

## **Do the Environmental Management System Practices correlate to demographic factors in the First Class Hotels in Alexandria?**

**Eslam Ahmed Fathy Fathy**

Lecturer of hotel Management Faculty of Tourism and Hotel Management Pharos University- Alexandria

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### **Abstract:**

Many hotels are subject to environmental regulations. A growing practice of the impact of activities on the environment has created a greater need to take into account environmental factors to housekeeping department, because it consume higher amount of energy and resources, thus it need to apply the environmental practices. EMS provides a framework for organizations that wish to effectively manage their environmental affairs. This research aims to investigate the correlation between the demographics of housekeeping employees and hotels demographics the environmental practices in housekeeping department, because it is considered one of the higher consumption departments of resources and energy. The results stated that demographic factors of housekeeping employees that have that have a positive relation with environmental practices in hotels; where there are have strong positive and strong relationship such as age, educational level, experiences of housekeeping employees, hotel classification, and hotel ownership. But, there are positive and weak relationships such as gender and position of housekeeping employees. To achieve this aim, the researcher surveyed 300 employees in four and five- star hotels in Alexandria. Data were analyzed using SPSS 22. The research recommended the hotel management should well equip and train the housekeeping employees on the environmental practices (Energy Saving, Water Conservation and Waste Management) to increase their environmental awareness and knowledge. Also, the human resources should hiring eco-friendly employees, retain the environmental interest employees, retain and rewarding for highly environmental behavior of housekeeping employees.

**Keywords:** Environmental Management Systems, Environmental Practice, Housekeeping Employees , demographics factors.

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### **Introduction**

The hotel industry is one of the most important industries that have direct impacts on the surrounding environment. (Walker, 2013; Rahman,

Reynolds, and Svaren, 2012; Erdogan and Baris, 2007; de Burgos-Jimenez, Cano-Guillen and Cespedes-Lorenter, 2002). The environmental and social responsibility issues of hospitality industry have been investigated by many researchers (Bohdanowicz, and Martinac, 2007; Bohdanowicz et al., 2011; Gossling, 2005; Gossling et al., 2012; Kasim, 2009 Kasim et al., 2014; Kasim, 2006).

The housekeeping suffers from some obstacles that hinder the proper implementation of the environmental management systems. The managers resist applying the formal environmental management programs. This due to the lack of training and knowledge and also investment in money, resources and time, that is required in order to comply with standards and procedures leading to additional barriers to implementation (Burzis, 2010).The manager behaviors are drivers that may influence in environmental behavior of subordinates (Zhu et al., 2013; Cingoski and Petrevska, 2018). Herzig and Burritt (2012) stated that the managerial behavior changed to have more interest to environmental practices, not only to decrease the consumption of nonrenewable natural resources, as a resource-based internally driven reason, but also because of legitimating actions to rise the hotel image as environmentally friendly. Laskurain and Heras ( 2015), Okumus, Chan (2015), Penny (2007) and Quazi (1999) identified barriers to environmental management system (EMS) such as knowledge lack of conservation measures, high cost of implementation of EMS, limited staff availability, lack of management commitment, lack of employee commitment, governmental regulations.

The main purpose of this study is to assess the environmental practices implementation in Egyptian hotels. Firstly, identify water conservation, energy conversation and waste management related to environmental application. Secondly, test the demographic profile of housekeeping employees, hotel profile such as grades and ownership can effects on their environmental behavior to implement the environmental practices. Finally, develop a recommendations to hotel management to enhance the environmental practices in their own properties to improve the environmental practices in Egyptian hospitality industry.

Finally, the discussion and conclusion will interpret the study findings, offer recommendations, the limitations and suggestions for future researches.

## Literature Review

### Housekeeping Department Function

The concept of sustainability is the philosophy that humankind should live in harmony with nature and with society (Raghubalan, 2015). According to Tortella and Tirado (2011) sustainability is an operating framework that is applicable to reducing the environmental impact which produces visibly unclean emissions of waste products, contaminated water and other processes. On the other hand, the hotel operations depend on clean and well-preserved natural environment to provide high quality service (Cingoski and Petrevska, 2018). The housekeeping department is one of the most important departments in the hotel where the comfort and satisfaction of the guest depends on the HK work quality; it is responsible for the cleanliness and maintain of guest rooms and public places such as lobby, banquet hall, restaurants, corridors, and elevators to keep hotel facilities clean and tidy. Matt (2012) and Murray and Benny (2009) stated that the organization structure of the housekeeping department differ from hotel to another depending on the room number and the hotel management.

The main responsibilities for the housekeeping department are as follows: (Nitschke and Frye, 2008) and (Walker, 2013): Clean rooms, hallways, lobbies, lounges, restrooms, corridors, elevators, stairways, locker rooms and other work areas so that health standards are met, empty wastebaskets, empty and clean ashtrays, and transport other trash and waste to disposal areas, Dust and polish furniture and equipment , Keep storage areas and carts well stocked, clean, and tidy , Replenish supplies such as drinking glasses, linens, writing supplies, and bathroom items, Wash windows, walls, ceilings, and woodwork, waxing and polishing as necessary , request repair services and confirm repair was completed ,moreover it responsible to arrange furniture, and turn mattresses, clean linens, towels, toilet items, and cleaning supplies. Karthik, (2015) Added that housekeeping its due recognition in the hospitality industry. This department is responsible to generate the largest share of revenue to hotel operations, but this fact is hardly acknowledged and experts of the industry too often must consider it a thankless job. Housekeeping operations are increasingly becoming scientific and mechanized. Efficiently managed Housekeeping departments ensure the cleanliness, safeguarding and aesthetic entreat of the hotel. The tasks performed by Housekeeping department are pivotal to the horizontal daily operation of any hotel. In the present stringent

competitive scenario maintaining hotel is very tough and satisfying guest is even tougher.

### **Drivers for environmental Practices of Hotels**

Kirk and Lynch (2008) indicated that to have environmentally sustainable hotel management operations; hotels need specifically designed environmental policies. Hotel industry uses large amounts of energy sources for functions such as transportation, laundering, food and beverage productions, air conditioning, cooking equipment, while it also releases waste in different forms (Deng, 2003; Hsieh, 2012; Jones, Hillier and Comfort, 2014, Zhao, Ma, and Gu, 2012). Bohdanwicz (2006) stated that growth and progress of the hotel industry in tourism destinations depends on ongoing accessibility of natural resources. Penny (2007) indicated that hoteliers know that their hotels would affect negatively on the surrounding environment. Moreover, there are economic and benefits to hotels if they adopted the environmental management practices. However, the intentions of the hoteliers do not turn into actions. Also, Penny (2007) indicated that that there is a lack of integration of staff training, awareness and incentives to encourage employees to act in an eco-friendly. Environmental management practices are generally adopted for various reasons. One most important reason is pressure from hotels management for housekeeping department the pressure to adopt Environmental Practices mainly comes from hotels guests and employees (Weng et al., 2015).

### **Energy Management**

Hotels are vast energy users for daily operations and activities. Hotels use energy on a daily basis for 24 hours, regardless of seasonality, its location, and number of guests (Laskurain and Heras, 2015; Deng, 2003; Cingoski and Petrevska, 2018).

Karthik (2015) stated that there is a wide range of environmental damages that energy production causes, ranging from the supply of fossil fuels to the building of power plants. The use of non-renewable natural resources such as oil and coal should be decreased as these resources will not last forever. In addition, power plants and other equipment needed for energy production require huge areas of land transform the landscape and destroy natural habitats. With wise and thoughtful energy use, natural resources can be saved also for the next generations (Boiral, et.al.; 2017). As a result, environmental impacts caused by energy production and transport will decrease (Burzis, 2010) .

Bohdanowicz (2006) reported that hotel can reduce its energy use and costs in various ways. These ways and their effect, however, depend on the type, size and location of the hotel facility. According to (Laskurain and Heras, 2015), the following energy saving methods introduced are only general ways. First, energy use should be regularly monitored to identify the areas of largest energy consumption and to know the amount of total energy costs for each month and for each department separately, after this needed actions can be chosen for minimizing the use of energy. According to McLeish (2007), improving energy efficiency makes perfect business sense; it saves money, enhances your business reputation and helps everyone in the fight against climate change.

Cingoski and Petrevska (2018) stated some examples to increase the hotel energy efficiency through installing more efficient saving light such as (compact fluorescent lamps, light-emitting diode bulbs, ‘group re-lamping’), occupancy room sensors, power saving, smart vent hoods in kitchen, occupancy room sensors; the use of efficient water heating systems; heat-recovery systems; ozone and tunnel washers; heat pumps in swimming pools; adjusting the building management system; Heating, Ventilating and Air Conditioning (HVAC); dimming system; covering the pools and hot tubs to diminish heat loss; provide a bonus to housekeeping employees for environmental behaviors.

### **Water Conservation**

Only five percent from the water used by the hospitality industry is used for eating and drinking; the vast majority of it is used either for cleaning in housekeeping or for the preparation of food (Kasim et al., 2014). Alonso (2012) added that when it comes to water management at a hotel, the main task for an environmentally conscious hotel business is to monitor its water consumption and bring it to a rational level by means that also save and protect the local resources.

A hotel establishment requires a vast amount of water resources for its daily operations, for instance for laundry and for the maintenance of swimming pools, lawns, garden and golf courses. Water needed for all these operations is also costly; therefore, when operating in an environmentally friendly manner, a hotel will not only save in water costs but also help protect the local water resources, ensure availability of water also for the local residents as well as preserve the quality of the local water resources by eliminating the need for expensive drinking

water treatment processes (Erdogan and Baris, 2011). In order for a hotel to achieve better water management, it is first important to identify the main areas with largest water consumption at the hotel as these are the areas where the most significant water savings can be achieved. Secondly, water consumption of each department should be regularly monitored with water meters for identifying leaks and quantifying water savings. With monitoring, monthly water consumption and its costs can be determined and the areas and activities of high water consumption identified (Tang, 2014).

The hotels make an effort to minimize the water waste, for example water reducing technologies should be used and water-saving devices (for example self-closing taps and low-flush toilets, gray water). It should conduct a regular inspection as maintenance to eliminate faucet and pipes leaks. By setting the water temperature of showers to the optimal temperature, also energy can be saved (Michailidou et al., 2016).

### **Waste Management**

Hotel industry can reduce the amount of waste produced by implementing and following a waste management system that is modeled, "a large proportion (50-60 percent) of the materials in an accommodation facility can be recycled or reused "Around the concepts of reduce, reuse and recycle (Tang, 2014). The rapid development of the hotel and tourism industry has not only resulted in lack of water resources but also in overload of waste. This has further caused lack of waste disposal infrastructure and sanitation. Hotels produce large amounts of waste, solid and liquid, toxic, some of which end up in the surrounding environment because of inadequate handling and careless behavior. Many times waste has been dumped directly into seas and a river which has caused not only visual pollution to the environment and harm to the hotel's image but also has led to soil and water pollution (Park, 2009).

Over ninety percent of the natural resources used by humans transform into waste through the production of products and nutriment. The more a hotel aims to produce as little waste as possible, the fewer natural resources are used and environmental damages minimized. Waste has direct impacts on the environment. It can pollute the soil, water and air and can cause harm to both humans and animals (Borggaard and Gimsing, 2008).Forty six percent of a hotel's solid waste is food waste since all food waste can be composted; hotels are increasingly recognizing that composting is a better alternative to dumping food waste, as composted waste can be used as organic fertilizers, Effective and caring waste

handling and management at hotels will not only save the environment but also cut down purchasing costs as well as waste disposal fees of the hotel (Michailidou et al., 2016). Proper waste disposal will also limit the risk of causing illnesses to hotel guests, and keeps the surrounding water suitable for recreational activities. All in all, a hotel business should always develop its waste management program around the three R: reduce, reuse, and recycle.

According to Alonso (2012) the practices that should be followed to reduce the quantities of waste are as follows : Reduce waste quantities through the use of devices that cannot be used again and avoid canned drinks and the use of a few packaging materials,

### **ISO 14001 Standards:**

The organization shall comply with the requirements of **ISO 14001** International Standard and determine how it will fulfill these requirements through establishing, implementing, maintaining documents and continually improving an environmental management system (Walker, 2013). International ISO 14000 standards were developed essentially in response to the rise of national EMS standards in various countries (Bansal and Bogner, 2008). The ISO 14001 standard defines an EMS as "a management tool enabling an organization of any size or type to control the impact of its activities (ISO, 14001), products on environment" (Beredugo, and Mefor, 2012).

The ISO 14001 establishes a framework for managing through the development of formal processes and procedures. The standard contains 17 key elements grouped into five major areas: environmental policy, planning, implementation and operation, checking and corrective action, and management review (Laskurain and Heras, 2015). A unique aspect of the system is that it is designed to be appropriate for any company, regardless of industry, size, location, and the level of their environmental responsibilities. The ISO 14001 is a voluntary, consensus-based, and market driven standard (Gwen et al, 2009). EMS appeared in the 1990s with the best known being ISO 14001 which was released in September 1996 by the International Organization for Standardization (ISO), The ISO 14001 serves as the standard for developing an EMS in the International Organization of Standardization's ISO 14000 series. The remaining standards contain guidance and supporting documentation.

### **Benefits of ISO 14001 application**

Adoption of ISO 14001 has been shown to provide both tangible and intangible benefits to hotels, such as: cost reductions and savings; improved communication; deeper customer trust and improved environmental performance), reduction in fines; improved hotels image; and improvement in operational processes(Daddi el al., 2014). (Nee and Nabsiah, 2010) outlined the

### **Reasons for EMS Implementation**

Some of the key reasons for hotels engaging in sound environmental practices are legislative controls, cost savings, gaining a competitive advantage, consumer demand, improving environmental quality, employee awareness, risk management and improving investor relations (Rahman et al., 2012;Laskurain and Heras, 2015). Improving hotels environmental performance can also help create an environmentally-friendly environment for staff and customers, helps the company gain a competitive advantage and raises the corporate image of the business (Tortella and Tirado, 2011).

In order for a hotel to name itself as an environmentally responsible hotel; it has to contribute to conservation of both the environment and the local community (Rivera ,2002). Hotels industry is usually based on their natural environment which serves as the main attraction. This is already one reason why contribution to conservation can help to preserve natural tourism resources and why it is vital for a nature based tourism business. When a hotel supports conservation, it can also minimize the risk of environmental problems in the future and preserve the quality of the destination (Rahman et al., 2012. According to Manaktola and Jauhari (2007) “becoming a green hotel can be the foundation for great marketing”. In particular, the following motivations have been identified as reasons for the hotel sector to be preoccupied with environmental issues.

### **Methodology:**

The current research aimed to investigate the correlation among d demographics of housekeeping employees to apply the environmental practices in four and five hotels in Alexandria. The researcher used the quantitative approach, based on the distribution of questionnaires. The quantitative research approach is the most commonly and popular applied research methods in hospitality research, since “it involves the collection of customer-based data . It collects the data from housekeeping

employees, then use SPSS to statistically analyze the relationships among research variables (Neuman, 2003).

### **Population and Sample:**

The target population for this research was the employees in housekeeping department in four and five-star hotels in Alexandria which consist of 18 hotels according to Egyptian Hotels Association (2015); The total number of housekeeping employees department in population research is 530 employees according to (human resource management in hotels), 345 questionnaires is target number of this research, 300 valid forms of statistical analysis were retrieved with a response rate is 56%. Cronbach's alpha was used to assess survey reliability. The reliability coefficient was 0.846, which is considered as acceptable reliability.

Alexandria was chosen as the geographical area of the population, since Alexandria, is the second capital which characterized by professionalism. Consequently, the necessitate of studying relation between the application of environmental practices in housekeeping department and employees' demographics, where the consumption of energy and water was increased. Four and five-star hotels were chosen since they are the largest number of housekeeping employees and were more sophisticated and willing to adopt environmental practices than lower grades. Housekeeping employees were chosen since they have directly accountable for energy and water consumption. Also, they are responsible of room and public area quality and customer satisfaction.

### **Questionnaire Development and Data Collection:**

The questionnaire utilized in the current research divided into two main sections. The first section consisted of seven questions and aimed at collecting demographic data of housekeeping employees (gender, age, educational level, position, Experience), and hotel classification and ownership. The second section of the questionnaire consisted of three parts to investigate the environmental management practices (Energy Saving, Water Conservation and Waste Management). Five-point likert scale of 1-5 was used (1= Strongly Disagree to 5= Strongly Agree). The current research conducted a Cronbach's alpha coefficient reliability analysis to determine the consistency internally among the questionnaire sections. The reliability coefficient was 0.846 and it is acceptable, because is above the 0.7 suggested by Nunnally (1967). To validate the questionnaire, it first reviewed by academic staff to identify any ambiguous or confusing questions to rectify the inadequacies. Thus, the

questionnaire insert their comments and provide improvement to both reliability and their parsimony by deleting troublesome items, and adding new items to support scales that had undesirable items removed. Secondly, a pilot study conducted to 25 housekeeping employees to determine the extent of their understanding of questionnaire questions as well as the required time to answer the questionnaire.

To increase the response rate, the researchers phoned all hotels and send the questionnaire by email, asked for the human resources managers and/or executives housekeeper prior to arrange visit to explain the research purposes. If he/she was available, the researcher explained the study and asked for commitment to participate. One to two weeks later, the researcher called him to ensure that the manager responsible was actually getting the employees to fill in the surveys and either collecting it again to delivery to researcher. The survey took between 8 and 12 minutes to complete. Housekeeping employees were invited to participate during the period of march–may 2018. The total number of housekeeping employees in population research is 534 employees according to (human resource management in hotels), 350 questionnaires distributed, then 320 were returned and valid questionnaires was used to conduct the data analysis were 300, giving a response rate of 56%.

#### **Hypotheses of the research:**

**H.1:** There is a statistically significant relationship between employees' gender and implementation of environmental management practice.

**H.2:** There is a statistically significant relationship between employees' age and implementation of environmental management practice.

**H.3:** There is a statistically significant relationship between employees' position and implementation of environmental management practice.

**H.4:** There is a statistically significant relationship between employees' education level and implementation of environmental management practice.

**H.5:** There is a statistically significant relationship between employees' experience and implementation of environmental management practice.

**H.6:** There is a statistically significant relationship between hotel classification and implementation of environmental management practice.

**H.7:** There is a statistically significant relationship between hotel ownership and implementation of environmental management practice.

**Results and Discussion:**

**Personal Information Analysis (Demographic Factors):-**

The following table (1) shows the personal Information to employees in the housekeeping department:

**Table (1): General Profiles of the Surveyed Hotels**

Attribute	Freq	%	Attribute	Freq	%
Gender :			Experience :		
Male	112	37	Less than 2	155	52
Female	188	63	2:5	94	31
Age :			5:10	33	11
18<30	165	55	More Than 10	18	6
30<40	85	28	Classification :		
40<50	35	12	4 Stars	136	45
More than 50	15	5	5 Stars	164	55
Position :			Ownership :		
Management	12	4	International	178	59
Supervisor	37	12	Chain	86	29
Employee	251	84	Local Chain	36	12
			Private Sector		
Education :					
High School	74	25			
Education	145	48			
Diploma	79	26			
University	2	1			
Education					
Postgraduate					

The previous table (1) shows that the population research of employees in Housekeeping department in the four and five stars hotels in Alexandria represents 300 questioners of the sample hotels .The table above showed the demographic factors of the employees as follows:

**Gender:** according to the data, Housekeeping department depends on female employees more than male with percentage 63% but male is 37%. This is due to the low income earned from the work in the housekeeping department. This is also due to the fact that the work carried out by the employees in the house keeping department is more female than males. it was also found that gender in the housekeeping department has no impact on their environmental practice. Therefore, female employees are responsible for the application of environmental management practices and must be well educated to maintain the material resources of the hotel.

**Employees' Age:** According to population research the employees in the housekeeping department in terms of age, the housekeeping department depends on employees aged between 18: 30 years with percentage is 55%. Therefore, the age categories determine the amount of effort you expect from this category and therefore can apply the sound environmental practices adopted.

**Employees' Position:** The percentage of supervision job was percentage 12%. The percentage of employees in the department was 84%, and the percentage of management is 4%, this percentage according to the population research hotels.

**Employees' Educational Level:** According to the research population the employees in the housekeeping department in terms of educational level, showed that the education diploma it was percentage by 48%, This is because the nature of work in this section does not require higher qualifications; and the percentage of the university education with percentage 26%, and percentage of those with a high school it was 25%, finally the percentage of postgraduate degree it was 1%. This percentage belongs to managers this result shows that the higher the level of education among employee,

**Employees' Experience:** According to the research population the employees in the house keeping department in terms of the experience that the largest proportion of employees are those who have been working at the hotel for less than two years by 52%. this is due to the high turnover rate among housekeeping employs, Due to physical effort, low salaries, slow promotion and incentives only after a long period and the proportion of employees in the housekeeping ( Fathy, 2018) for a period of 2: 5 years 31% Section for 5:10 years 11%. This ratio is often for the average supervision function the proportion of managers working in the department for more than 10 years is 6%, and this percentage belong to managers certainly, the speed of rotation of labor has affected the awareness of the employee in the department, since the longer the employees stays and the more the experience, the greater the awareness of matters related to his work and also the loyalty to the place where he works.

**Hotels Classification:** According to the research population of employees in the house keeping department in terms of the classification of hotel, it was that the proportion of employees in four-star hotels it was percentage 45%, and the proportion of employees in five-star hotels it was 55%, because the number of five-star hotels in Alexandria is more than four star hotels.

**Hotels Ownership:** According to the research population the employees in the house keeping department in terms of the ownership in the hotel, it was the largest proportion of employees in hotels of the international chain it was percentage 59%, the largest proportion is due to the fact that the largest proportion of four and five star hotels in Alexandria, the total number of employees in housekeeping in local chain hotels it was 29%, the share of private sector employees in hotels it was 12%.

**Environmental Practices in Housekeeping Department**

The following table (Environmental Practices) shows the opinions of Housekeeping Department employees in four and five stars hotels in Alexandria, which are as follows:-

**Table (2): Frequency, Mean and standard deviation of Waste Management**

No	" Question "	Strongly Disagree		disagree		Neutral		Agree		Strongly Agree		Std.D MEAN	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
<b>Waste Management</b>													
1	There is a sewage treatment system.	172	57	61	21	46	15	21	7	-	-	1.72	.56
2	Low-packaging materials are used in guest rooms to minimize waste	35	12	130	43	2	1	52	17	81	27	3.04	1.46
3	The hotel has a waste recycling system	119	39	122	41	-	-	36	12	23	8	2.87	1.25
4	Old towels are used for cleaning operations	-	-	19	7	-	-	133	44	148	49	4.36	.78
<b>Water Conservation</b>													
5	Is there is a water conservation program within the hotel	54	18	71	24	13	4	118	39	44	15	3.59	1.39
6	Are There water consumption regulators on the faucets	107	36	70	23	-	-	69	23	54	18	2.64	1.57
7	Do Bathrooms offer shower tub combinations	27	9	98	32	2	1	113	38	60	20	3.27	1.34
8	Are linens and furnishings changed every 3 days	50	17	87	29	-	-	116	39	47	15	2.92	1.20
<b>Energy Conservation</b>													
9	Is there is an energy conservation program.	20	7	62	21	21	7	143	47	54	18	3.49	1.19
10	Does hotel use	185	62	67	22	7	2	41	14	-	-	1.68	1.04

	renewable energy sometimes?												
11	Does hotel use energy-saving appliances and equipment	71	23	74	25	14	5	79	26	62	21	2.95	1.21
12	Is the hotel is interested in using energy-saving lamps.	27	9	80	26	2	1	102	34	89	30	3.48	1.38
Total												36.01	14.37
Total Mean												3.00	1.19

**Waste Management Practices:**

It is clear from the results of the previous table that the employees' answers about whether there is a waste treatment system were the percentage to (Disagreed) with percentage 21% and (Strongly Disagree) it was percentage 57%, the total was 78% of not approval, the mean trend towards about of disapproval it was 1.76 and the standard deviation is 1.46. Including the difficulty of implementation and maintenance of the system of sewage treatment and the implementation of this system will require a high cost of material and the management of these hotels would see that it's not necessary to hotel costs.

According to the data when asked about if Low-packaging materials are used in guest rooms ,the hotel employees opinion is not approval was percentage 55%, the mean it was 3.04, the standard deviation is 1.46 , In the discussion of data, due to the lack of awareness of the administrations of these hotels of the importance of reducing the waste and the lack of their interest in the purchase and use of low-packaging materials and lack of interest in the application of sound environmental practices as confirmed by (tang, 2014 ) who stressed to the importance of reducing waste and that by reducing the amount of waste is also declining purchasing costs as well as reducing waste disposal resulting to hotel fees.

Regarding the existence of a system within the hotel for waste recycling, the employees' responses were about 41% (Disagree) and 39% (Strongly disagree) for the research population. The total of not approval was 80% The mean direction of the non-approval was 2.87 and the standard deviation is 1.25, The researcher believes that this result is due to the difficulty of implementing system recycling water in hotels and it is a high cost of hotel and get lot of money to implement it, but some hotels that apply EMS that it employees to reduce waste and the sorting of

waste before sending to its recycling places and other means of waste management in a way this is the opposite of what has been confirmed by (Alonso, 2012) who said that if the hotel applies a recycling system, the hotel will have several benefits, including reducing the costs of waste collection and disposal and minimizing the negative impact on the environment.

According to the questions reuse of disposable towels and bed sheets consumed for cleaning purposes was choice (Strongly Agree) with percentage 49%, and choice (Agree) with percentage 44%. The total was 93%, which is less than half the center, the data are of natural and the dispersion rate is acceptable and there is a strong moral indication and when discussing the data we found out that the high rate of approval. The researcher believes that it is because the view of the administrations of these hotels that the application of this good practice does not cost hotels the material cost and its application shall be simple for the hotel and do not require a minimum effort applied to the contrary, the application of this practice provides hotels a lot of money by not buying towels for cleaning inside the hotel. (Barber and Deale, 2013) referred to the benefit of reusing recycled linen to be used again.

#### **The Housekeeping Employees Practices to Conserve Water:**

The employees' answers about the fact that there is a water conservation program within the hotel was a satisfactory criterion its choice (Agree) with percentage is 39% and the (strongly agree) 15% of the employees in the research society. The total approval rate was 54%. The mean it was 3.59 and the standard deviation was 1.39. This result indicates the interest of the management of these hotels in water conservation and their awareness of the importance of conservation. That consumption reduction also leads to lowering the costs and the cleanliness of stored quantities must be maintained. This is confirmed by (Kasim et al, 2014), who stressed the importance of water conservation by improving the efficiency of water use by installing the best equipment which is highly efficient in the use of water.

According to the questions the presence of water consumption regulators on the water taps in the bathrooms of the guest rooms came to their responses to the standard (Disagree) by 23% and the criterion (Strongly Disagree) by 36%, The approval mean it was 2.64 and the standard deviation is 1.57. This is due to the fact that some administrations have no awareness of the importance of water conservation and the importance of applying sound environmental practices, especially that the application

of this practice requires the purchase and maintenance of water consumption organizations to be placed on water taps. For which there is no need these hotels, and they are often privately owned hotels, some of which are locally owned. But (Tang, 2014) stressed the importance of setting up water-saving devices and organizations with low flow on faucets and latrines.

It is clear from the previous table that the responses of the employees about the existence of a kind of water showers that flow without waste water in the toilets of the rooms was a (Agree) with percentage is 38% and the (strongly Agree) with percentage 20% of the employees of the research community and the total approval rate was 58%, The approval mean is 3.27 and the standard deviation is 1.34. The researcher believes that the approval rate is due to the awareness of the management of these hotels about the importance of water conservation and their awareness that installing this type of shower will cost them a lot of money but will save a lot of water consumption and thus provide consumption bills for This sound practice was confirmed by (Eric et al, 2014) where he stressed that the installation and use of many simple techniques leads to a decrease of the quantities of water use.

On the terms of changing linens and furnishings in rooms at the request of the guest or every three days, the employee's responses (Agree) were about 39% and the choice (Strongly Agree) with percentage 15%. The percentage of the total approval was 54%. The mean direction towards the approval was 2.92 and the standard deviation is 1.20, which is less than half the center, the data natural distribution and dispersion rate is acceptable and there is strong moral significant and the researcher finds out that this result is due to the fear of the administrations of these hotels to apply this practice that they do not satisfy guests. This is in contrast to what (Han and Ham, 2013), pointed out that many guests are turning to everything new and so they have more awareness.

### **The Energy Conservation:**

The employees' answers about the existence of an energy conservation program within the hotel were 47% was (Agree) about this and 18% (Strongly Agree). The total approval rate was 65%. the employees in the research population, the trend towards the approval was 3.49 and the standard deviation of the criteria is 1.19 .The researcher believes that this result is due to the existence of an energy conservation program inside the hotel of the important things, even if it requires a high financial cost

and the management of these hotels think that they need it and it is necessary to have this program as it will provide the consumption of quantities of energy used in the hotel and thus reduce costs. This is agreeing with (Laskurin and Heras, 2015) he pointed out the importance of reducing the consumption of energy in hotels, especially as it reduces costs.

In terms of the hotel's use of renewable energy, the responses of the employees were (Strongly disagree) with percentage 62%, and (Disagree) with percentage 22%. The total percentage of disapproval was 84% of the employees in the research population. The mean direction towards disapproval was 2.95 and the standard deviation was 1.17 .The researcher said that this result is due to the fact that the use of renewable energy is a modern trend in energy conservation, but it needs a high cost and there is difficulty in the implementation and maintenance and the management of these hotels see that there's no need for it them and they are satisfied in terms of energy conservation and the application of environmental practices using energy efficient equipment and devices. This is in contrast to what (John, 2016) stressing the importance of using renewable energy for its benefits, including energy conservation and reducing pollution from carbon dioxide emissions from energy use.

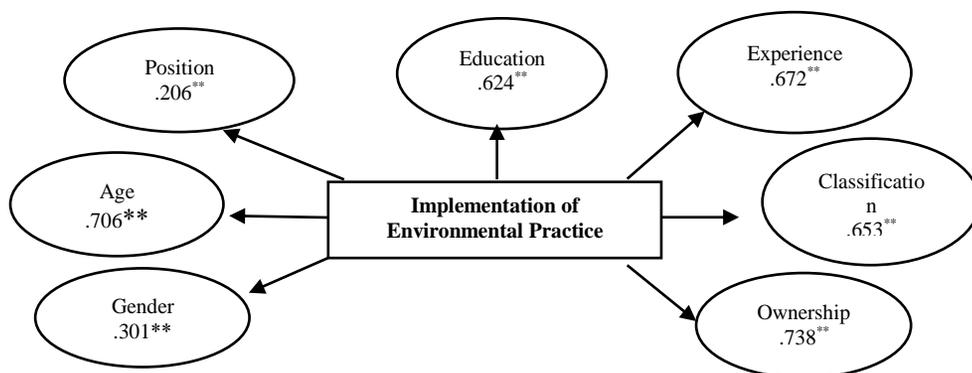
The results of the previous table indicate that the employees 'responses to the use of energy efficient appliances, the employees' responses to the standard were (Disagree) it was percentage 25%, and the criteria (Strongly disagree) were 23%. The results of the survey were: 2.95 and the standard deviation is 1.51, the total approval rate was 48%. The awareness of some hotel departments of the importance of energy conservation and the importance of the application of EMS even if there is a material cost on the hotel , they are aware of the benefits later and often these hotels are those that belong to global chains and there are other departments that believed that there is no need for the hotel to bear any material cost due to their lack of awareness of the importance of energy conservation and the application of sound environmental management systems and the benefits of their subsequent application.

As for the hotel's use of energy-saving lamps in the guest rooms, the employees' responses were (Agree) about 34%, and the (Strongly Agree) it was percentage 30%. The total approval rate was 64%. The mean was 3.48 and the deviation 1.38. this is due to the awareness of the management of these hotels of the importance of energy conservation and their interest in the application of EMS may also be due to the fact

that if the use of saving lamps it will cost them but they will recoup their cost by saving energy over a year or two of use. This is what (Karthik, 2015) pointed out the importance of switching light bulbs to other energy-saving as they provide 10: 25% less energy.

**Testing the hypotheses:**

Figure 1 presents the correlation of research variables (Demographic Factors and implementation of Environmental Practice in Housekeeping Department). The Spearman (r) correlation analysis was conducted to investigate the effect size, or strength of the relationship, between the variables in this research.



**Figure (1): Correlation about Demographic Factors in Housekeeping Department**

**Gender:** according to Using correlations to test the correlation between gender and the awareness of employees about environmental management system. That there is positive and weak relationship between them (R= .301\*\*). Therefore, the gender of employee is poor effect of implementation of environmental management practices, which semi confirm the findings of Van Liere and Dunlap (1980) who stated that there is poor relationship of employees gender as a predictor for environmental behaviors. Conversely, conflicting findings were found by the Klineberg et al. (1998) that gender is a significant predictor of green concerns and cite that females employees are more environmentally concerned than males one. Moreover, Davidson and Freudenburg (1996) and Diamantopoulos et al. (2003) stated that females are more environmental and participate in environmental practices than male.

**Age:** according to Using correlations to test the correlation between age and the awareness of employees about environmental management system, that there is positive and strong relationship between them ( $R = .706^{**}$ ). Therefore, must be depend on the young generation of employees there are more interest to implement the environmental management practices. The research findings confirm with findings of Kim, S., Choi (2013), that indicated to that young employees are more concern to improve the environmental performance of hotel.

**Position:** Using correlations to test the correlation between position and the awareness of employees about Environmental management system. That there is positive and weak relationship between them ( $R = .206^{**}$ ).

**Education:** Using correlations to test the correlation between education and the awareness of employees about Environmental management system. That there is positive and strong relationship between them ( $R = .624^{**}$ ). Education is a key factor in the development employee's skills. The current findings revealed the highly educated employees are more anxious about negative impacts to environment, due to they are more exposed to environmental knowledge than other educational level. The current findings confirm with the findings of Klineberg et al., (1998), Newell and Green's (1997) and Vaske et al. (2001).

**Experience:** Using correlations to test the correlation between experience and the awareness of employees about Environmental management system. That there is positive and strong relationship between them ( $R = .672^{**}$ ). The years of employees' experience is one of the most important things to emphasize when entering a job. Therefore, there is a positive and strong relationship between the level of experience and the improvement of work performance, thus improving the development of environmental practices in hotels.

**Classification:** Using correlations to test the correlation between hotel classification and the awareness of employees about environmental management practices. That there is positive and strong relationship between them ( $R = .653^{**}$ ). The current findings referred to the five star hotels are more concern to implement the environmental practices than four star hotels.

**Ownership:** Using correlations to test the correlation between Classification and the awareness of employees about Environmental management system. The current findings stated that there is positive and strong relationship between them ( $R = .738^{**}$ ). The current findings revealed that chain hotels are concern to implement the environmental practices.

There was a need to use (T. Test) between a number of variables to research the significance of correlation between a set of questions to prove the validity of the research hypotheses or its validity (There is a statistically significant relationship between demographic factors and implementation of environmental management practice), Where the test was carried out through the axis of the hotel degree and between the ages of awareness of the employees of the application of environmental management systems as follow :

**Table (3): Analysis the research Hypotheses**

		Levene's Test for Equality of Variances		T-test for Equality of Means			
		F	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
(1)	Equal variances assumed	.066	-9.857-	148	.000	2.57109	.26085
	Equal variances not assumed		-10.233-	52.329	.000	2.57109	.25124
(2)	Equal variances assumed	.911	-8.275-	148	.000	2.45006	.29607
	Equal variances not assumed		-8.102-	43.627	.000	2.45006	.30238
(3)	Equal variances assumed	2.674	-6.168-	148	.000	2.01645	.32694
	Equal variances not assumed		-5.979-	42.155	.000	2.01645	.33728
(4)	Equal variances assumed	.649	-8.367-	148	.000	2.39483	.28621
	Equal variances not assumed		-8.049-	41.054	.000	2.39483	.29754
(5)	Equal variances assumed	2.484	-7.988-	148	.000	2.28085	.28552
	Equal variances not assumed		-7.472-	37.259	.000	2.28085	.30527
(6)	Equal variances assumed	1.223	.251	148	.803	.09518	.37989
	Equal variances not assumed		.238	39.463	.813	.09518	.39946
(7)	Equal variances assumed	3.410	-12.264-	148	.000	2.81904-	.22987
	Equal variances not assumed		-14.154-	55.928	.000	2.81904-	.19917
(8)	Equal variances assumed	.095	-9.223-	148	.000	2.60752-	.28271
	Equal variances not assumed		-9.328-	48.516	.000	2.60752-	.27952

According to the data in the previous show that a strong relationship was found among them in most areas of awareness of environmental practices, this can be illustrated by the data in the following table (3).

A number of statistical techniques have been used in the research. Descriptive statistics for research variables were conducted, attaining central tendency of mean of housekeeping employees'; to provide an overview of the implementation of environmental management practices and its relations demographic factors. Thus, the research variables intercorrelation was tested through the Spearman Nonparametric Correlation Coefficient to test the research hypotheses to explore correlation among demographic variables and implementation of environmental practices. Table 4 provides a summary of testing the research hypotheses.

**Table 4: Summary of the Findings of Testing the Research Hypotheses**

Hypotheses		Significance	The correlation (positive/negative-strong/weak)	Supported/Rejected
H.1	There is a statistically significant relationship between employees' gender and implementation of environmental management practice.	<i>Spearman Correlation</i> .301**	positive and weak relationship	Supported
H.2	There is a statistically significant relationship between employees' age and implementation of environmental management practice.	<i>Spearman Correlation</i> .706**	positive and strong relationship	Supported
H.3	There is a statistically significant relationship between employees' position and implementation of environmental management practice.	<i>Spearman Correlation</i> .206**	positive and weak relationship	Supported
H.4	There is a statistically significant relationship between employees' education level and implementation of environmental management practice.	<i>Spearman Correlation</i> .624**	positive and strong relationship	Supported

Hypotheses		Significance	The correlation (positive/negative-strong/weak)	Supported/Rejected
H.5	There is a statistically significant relationship between employees' experience and implementation of environmental management practice.	<i>Spearman Correlation</i> .672**	positive and strong relationship	Supported
H.6	There is a statistically significant relationship between hotel classification and implementation of environmental management practice.	<i>Spearman Correlation</i> .653**	positive and strong relationship	Supported
H.7	There is a statistically significant relationship between hotel ownership and implementation of environmental management practice.	<i>Spearman Correlation</i> .738**	positive and strong relationship	Supported

**Conclusion:**

This research showed that environmental management is becoming significant in hospitality industry. The results showed that the demographic factors have significant relation with environmental management practices in housekeeping department in hotels. The results find factors that have a positive and strong relationship such as age, educational level, experiences of housekeeping employees, hotel classification, and hotel ownership. But, there are positive and weak relationships such as gender and position of housekeeping employees. Also, the results indicated that high cost of implementation and maintenance of sewage system treatment form an environmental barrier to hotel adapts it. Moreover, the lack of hotel management awareness of waste reduction benefits through the use of large packaging and reduce the use of packaged packages in the guest rooms. The housekeeping employees stated that high cost to create the water recycle center hinder the hotel operations to implement environmental practices. The researcher stated that hotel prefer the reusing old towel in cleaning process, because it is not burden hotel any cost in initial investment as different to other environmental practices, but it also reduces the waste.

It can also be seen as an investment in environmental management systems ISO14001 while it improves the manners how operations that have an effect on environment are dealt in hotels.

The research proved that hotels are seeking to save the water as clean, but it still have inadequate awareness to install equipment and tools to reduce water consumption, because it need additional replacement cost of faucet and etc. Moreover, the results stated that the hotel management recognizes the significant of use the low flow shower heads to reduce water consumptions which lead to reduce the cost of water bills. The results had showed that hotel management has concerns about adopting some environmental practices that directly concern guests services, which many be has negative effect on guest satisfaction.

The researcher believes that the interest of hotel management adoption environmental practices have increased to face the high prices of electricity consumption. However, if the costs of implementing and maintaining environmental practices such as the use of renewable energy formulate an obstacle to adoption environmental practices, even the hotels recognizing the need to use trendy renewable energy, but, at the same time, hotels, especially international hotel chains, have been intense keen to use energy-saving equipment. Finally, the use of energy saving bulbs have received general acceptance among all hotel categories.

### **Recommendation:**

Based on the field research and the results of this practical research, the researcher was able to make a number of recommendations and suggestions, the recommendations of the research were presented as follows for hotel industry:

- The owners of hotels and investors must be aware of the importance of preserving the environment and the importance of implementing environmental management systems in the pre - opening phase of the hotel until the construction processes and the selection of employees in the correct manner.
- The hotel management should develop monetary and morale policies to motivate the housekeeping to implement and participate in environmental programs. In other word, the employees receive monetary rewards if the achieve level of environmental behaviors, that can enhance the employees motivator to participate, but, especially in the morale rewards such as verbal acknowledge can be in existence of coworkers will be beneficial to motivate them.
- The human resource management should take in consideration the eco -friendly behaviors candidates in selecting, hiring process.

Also, they should select the young generation of employees, highly educated, and experienced candidates

- Develop programs to preserve the environment and its resources through the introduction of experts to train employees and raise the level of environmental awareness by increasing the rates of training programs in coordination with hotel management so that the employees apply the systems of environmental management in the right manner. **The environmental program has the following step**
  - **Conduct a first training session** to explain the significance to adopt the environmental programs to own hotels such as efficient operation, and competitive advantages. Also, the session include the global environmental issues. Moreover, the session will help to attract and retain the best housekeeping employees, enhance the hotel's reputation.
  - Disseminate to the employees printing internal brochures and hotel environmental policy to housekeeping employees.
  - Create environmental committee and "green team" members on the notice board. Give members of 'green teams' attractive badges to be proud to wear them. The team member should represent the all hotel department that can help to identify the different issues are for whole hotel.
  - Conduct a brief tour to all hotel department to ask about the environmental issues, what are the improvements can used to reduce environmental impacts.
  - Finish the session by asking housekeeping employees to identify the actions that help the hotel to become more environmentally-friendly.
  - Plan a series of environmental activities and events with green team members which all employees and their families can take part in such as clean-ups, quizzes and poster competitions to encourage involvement and enthusiasm for the environmental programs. The environmental activities can hold by hotel such as:
    - Sandwich bag compost experiment, that can teach the kids about the composting process and significance.

- Wildflower Seed Bombs, that help to celebrate of Earth Day by making super-fun seed bombs that resemble our planet.
- Recycle the waste, where the employees and their families and guest will learn how to recycle the waste.
- **Program implementation:**
  - In current stage there are many procedure should done:
    - **Conduct review:** the green team should conduct review of consumption in order to set targets and develop indicators. The team should collect data about energy and water consumption and waste figures from hotel and waste bills, chemicals materials from purchasing invoice, and environmental legislation.
    - **Implementing procedures:** assess the training gap.
    - **Monitoring progress:** the green team will take different actions such as checking meters, sales records or utility invoice. They need to determine the carried actions, who employees carried. Also it should determine the not carried action n, and why did not carried.
  - **Meeting the target:** set the objective of programs such as reduce the energy consumption by 7%. Thus, the green team should learn and train the housekeeping employees how to reduce the consumption.
    - Educate the housekeeping employees to save energy by:
    - Turn down heating/air conditioning Turn off lights and in vacant rooms or public areas.
    - Continually check and report any leaking faucets and toilets.
    - Make sure all rooms have linen reuse cards for both towels and sheets.
    - Learn the employees the consumption indicators to help to report such as liters of

water used per m<sup>2</sup> or per guest night, kilowatts energy used per m<sup>2</sup> or per guest night, kilogram waste created by guest night, and kilogram of recycled waste.

- Reduce water use, by using greywater and rainwater harvesting system.
- **Communicating the results:** the green team should quantify in order to promote understanding and motivation. For example: Recycling one glass bottle saves enough energy to power a 100-watt light bulb for almost an hour, a computer for 25 minutes.
- **Disseminating environmental information:** Inform all housekeeping employees (not just green teams) notice boards and staff meetings. Also, hotels inform guests via in-room material such as brochure and letters.
- Conduct an adjustments in hotel infrastructure such as:
  - Install sink aerators (.25 gpm to .5 gpm for hand and face washing and low-flow showerheads (.5 to 2 gpm).
  - Adjustment to low flow or dual flush toilets/urinals (1.28 GPF or less).
  - Conduct a schedule to track continually the water, energy, and waste through an internal auditor or through outside consultants.
- Take care of linens; the hotel should take the strategies to extend the linens life by using laundry procedures and cleaning substance that limit the wear and tear on hotel linens to preserve the hotel cost environment.
- The hotel should adopt the recycling procedures in hotel to reduce the waste. The hotel can do environmental initiatives, such as use the retired sheets to cloth laundry bags, and pillow case; and bath robe to towels and face towels. Also, it can use for chefs t aprons and chefs' napkin or chefs aprons and neckties.
- Install alternative energy sources such as solar energy, and wind energy power.

- Encourage the guest to be environmental concern, put cards in guest room to save energy, water, reuse towels if possible. Learn the guest about your environmental programs. Encourage the guest to participate in environmental events, and feel them as environmental team.

### **Research Limitations and Future researches:**

Environmental management practices bring potential benefits and also concerns to hospitality industry. Although current research proposals valuable and serious contributions, it still has numerous limitations that lead to suggest paths for future researches. The current sample presents limited to housekeeping employees in four and five star hotels in Alexandria city, Egypt. The further researches must conducted to investigate the environmental practices in different hotel departments, grades, other hospitality sectors such as cruises, motels, restaurants and etc. Future researches should investigate samples drawn from different cities to achieve the more meaningful generalizations. Moreover, researches could examine what motivates hoteliers, employees to implement environmental practices management. Other comparative studies can conduct to compare independent versus chain- hotels and restaurants, concerning the implementation of environmental management practices. Also future research can investigate the relation among guests' demographics and their environmental attitude and behavior. Further research should conduct to investigate the barriers of environmental practices management, which derives the hospitality industry from environmental management benefits. Future research is also needed to examine the influences of environmental management practices on service quality provided to guest.

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