validity analysis

Cronbach's Alpha coefficient was used to measure the reliability of the study instrument. The reliability and validity coefficients are presented in table (3).

Table3: Alpha Cronbach's Coefficient of reliability of the scale constructs

Dimensions	**Number of Statements**	**Alpha**
Disclosure of Environmental costs	6	0.912
Energy Management	8	0.79
Waste Management	8	.77
Water Management	8	0.75
Overall Total Scale	30	0.81

Table (3) clarified that Cronbach's Alpha coefficient of all items of the study questionnaire had high scores (81%). Cronbach's Alpha coefficient is acceptable at 0.60 or higher and excellent at 0.90 or higher. Since all the four parts of the questionnaire had excellent Alpha scores, it can be assured that the instrument is reliable and the items included measure what it is supposed to measure.

4.2 Demographic profile of the respondents

The demographic profiles of respondents are shown in table (4). According to the data obtained,

Table 4: Demographic Data of investigated managers.

Demographic Data	Attribute	Statistics	
		Freq	%
Gender	Male	211	95.9
	Female	9	4.1
Total		220	100
Age	From 25years - Less than 35 years	93	42.3
	From 35 years – Less than 45 years	54	24.5
	From 45 years – Less than 55 years	48	21.8
	More than 55 years	25	11.4
Total		220	100
Educational level	Bachelor	141	64.1
	Higher diploma	26	11.8
	Master	30	13.6
	Ph. Doctor	23	10.5
Total		220	100
Years of Experience	Less than 5 years	66	30.0
	From 5 – 10 years	107	48.6
	From 10 – 15 years	23	10.5
	15 years and over	24	10.9
	Total	220	100.0
Position	Financial manager	14	6.4
	Room division manager	80	36.4
	F.B manager	77	35.0
	Maintenance manager	31	14.1
	Sustainability management	18	8.2
	Total	220	100.0

Out of the 220 questionnaires, there were 95.9 % males and 4.1% females. The results refer to that the majority of financial department in investigated hotels was male. They were from various age groups.42.3% were From 25years - Less than 35 years old , 11.4% were more than 55 years, 24.5% were From 35 years – Less than 45 years and 21.8% were From 45 years – Less than 55 years. Their educational level ranged from Bachelor to Ph. Doctor. 64.1 % was Bachelor degree and 10.5% was doctoral degree. The results also show that years of experience of the majority of the sample. 48.6 % was From 5 – 10 years, 30% were Less than 5.

They were from various departements ,36.4 % were room division managers, 35 % were f.b managers, 14.1% were maintenance managers,8.2 % were sustainability manangers but 6.4% were financial manager.

4.3. Objective Data

4.3.1. Disclosure of Environmental costs

The aim of these statements in this dimension was to study the answers of respondents toward the disclosure of environmental costs in hotels. The answers of these statements are presented in Table 5.

Table 5: Disclosure of Environmental costs.

Statements	Statistics		
	Mean	SD	R
1. The hotel sets out its environmental policy and develops information systems for monitoring its performance.	3.20	1.12	3
2. The hotel engages more actively in environmental disclosure in its annual report	1.84	1.14	5
3. Financial information is aggregated and classified according to standard disclosure formats.	3.04	1.27	4
4. The hotel publishes its annual report with timely and reliable information useful for making efficient and effective decision.	1.81	1.13	6
5. The financial information presented is reliable and this enhances the reliability of the financial statements.	3.28	1.22	2
6. Financial statements are prepared in accordance with disclosure requirements	3.36	1.16	1
General Mean and Standard Deviation	2.75	1.17	

From the results in Table 5, it is clear that the responses of the respondents were neutral with four statements which are arranged according to their means as follows:

- "Financial statements are prepared in accordance with disclosure requirements" **at (Mean= 3.36).** This result agreed with **(Tahar, 2011)** which stated that environmental disclosure is the technique which helps firms to inform the public about their many aspects,

such as environmental activities, using financial statements or reports.

- "The financial information presented is reliable and this enhances the reliability of the financial statements" at (**Mean= 3.28**).
- "The hotel sets out its environmental policy and develops information systems for monitoring its performance" at (Mean= 3.20).
- "Financial information is aggregated and classified according to standard disclosure formats" at (**Mean= 3.04**).

But in contrast, their responses disagreed with two statements as follows:

- "The hotel engages more actively in environmental disclosure in its annual report" at (**Mean= 1.84**).
- "The hotel publishes its annual report with timely and reliable information useful for making efficient and effective decision" at (**Mean= 1.81**). This result disagreed with (**Tahar, 2011**) which stated that environmental cost accounting disclosure is a commitment to reveal all facts and information related to the activity of companies that may affect investment decisions.

4.3.2. Energy Management

The aim of these statements in this dimension was to study energy practices in investigated hotels. The answers of these statements were presented in Table 6.

Table 6: Energy Management

Statements	Statistics		
	Mean	SD	R
1. **Lighting Control**: Key card control of lighting in guest rooms.	**2.61**	**1.29**	**8**
2. **Climate Control by Management**: Management control of heater and / or air conditioning.	**2.85**	**1.19**	**7**
3. **Energy Efficient Lighting** : Use of energy efficient lighting in guest rooms and/or public areas	**3.48**	**1.22**	**1**
4. **Lighting / Temperature Sensors**: Sensors in public, guest rooms, interior, and exterior areas that control the light or temperature	**3.40**	**1.13**	**3**
5. **Electronic Sensors:** Sensors in public and guest rooms' areas that control whether electronics are turned on or off.	**3.61**	**1.11**	**2**
6. **Dimmable Lighting Controls:** Lighting controls in guest rooms and public areas that can be set at different brightness's as needed.	**3.16**	**1.18**	**4**
7. **Energy Efficient Appliances/Equipment:** Equipment or appliances that include Energy Star, solar heated pool, heating-cooling system.	**3.04**	**1.30**	**5**
8. **Alternate water Heating Method:** Method alternative from local energy source (e.g., geothermal)	**2.98**	**1.13**	**6**
General Mean and Standard Deviation	**3.14**	**1.19**	

From the presented data in Table 6, it could be concluded that respondent's views were agreed with three statements from all statements of energy practices, which are arranged according to the means as follows:

- "Sensors in public and guest rooms areas that control whether electronics are turned on or off." at (**Mean =3.61**).
- "Use of energy efficient lighting in guest rooms and/or public areas "at **(Mean= 3.48).**
- "Sensors in public, guest rooms, interior, and exterior areas that control the light or temperature" at (**Mean=3.40**).
- Meanwhile, their answers were neutral with five statements as follows:
- ": Lighting controls in guest rooms and public areas that can be set at different brightness's as needed." at **(Mean=3.16**).
- "**:** Equipment or appliances that include Energy Star, solar heated pool, heating-cooling system." at (**Mean=3.04**).
- "Method alternative from local energy source (e.g., geothermal)" at (**Mean=2.98**).
- "Management control of heater and / or air conditioning." at (**Mean=2.85**).
- "Key card control of lighting in guest rooms." at (**Mean= 2.61**).

Based on these results, it is clear that the investigated hotels are implementing a lot of energy conservation practices which the respondents' answers were agreed with the majority of all statements. These results agreed with some practices which mentioned by **Kosalay** (2017) and **Sloan** (2009) and disagreed with them in using sensors in public and guest rooms' areas that control whether electronics are turned on or off.

4.3.3. Waste Management

The statements in this part aimed to study the waste management practices in hotels. The answers of respondents are presented in Table 7.

Table7: Waste Management.

Statements	Statistics		
	Mean	**SD**	**R**
1. Recycling Practices Recycling bins in guest rooms and/or public areas	**3.67**	**.92**	**1**
2. Recyclable/Reused/Donated Food : Waste Recycling, reusing, or donating cooking oil	**2.89**	**1.22**	**4**
3. Recyclable/Reused/Donated Furniture or Materials: Recycling, reusing, or donating used mattresses, toiletries, electronics, carpet, and cutlery	**2.46**	**1.33**	**6**
4. Reusable Dinnerware: Reusing glassware, recyclable disposable, reusable containers	**2.61**	**1.20**	**5**

5. **Recycling Electronics:** Recycling electronics used in the hotel	**2.08**	**1.12**	**8**
6. **Reducing in-room waste** : Reducing toiletry bottles and using soap dispensers instead in guest rooms	**3.08**	**1.13**	**3**
7. **Paperless Check-in & Checkout:** Emailing or providing an e-receipt etc.	**2.15**	**1.13**	**7**
8. **Recycling Sorting Process** : Sorting in house (at hotel) or third-party sorting(outsourcing)	**3.09**	**.89**	**2**
General Mean and Standard Deviation	**2.75**	**1.11**	

The results in Table 7 showed that the respondents agreed with one statement from all statements of customers interests of waste management practices in hotels, which is as follows:

- "Recycling bins in guest rooms and/or public areas" at (**Mean= 3.67**). This result agreed with the practice mentioned by **Jauhari, (2014); Cheung & Fan, (2013); Nicholls & Kang, (2012).**

But, their responses were neutral with four statements as follows:

- "Sorting in house (at hotel) or third-party sorting (outsourcing)." at (**Mean= 3.09**).

": Reducing toiletry bottles and using soap dispensers instead in guest rooms" at (**Mean= 3.08**).

- "Waste Recycling, reusing, or donating cooking" at (**Mean=2.89**).

- "Reusing glassware, recyclable disposable, reusable containers" at **(Mean=2.61)**.

But in contrast, their responses disagreed with two statements as follows:

- "Paperless Check-in & Checkout: Emailing or providing an e-receipt etc." at (**Mean= 2.15**).
- "Recycling electronics used in the hotel" at (**Mean= 2.08**).

4.3.4. Water Management

The statements in this part aimed to study water management practices in hotels. The answers of respondents are presented in Table **8**.

Table 8: Water Management.

Statements	Statistics		
	Mean	**SD**	**R**
1. Water efficient fixtures ; Use of water saving showerheads and facets & dual-flush toilets in guest rooms and/or public areas	**2.85**	**.95**	**7**
2. Smart irrigation system; Used to water garden areas of the hotel grounds	**2.82**	**1.060**	**8**
3. Water use in A / C system; Alternate water use in air conditioning system	**3.27**	**1.067**	**5**
4. Landscaping irrigation controlled Timer controlling water system	**3.72**	**.91**	**1**
5. Water saving program; Reduces water consumption through voluntary controlled water usage by guests	**3.40**	**.93**	**4**

6. Water filtration system; System filtering taps in guest rooms to allow for drinkable water through taps	**2.87**	**1.08**	**6**
7. alternative water source; Alternate water source for toilets in guest rooms and/or public areas	**3.50**	**.80**	**2**
8. Laundry efficiency; Use of cold water in laundry facilities in hotel	**3.45**	**.95**	**3**
General Mean and Standard Deviation	**3.23**	**0.96**	

The results in Table 8 showed that the respondents agreed with four statements from all statements of water management practices in hotels, which are arranged according to the means as follows:

- "Timer controlling water system" at (**Mean= 3.72**).
- "Alternate water source for toilets in guest rooms and/or public areas" at (**Mean=3.50**).
- "Use of cold water in laundry facilities in hotel" at (**Mean= 3.45**).
- "Reduces water consumption through voluntary controlled water usage by guests" at (**Mean=3.40**).

But, their responses were neutral with four statements as follows:

- "Alternate water use in air conditioning system" at (**Mean= 3.27**).
- "System filtering taps in guest rooms to allow for drinkable water through taps" at **(Mean= 2.87**).

- ". Use of water saving showerheads and facets & dual-flush toilets in guest rooms and/or public areas " at (**Mean= 2.85**).
- "2. Smart irrigation system used to water garden areas of the hotel grounds" at **(Mean=2.82**).

4.4. Correlation analysis between variables of the study

This section discusses the coefficient of correlation among variables of the study. These correlations are illustrated as follows:

4.4.1 The relationship between environmental accounting disclosure and water management practices.

In order to measure the relationship between environmental accounting disclosure and water management practices, the Spearman's correlation was used.

Table 9: The effect of environmental accounting disclosure on water management practices.

Nonparametric Test			**Environmental costs disclosure**	**Water management practices**
Spearman	**Environmental accounting disclosing**	Correlation Coefficient	1	**.288****
		Sig. (2-tailed)		.000
		N	220	220
	Water management practices	Correlation Coefficient	**.288****	1
		Sig. (2-tailed)	.000	
		N	220	220

Table 9 revealed that, there is a positive correlation among of environmental accounting disclosure and water management

practices in hotels. Where the correlation coefficiency of spearman was 0.288, it is a positive correlation. This positive correlation indicates that whenever the disclosure of environmental costs increased, whenever hotels practices of water management increased, and the opposite is true. Thus, the first hypothesis **H.Corr.1 could be accepted**.

4.4.2. The relationship between environmental accounting disclosure and energy management practices.

Table (10) illustrates the relationship between environmental accounting disclosure and energy management practices; the Spearman's correlation was used.

Table10: The relationship between environmental accounting disclosure and energy management practices.

Nonparametric Test			Environmental accounting disclosure	Energy management practices
Spearman	**Environmental accounting disclosure**	Correlation Coefficient	1	**.310****
		Sig. (2-tailed)		.000
		N	220	220
	Energy management practices	Correlation Coefficient	**.310****	1
		Sig. (2-tailed)	.000	
		N	220	220

According to table (10) the relationship between environmental accounting disclosure and energy management practices is a significant at 0.05 level. The Spearman's correlation is positive at 0.310. This positive correlation indicates that whenever the accounting disclosure of environmental costs increased, whenever hotels practices

of energy management increased, and the opposite is true. Thus, the second hypothesis **H.Corr.2 could be accepted**.

4.4.3. The relationship between environmental accounting disclosure and wastes management practices.

In order to measure the relationship between environmental accounting disclosure and wastes management practices, the Spearman's correlation was used.

Table11: The relationship between environmental accounting disclosure and energy management practices.

Nonparametric Test			Environmental costs disclosure	wastes management practices
Spearman	**Environmental accounting disclosing**	Correlation Coefficient	1	**.204****
		Sig. (2-tailed)		.000
		N	220	220
	wastes management practices	Correlation Coefficient	**.204****	1
		Sig. (2-tailed)	.000	
		N	220	220

According to table (11) the effect of environmental accounting disclosure on wastes management practices is a significant at 0.05 level. The Spearman's correlation is positive at 0.204. This positive correlation indicates that whenever the disclosure of environmental costs increased, whenever hotels practices of wastes management increased, and the opposite is true. Thus, the third hypothesis **H.Corr.3 could be accepted**. This result agreed with **Azhar (2019)** which stated that the application of environmental accounting disclosure will lead to long-term profits for hotels through

optimal manages to water, energy and wastes. Besides the hotels that disclose their environmental data may enjoy a competitive advantage distinguish them from the rest of the hotels. Environmental accounting disclosure of hotel companies contributes to improve the pricing of services and raise the efficiency of the cost system in these companies.

4.5. Regression analysis

4.5.1. The effect of environmental accounting disclosure on water management practices.

Table12: Model Summary for Environmental accounting disclosure and water management practices.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.288**[a]	.083	.079	2.72269
a. Predictors: (Constant), Environmental accounting disclosure				

Table13: ANOVA Results for Environmental accounting disclosure and water management practices.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	146.394	1	146.394	19.748	.000[b]
	Residual	1616.043	218	7.413		
	Total	1762.436	219			
a. Dependent Variable: water management practices						
b. Predictors: (Constant), Environmental accounting disclosure						

Table14: Regression Coefficient among the environmental accounting disclosure and water management practices in hotels

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	**(Constant)**	**22.535**	.773		29.143	.000
	environmental accounting disclosure	**.202**	.045	.288	4.444	.000
a. Dependent Variable: water management practices						

Regression analysis was conducted to determine whether environmental accounting disclosure of environmental costs was a significant determinant of water management practices. Regression results in table **14** indicate the goodness of acceptable for the regression between environmental accounting disclosure and water management practices in hotels.

To test the significance of regression relationship between environmental accounting disclosure and water management practices in hotels, the regression coefficients (**β**), the intercept (**α**), and the significance of all coefficients in the model were subjected to the t-test to test the null hypothesis that the coefficient is zero. The null hypothesis state that, β (beta) = 0, meaning there is no significant relationship between environmental accounting disclosure and the water management practices in hotels as the slope β (beta) = 0 (no

relationship between the two variables). The results on the beta coefficient of the resulting model in table **14** shows that the constant **α** =**22.535 is** significantly different from 0, since the p- value = 0.000 is less than 0.05. The coefficient **β** = **0.202** is also significantly different from 0 with a p-value=0.000 which is less than 0.05.

This implies that the null hypothesis β1=0 is rejected and the alternative hypothesis β1≠0 is taken to hold implying that the model **Y= 22.535 +**

0.202, EAD (environmental accounting disclosure) is significantly acceptable. The model water management practices = **α** + **β** (environmental accounting disclosure) holds as suggested by the test above. This confirms that there is a positive linear relationship between environmental accounting disclosure and water management practices.

4.5.2. The effect of environmental accounting disclosure on energy management practices.

Table15: Model Summary for Environmental accounting disclosure and energy management practices.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.310[a]	.096	.092	3.21028
a. Predictors: (Constant), Environmental accounting disclosure				

Table16: ANOVA Results for Environmental accounting disclosure and energy management practices.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	239.000	1	239.000	23.191	.000[b]
	Residual	2246.686	218	10.306		
	Total	2485.686	219			
a. Dependent Variable: energy management practices						
b. Predictors: (Constant), Environmental accounting disclosure						

Table17: Regression Coefficient among the environmental accounting disclosure and energy management practices in hotels

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	**(Constant)**	**20.858**	.912		22.877	.000
	environmental accounting disclosure	**.258**	.054	.310	4.816	.000
a. Dependent Variable: energy management practices						

Regression analysis was conducted to determine whether environmental accounting disclosure of environmental costs was a significant determinant of energy management practices. Regression results in table **17** indicate the goodness of acceptable for the regression between environmental accounting disclosure and energy management practices in hotels.

To test the significance of regression relationship between environmental accounting disclosure and energy management practices in hotels, the regression coefficients (**β**), the intercept (**α**), and the significance of all coefficients in the model were subjected to the t-test to test the null hypothesis that the coefficient is zero. The null hypothesis state that, β (beta) = 0, meaning there is no significant relationship between environmental accounting disclosure and the energy management practices in hotels as the slope β (beta) = 0 (no relationship between the two variables). The results on the beta coefficient of the resulting model in table **17** shows that the constant **α** = **20.858 is** significantly different from 0, since the p- value = 0.000 is less than 0.05. The coefficient **β** = **0.258 is** also significantly different from 0 with a p-value=0.000 which is less than 0.05.

This implies that the null hypothesis β1=0 is rejected and the alternative hypothesis β1≠0 is taken to hold implying that the model **Y= 20.858 + 0.258,** EAD (environmental accounting disclosure) is significantly acceptable. The model energy management practices **= α + β** (environmental accounting disclosure) holds as suggested by the test above. This

confirms that there is a positive linear relationship between environmental accounting disclosure and energy management practices.

4.5.3. The effect of environmental accounting disclosure on wastes management practices.

Table18: Model Summary for Environmental accounting disclosure and wastes management practices.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.204[a]	.042	.037	2.77845
a. Predictors: (Constant), Environmental accounting disclosure				

Table19: ANOVA Results for Environmental accounting disclosure and wastes management practices.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.071	1	73.071	9.465	.002[b]
	Residual	1682.911	218	7.720		
	Total	1755.982	219			
a. Dependent Variable: wastes management practices						
b. Predictors: (Constant), Environmental accounting disclosure						

Table20: Regression Coefficient among the environmental accounting disclosure and wastes management practices in hotels

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.651	.789		24.903	.000
	environmental accounting disclosure	.143	.046	.204	3.077	.002
a. Dependent Variable: wastes management practices						

Regression analysis was conducted to determine whether environmental accounting disclosure of environmental costs was a significant determinant of wastes management practices. Regression results in table **20** indicate the goodness of acceptable for the regression between environmental accounting disclosure and wastes management practices in hotels.

To test the significance of regression relationship between environmental accounting disclosure and wastes management practices in hotels, the regression coefficients (**β**), the intercept (**α**), and the significance of all coefficients in the model were subjected to the t-test to test the null hypothesis that the coefficient is zero. The null hypothesis state that, β (beta) = 0, meaning there is no significant relationship between environmental accounting disclosure and the wastes management practices in hotels as the slope β (beta) = 0 (no

relationship between the two variables). The results on the beta coefficient of the resulting model in table **20** shows that the constant **α** = **19.651** is significantly different from 0, since the p- value = 0.000 is less than 0.05. The coefficient **β** = **0.143** is also significantly different from 0 with a p-value=0.000 which is less than 0.05.

This implies that the null hypothesis β1=0 is rejected and the alternative hypothesis β1≠0 is taken to hold implying that the model **Y= 19.651 + 0.143,** EAD (environmental accounting disclosure) is significantly acceptable. The model wastes management practices **= α + β** (environmental accounting disclosure) holds as suggested by the test above. This confirms that there is a positive linear relationship between environmental accounting disclosure and wastes management practices.

5. Conclusion and recommendations

The study was conducted to determine to what extent environmental accounting disclosure has an effect on water, energy and wastes practices. The results of Spearman correlation found a significant positive correlation between environmental accounting disclosure and environmental water practices. Also, a significant positive association between environmental accounting disclosure and environmental water practices. Besides, there is a significant relationship between environmental accounting disclosure and environmental wastes practices. The results on the beta coefficient of the resulting model

show that there are significant relationships between the independent variable and Environmental practices.Based upon both the literature reviewed and the field study findings, hotels should raise the level of environmental accounting disclosure efficient through: establishing a set of training courses and programs that help employees and managers to improve their personal, practical, and behavioral skills to have a high level of implementation of environmental accounting disclosure which support environmental practices. As this study was conducted on managers from hotels industry, future studies should focus on similar framework at different groups in service sectors such as restaurants and travel agencies. For future researchers, it is advisable to use other methods for gathering more in-depth data such as interviews in order to investigate other factors that can affect environmental practices.

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