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**Environmental Management System  
Implementation  
In the Egyptian Hotel Industry  
A case study of Sharm-Elsheikh**

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## **Abstract:-**

In last decades, a great concern has been turned to protect the environment in many industries including the tourism industry. Despite the fact that hotels are the major tourism actors, they are also a great consumer of natural resources and drive out a considerable quantity of solid waste and wastewater. The purpose of this study is to focus on the concept of Environmental Management System (EMS) in five-star hotels in an emerging touristic region in Egypt, Sharm-Elsheikh, and to investigate the implementation of Environmental Management System (EMS) from both operational and marketing perspectives.

The population of the study is represented by a sample of five-star hotels in Sharm-Elsheikh. Data were collected using questionnaires, from a sample of 22 managers and 100 customers. Findings indicated that managers have a high level of environmental awareness. Results also proved that EMS is well-recognized in the hotel industry in Sharm-Elsheikh. However, these environmental practices are not implemented on an equal pace to their importance. The study provides practitioners in the hotel industry with recommendations and guidelines that help to reinforce environmental efforts and to formulate better EMS implementation.

**Key words;** environmental management system, environmental practices, environmental awareness, Egypt and Sharm-Elsheikh

## **1. Introduction**

Although tourism is an activity that depends heavily on the environment and has the potential to bring about significant enhancement of that environment, it has also the potential of destroying it if it is not properly managed (Pigram, 1995). Hotels are the hub of tourism industry. They represent a sector of industry which numerous activities tend to affect the environment adversely. These activities include mainly construction of buildings, landscaping, cooking and disposal of wastes, in addition to the usage of water and energy. In fact, Hotel businesses affect the sustainability of the destination in which they are developed and operated by the consumption of significant amounts of natural resources (Scanlon, 2007). Therefore, an EMS has been created to provide a framework for managing environmental responsibilities efficiently via the integration into the overall operational tasks. In other words, an EMS is developed as a response to exerted pressure to demonstrate environmental performance.

In 2010, Egypt received 14.8 million tourists comparing to 12.5 in 2009. In 2010, tourism revenues amounted to 12.5 billion USD (Egyptian Tourism Federation, 2011). Consequently, tourism represents the main source of Egypt's income of foreign currency. As a response to this growing trend, Sharm-El sheikh as one of the main touristic seaside destinations in Egypt has turned to a hub of activities to meet the promising investment prospects.

The present work includes the study of the concept and the implementation of the environmental management system in the hotel industry investigating 5-star hotels in Sharm-Elsheikh as a case study. The practical study aimed at investigating the concept and the implementation of EMS from the operational and the marketing perspectives. Both of these perspectives have been investigated via the participation of hotel managers and customers. The practical study attempted as well to trace the divergence that would exist among these two perspectives, in order to reveal the opportunities for a comprehensive and beneficial EMS implementation for all parties.

The research problem of the study can be stated in the following question: "What is the level of concern (awareness) and implementation of EMS in hotels in Egypt, from operational and marketing perspectives? And to what extent is the degree of divergence/convergence among these perspectives?"

## **2. Objectives of the research**

This research intended to achieve the following objectives:

1. Assessing the extent to which Egyptian hotel managers are aware of the EMS and its implementation.
2. Appraising the extent to which hotel customers are concerned with the implementation of EMS.
3. Defining and analyzing the point of divergence/convergence among the investigated perspectives.

## **3. Research hypotheses**

This study has four hypotheses which can be formulated as the following:

- **H1:** There is a lack of EMS implementation in 5-star hotels in Sharm-Elsheikh.
- **H2:** There is a lack of EMS awareness for managers.
- **H3:** There is a lack of EMS awareness for customers.

- **H4:** There is a gap between EMS awareness for managers and customers

#### **4. Literature review**

Since the Rio Earth Summit in 1992, the green movement has gained momentum in the hotel industry worldwide through the efforts of various associations and activities. Notably, when the Prince of Wales launched the International Hotels Environment Initiative (IHEI) in 1993, 11 international hotel chains agreed to work together and initiated the development of a manual to embrace a comprehensive campaign to advance environmental performance in the hotel industry (IHEI, 1993). In the following year, another 16 hotel groups in the Asia Pacific Rim echoed this campaign and formed the first regional chapter—the Asia Pacific Hotels Environment Initiative (Mackie, 1994). In the same year, the Hotel & Catering Institute Management Association participated in Green Globe, an environmental management awareness program initiated by the World Travel Tourism Council (Chan and Lam, 2001). These actions have continued in the new millennium at the Johannesburg World Summit on Sustainable Development in 2002 and at the Middle East waste summit held in Dubai in 2009 (Ball and Abou Taleb, 2011). All these environmental movements were accompanied by a large number of studies that have been conducted in this specific field.

In 2005, Bohdanowicz (2005) made an attempt to study and compare the level of environmental knowledge and awareness among managers of European independent and chain-affiliated hotels. One of the findings of this study is that almost all managers are aware that their facilities had an influence on the natural environment. In 2006, the same author studied the level of environmental knowledge and awareness among Swedish and Polish hotel managers. The results were analyzed in the context of socio-cultural differences, as well as diversified economic situation in the investigated countries. The study revealed that hotel operators generally recognize the need for environmental protection and are involved in a number of activities.

A further study has been made among hotel managers in Edinburgh to test the association between characteristics of the hotels (size, ownership, classification) and attitudes of hotel managers to a number of potential benefits arising from environmental management, including increased profitability, increased customer and employee satisfaction, improved relationships with the local community, improved public relations, and the development of a marketing advantage. This study has been conducted by Kirk in 1998 through a postal survey. He found that there is

no association between the characteristics of the hotel and the presence of a written environmental policy such as size, ownership and classification. This result has been contradicted by Alvarez Gil, Burgos Jimenez, and Cespedes Lorente (2001) who found that the notion that age of facilities, size, chain affiliation, stakeholder environmental pressures, and their use of operations management techniques exert a lasting influence on the degree of implementation of environmental management practices by hotel firms. This result has been established through a research study that addressed the factors that determine the deployment of environmental management practices and its effects on firms' financial performance of Spanish 3-, 4- and 5-star hotels.

Other studies investigated customers' concern toward environment practices, willingness to pay a premium and enquiring about their motivations for choosing their destination. Svensson, Rodwell, and Attrill (2008) conducted a willingness to pay survey at a Hotel Managed Marine Reserves (HMMR) in Vietnam. The results revealed that a total of 97.5% of tourists support HMMR and 86.3% were willing to pay a user fee to support HMMRs. Another survey presented by Dalton, Lockington, and Baldock (2008) described the attitudes of Australian tourists to micro-generation renewable energy supply (RES) for hotel accommodation. The average positive response rate to all questions was above 50%, implying a desire by tourists for environmentally-friendly accommodation and renewable energy supply. However, Malaysian study conducted by Kasim in 2004, concluded that the majority of respondents would not be willing to pay more for any green initiatives implemented by a tourist establishment. Moreover, Svensson et al. (2008) found that choosing hotels according to environmental certification or environmental award schemes was the last choice when choosing hotels

On the other hand, the factors that influence the implementation of environmental management practices have been also discussed by various studies. In 2006, a research study was conducted by Le, Hollenhorst, Harris, McLaughlin, and Shook to identify factors influencing the intentions of Vietnamese hotel businesses to adopt environmentally-friendly practices. This study was approached from the perspective of hotel managers. Participants were asked to evaluate the potential advantages and barriers to the adoption of selected sustainable tourism practices and to make an adoption/rejection decision based on their judgment.

Many researchers have carried out studies about environmental practices like Scanlon (2007) who examined in her research study the

environmental operating practices of hotels and resorts to identify common operating activities and examples of 'best practices'. The research methodology employed for this study analyzed nine lodging case studies in order to determine the operating practices for water and energy use, waste management, the quality of indoor air and the reduction of indoor noise levels.

Similarly, Erdogana and Baris (2007) devised a study to investigate the general nature of environmental protection, waste management, purchasing, energy use, and conservation practices of hotels in Ankara, Turkey. It explored the extent of environmental protection practices so the hotel industry could evaluate its position on environmental issues and so that other interested parties, including academics, can obtain fresh information for a distinctive part of the world.

The hotel industry is currently taking various initiatives for the sake of the environment, for economic reasons, or to build a positive image. Some hotels have gone one step further and adopted the internationally-recognized ISO 14001 Environmental Management Standard. In 2006, Chan and Wong investigated and identified a number of variables to predict the motivation of hotels in adopting the ISO 14001 standards through a questionnaire sent to all hotels in Hong Kong and found that the motivation for the adoption of the standard is determined more by internal forces rather than by external forces.

In Hong Kong, a survey conducted in 1992 found that about 30% of hotels had launched environmental programs, with varying degrees of success (Barlett, 1992). The thrust of the green campaign in the local hospitality sector focused mainly on energy savings. Municipal waste management received very little attention until the mid-1990s. It is generally believed that the unenthusiastic response to reduce solid waste in hotels was due mainly to the anticipated high capital cost associated with the purchase of recycling equipment and the increase of labor involvement in such practice.

Similarly, Chan and Lam (2001) conducted a study focusing on the estimation and the environmental accounting of municipal solid waste (MSW) produced by the hotel industry in Hong Kong while Trung and Kumar conducted a study to assess the resource use and waste management in the hotel industry in Vietnam in 2005.

More specifically, Chan and Wong (2006) investigated the severity of the solid waste problem created by local hotels, particularly with regard to the volume and total weight of newspapers distributed in hotels. This

study chiefly investigated the number and total weight of newspapers distributed in Hong Kong hotels with specific aims to identify which newspapers were offered to the hotel guests, find out the total number of copies being distributed, estimate the total weight of these newspapers, and recommend methods for handling this solid waste. Moreover, in Egypt, Ball and Abou Taleb (2011) investigated the weight of solid waste produced by five-star hotels in Cairo and tried to identify whether this weight complies with international standard benchmark. It was found that since 1994 hotels have started some successful waste management practices. However the weight of the waste produced by a number of hotels still exceeds the international benchmark.

Furthermore, Finnveden, Björklund, and Moberg (2007) presented an overview of methods and approaches that can be used for supporting waste management decisions at different levels in society. They provided an overview of different methods and gave some guidance on the appropriate choice for a particular purpose. The focus was on environmental and economic assessment methods. They also discussed some limitations of systems analysis methods in general and as applied to waste management systems.

## **5. Methodology**

The population of this research included 5-star hotels in Sharm-Elsheikh with a total of 44 hotels. A survey has been distributed to address the first part of the field research that concerned the hotels' managers. For the second part that relates to customers, the researchers used a non-probability sampling technique.

This category of hotels has been chosen because of the high probability of implementing an Environmental Management System for managerial, financial and organizational reasons. In fact small- and medium-scale hotels do not have the capital resources or internal arrangement structure to conduct environmental management according to (Chan, 2011). The selection of Sharm-Elsheikh as the focus of research is validated by the value of its natural resources. So, it was expected that some environmental regulations can be easily implemented/reinforced either by hotel managers or via governmental authorities. Moreover, Sharm-Elsheikh is one of the most famous touristic seaside destinations in Egypt.

In order to determine the level of awareness and practices of the management of the participating 5-star hotels and their customers, two questionnaires have been developed. One questionnaire was developed for managers and the other one for customers.



Hotel Managers' questionnaire has been distributed during July 2010 either by mail or during the on-site visit to all participating hotels.

Out of the 44 hotels, the researcher received 22 completed questionnaires. Seven of which have been received by e-mail, 2 were completed on-site and the rest were received in hard copy few days after handing them in to the participants. The response rate was 50%.

Concerning customers, 220 questionnaires have been distributed. Participants were approached personally by tour guides dealing with customers of 5-star hotels in Sharm-Elsheikh. The distribution has been conducted during a period of 3 months from July to September 2010. A total of 100 questionnaires have been completed with a response rate of 45%.

Frequencies and percentages were used to describe the data and statistical tests have been used to test the research hypotheses. Means, analysis of variance (ANOVA), t-test, Chi-square ( $X^2$ ) were conducted to test for significance between variables. The hypotheses were tested at  $P < 0.05$ . Data collected from the field were edited, coded and processed using the Statistical Package for the Social Science (SPSS) version 17.

## **6. Results**

### **A. Profile of Respondents**

#### **• Hotels' Profile**

The participating hotels were categorized as medium-sized properties with a capacity between 350 and 500 rooms (40.9%), followed by larger one (500-800 rooms) with a percentage of 27.3%, while properties with a capacity <350 and >800 were 22.7% and 9.1% respectively. Roughly 60% of the participating hotels were established between 1998 and 2000. Three of them were under 10 years old and 6 above 12 years old. It should also be emphasized that all the participating hotels are chain affiliated with an exception of only one independent property.

#### **• Customers' Profile**

Concerning customers, many nationalities were represented in this survey; most of them are Europeans with (37%) British, (15%) Dutch and (12%) Italian. This may be due to seasonal effects and/or the type of agencies the tour guides were dealing with. It should be noted that males and females were represented almost evenly, with (45%) being male and

(55%) being female. Almost third of respondents were 26-35 years old (34%), (24%) were under 26, (21%) were between 36 and 45 years old, 46-55 years old and 55 or older were respectively (14%) and (7%). It is important to note that the respondent's highest level of education completed was university level (43%); college level (38%), secondary school level (17%) and PhD level (2%). Most respondents are leisure guests (91%), the rest are coming for business purposes (9%). The average length of stay of customers was more than 4 nights in Sharm-Elsheikh (99%). Almost third of the respondents (27%) are repeated guests in Sharm-Elsheikh and for the remaining (73%) are first-time visitors.

### **B. EMS Awareness**

In the second section of the questionnaire, managers and customers were exposed to awareness questions about EMS by using open- and close-ended questions. They were asked to give an interpretation of EMS whether they have ever heard of the term. Interestingly, more than 95% of managers have heard of the term EMS against almost 80% did not hear from customers. Among the 21 customers who answered positively, only 8 of them gave a brief definition of EMS which can be resumed in those words: saving the world, recycling, planning, working together, evaluating and reducing the impact of tourism on environment.

Regarding managers, definitions have been more elaborate than customers. It has been found that 18 of the 22 managers gave almost comprehensive definition. Most of them explained the role of this system in protecting the environment through different practices as recycling, saving energy, reducing waste, saving water, air quality and noise reduction. But interestingly, only one of them cited the importance of enlightening the customer awareness and another one mentioned the fact of having a good image among competitors through this system.

Managers were specifically asked some questions which sought to assess their familiarity with the environmental management within the sector. About 90.9% said that they have EMS implemented in their property. Notably, all those who answered with a negative response have the intention to implement it.

Participants that replied favorably as regards the "EMS's adoption", were asked to specify three practices of their environmental programs. The most common practice implemented was the "energy conservation" by 35% of the respondents, followed by the "waste management" 30% of the respondents, then the "water conservation" by 19% of the respondents. Other practices addressed raising awareness by 9% and marketing approach by 5% of the respondents.

As regards certification programs, one third of the respondents has no certification program, 27% of the respondents have adopted the Green Globe 21, 23% of the respondents have certification of ISO 14001 and finally 9% have EMAS and other certifications.

After exploring the certification schemes implemented by the sample, the researchers inquired about the motives for implementing environment management in the hotels by listing a number of reasons. It has been identified that the financial reasons are the main driver (35%), followed by positive image (27%), laws and regulations (19%), the customers' pressure (7%) and other reasons (7%). The staff pressure (5%) was considered to be the least reason that has impact on the management's choice to implement EMS.

Additionally, respondents were asked to evaluate the hospitality sector's impact on environment. All managers replied positively to this question. The majority (41%) believed that it has a significant impact followed by moderate impact (27%), substantial impact (18%) and the least category was minimal impact by (14%).

Lastly, managers were asked about their evaluation of the environmental standard of Sharm-Elsheikh city. It has been found that the majority (41%) evaluated Sharm-Elsheikh with a fair environmental standard.

As regards customers' survey, customers were asked to rate their degree of agreement with five statements which sought to evaluate their awareness toward the environment by using 5-point Likert scale, with 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4=agree and 5=strongly agree (Table 1). Nearly half of respondents (46%) have a neutral opinion about environmental certification as one of the criteria when choosing a hotel. But it should be noted that 20% of respondents disagree or strongly disagree with this statement. About 49% of customers agreed to see hotels' environmental policy being internally advertised. Around 76% of respondents were in agreement to support green hotels and 7% were in disagreement. Almost 40% of customers disagreed with the fact that the hospitality sector has a minimal impact on environmental problems which matches the opinion of managers' evaluation (41%) as it has a significant impact.

**Table 1: Degree of acceptance of customers to EMS**

Statements	SD	D	N	A	SA	Mean
I would support green hotels	0	7	17	<b>43</b>	33	4.13
I would like to see hotel's environmental policy being internally advertised	0	15	18	<b>49</b>	18	4.09
I'm willing to pay a higher rate for a green hotel	6	19	<b>35</b>	27	13	3.74
Environmental certification is one of my criterion when choosing a hotel	2	18	<b>46</b>	25	9	3.61
The hospitality sector has a minimal impact on environmental problems	16	<b>29</b>	27	23	5	3.26

**SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, A=Strongly Agree**

Based on compound mean values, customers were most agreed to support green hotels (mean=4.13), to see hotels' environmental policy being internally advertised (mean=4.09), to pay a higher rate for a green hotel (mean=3.74) and to choose a hotel according to its environmental certification (mean=3.61).

The researchers tried to measure the potential gap between managers and customers' perception from marketing perspective via proper achievement of EMS. The researchers asked the customers whether they know their chosen hotel is an eco-friendly one. In fact, nearly three quarters of respondents did not know this information (73%).

Lastly, customers were asked about their perception of the environmental standard of Sharm-Elsheikh city. Forty percent of the customers perceived Sharm-Elsheikh as having a fair environmental standard. However, unlike customers, managers evaluated the environmental standard positively. In fact, 23% and 9% of managers evaluated the environmental standard as good and very good respectively against 8% and 4% for customers. On the other hand, customers' evaluation was 33% and 15% as poor and very poor standard respectively against 14% and 13% for managers.

### **C. EMS practices**

The last section of questionnaires of both managers and customers addressed the extent to which managers apply environmental practices within their properties and their evaluations of these practices and also asking customers about their perceptions of these practices.

Managers were asked to assess their level of EMS implementation in their property and its importance concerning the five areas: waste management, water conservation, energy conservation, raising awareness and marketing approach. Mean values and standard deviation have been calculated for each environmental practice; its level of implementation and its importance. The p-value was also calculated to identify if any significant relationship or difference exists between both dimensions. The final results confirmed a significant correlation when the p-value is  $< 0.05$ . Table 2 presents the relationship between implementation and importance of the EMS practices.

Concerning the waste management practices, compound means values established that having a purchase packaging program (mean=2.86) and having a recycling program (mean=2.23) were the most implemented practices. However, providing well-marked recycling bins (mean=1.55), providing guest opportunity to check out electronically (mean=1.55) and adding dispensers for shampoo and conditioner in guest rooms (mean=1.5) were the least implemented ones. Concerning the importance of these practices, having a purchase packaging program and using reusable containers, tablecloths, linen napkins have been evaluated as the most important practices according to their means respectively 2.82 and 2.59. On the other hand, providing guest opportunity to check out electronically (mean=2.14) and providing dispensers for shampoo and conditioner in guest rooms (mean=2.18) were the least important practices according to managers. The researchers were also notified of the use of recycling programs; to use reusable containers, tablecloths, linen; to provide recycling bins in food service areas and in rooms; to provide guest opportunity to check out electronically; to provide dispensers for shampoo and finally donating used furniture as the most important.

Regarding the water conservation, the top environmental practices implemented in the participating hotels were conducting a water audit (mean=2.82), having a water conservation program (mean=2.77) and implementing a towel/linen reuse program (mean=2.77). Using water

saving laundry equipment and kitchen equipment were the least implemented practices with a mean that scored 2.14. The researcher remarked that all water conservation's practices have been evaluated as highly important; as all means ranged between 2.77 and 2.95. The most important practices according to managers were having a recycling program and conducting a water audit with a mean of 2.95. Some significant differences between their implementation and their importance have been found with a p-value inferior to 0.05. It can be noted that more than 60% of these practices stated, has a significant difference between its implementation and its importance. Managers rated some practices very important but did not implement them entirely in their hotels, for example using water-saving laundry and kitchen equipment (p-value= 0.0001). A significant correlation has also been indicated for having a water conservation program (p-value=0.041), installing water flow regulators on basin faucets/taps (p-value=0.023) and installing water-efficient toilets (p-value=0.019).

As regards the energy conservation practices, using energy saving lamps (mean=2.73) and conducting an energy audit (mean=2.71) were the most implemented practices. The least implemented practices were installing solar panel for heating water (mean=1.45) and using renewable energy sources (mean=1.55). Overall, energy conservation's practices were evaluated as important with a mean ranged between 2.41 and 2.91. Using energy-efficient devices (mean=2.91) and having an energy conservation program (mean=2.86) were the two most important practices according to managers. The two least important practices were installing solar panel (mean=2.41) and using a guestroom light sensors (mean=2.55). It can also be established that using renewable energy sources, using energy-efficient devices, installing solar panel for heating water, using light and HVAC sensors in guestrooms were not fully implemented in comparison to their importance (p-value< 0.05).

As regards raising awareness section, training and raising employees' awareness on environmental issues were the most implemented and the most important practices with means that scored respectively 2.45 and 2.9. However, raising guests' awareness and encouraging their participation in environmental issues was the least implemented practice and also the least important with means of 1.95 and 2.57. The researchers also noticed that all practices in this capacity are not fully implemented according to their degree of importance but was subjective; depending on the managers' interest.

**Table 2: Relationship between implementation and importance of EMS practices**

EMS Practices		Implementation		Importance		P
		Mean	S.D	Mean	S.D	
Waste Management	Having a purchase packaging program	2.86	0.47	2.82	0.5	0.379
	Having a reduce, reuse, recycle program	1.86	0.83	2.45	0.6	0.005*
	Using reusable containers, tablecloths, linen napkins, dishes and silverware or biodegradable products	1.95	0.84	2.59	0.67	0.004*
	Recycling program (for glass, plastic, metal, food, paper/ cardboard....)	2.23	0.69	2.45	0.6	0.124
	Providing well-marked recycling bins that are conveniently located around food service areas	1.55	0.74	2.36	0.79	0.0001*
	Providing guest room clearly marked recycling baskets for newspaper, white paper, glass, aluminum, cardboard and plastic	1.91	0.92	2.41	0.73	0.027*
	Providing guest opportunity to check out electronically (paperless)	1.55	0.74	2.14	0.77	0.007*
	Providing dispensers for shampoo and conditioner in guest rooms	1.5	0.8	2.18	0.85	0.005*

**Table 2: Relationship between implementation and importance of EMS practices (continued)**

	EMS Practices	Implementation		Importance		P
		Mean	S.D	Mean	S.D	
Waste Management	Donating used furniture, linens and equipment to local nonprofit or charitable organizations	1.77	0.92	2.23	0.75	0.040*
	Conducting a waste audit	2.18	0.8	2.5	0.6	0.07
	<b>Total score of waste management</b>	<b>1.94</b>	<b>0.39</b>	<b>2.43</b>	<b>0.4</b>	<b>0.0001*</b>
Water Conservation	Having a water conservation program	2.77	0.43	2.95	0.21	0.041*
	Installing water flow regulators on basin faucets/taps	2.59	0.67	2.91	0.29	0.023*
	Installing water flow regulators on the showers	2.59	0.67	2.77	0.43	0.144
	Installing water-efficient toilets	2.36	0.79	2.77	0.43	0.019*
	Using water-saving laundry equipment	2.14	0.83	2.86	0.35	0.0001*
	Using water-saving kitchen equipment	2.14	0.77	2.86	0.35	0.0001*
	Implementing a towel/ linen reuse program	2.77	0.43	2.77	0.53	0.5
	Conducting a water audit	2.82	0.39	2.95	0.21	0.081
	<b>Total score of water conservation</b>	<b>2.52</b>	<b>0.35</b>	<b>2.86</b>	<b>0.27</b>	<b>0.0001*</b>
Energy Conservation	Having an energy conservation program	2.68	0.48	2.86	0.35	0.079
	Using renewable energy sources	1.55	0.8	2.68	0.57	0.0001*
	Installing an efficient facade lighting	2.5	0.6	2.71	0.46	0.099
	Using energy-efficient devices	2.62	0.59	2.91	0.29	0.023*
	Installing solar panel for heating water	1.45	0.8	2.41	0.73	0.0001*
	Using a guestroom light sensors	1.73	0.94	2.55	0.51	0.0001*
	Using a guestroom HVAC sensors	2.05	0.86	2.68	0.48	0.002*
	Using low energy lamps	2.73	0.55	2.82	0.39	0.266
	Conducting an energy audit	2.71	0.46	2.77	0.43	0.335
	<b>Total score of energy conservation</b>	<b>2.23</b>	<b>0.38</b>	<b>2.71</b>	<b>0.29</b>	<b>0.0001*</b>



EMS Practices		Implementation		Importance		P
		Mean	S.D	Mean	S.D	
Raising Awareness	Having a purchase packaging program	2.86	0.47	2.82	0.5	0.379
	Rewarding employees on their environmental initiatives	2.14	0.77	2.64	0.49	0.007*
	Communicating with your guests to inform them about your environmental policies and programs	2.23	0.75	2.68	0.48	0.011*
	Raising guests awareness and encouraging their participation in environmental issues	1.95	0.79	2.57	0.51	0.002*
	<b>Total score of raising awareness</b>	<b>2.19</b>	<b>0.53</b>	<b>2.69</b>	<b>0.31</b>	<b>0.0001*</b>
Marketing Approach	Using ecological arguments in marketing campaigns	2.04	0.75	2.75	0.44	0.0001*
	Organizing environmental activities	2.42	0.65	2.71	0.46	0.041*
	Participating in and sponsoring environmental activities	2.17	0.87	2.75	0.53	0.004*
	<b>Total score of marketing approach</b>	<b>2.21</b>	<b>0.58</b>	<b>2.74</b>	<b>0.34</b>	<b>0.0001*</b>

**Table2: Relationship between implementation and importance of EMS practices (continued)**

\*significant at 0.05 level

Regarding the last area that concerned the marketing approach, the managers stated that organizing environmental activities was the most implemented practice (mean=2.42) and the least one is using ecological argument in their marketing campaigns (mean=2.04). The importance of all practices concerning this area had a high mean ranging between 2.71 and 2.75. Again, all practices in this area are not fully implemented at the same level of their importance but were subjective to the managers' interest.

According to Table 3 which summarizes the total score of all investigated practices, it can be established that the water conservation is the most implemented practice (mean=2.52) followed by the energy conservation (mean=2.23), the marketing approach (mean=2.21), the raising awareness (mean=2.19) and finally the waste management (mean=1.94). As regards the significance of these practices, the researchers found out that the most important practices are the water conservation (mean=2.86) followed by the marketing approach (mean=2.74), energy conservation (mean=2.71), raising awareness (mean=2.69) and finally waste management (mean=2.43). Notably, the total score of each environmental areas indicated that a very high variance exist between the importance and the implementation of these practices with a p-value scoring 0.0001.

**Table 3: Summary table of total score of EMS practices**

	Implementation		Importance		P
	Mean	S.D	Mean	S.D	
Total score of waste management	1.94	0.39	2.43	0.4	0.0001*
Total score of water conservation	2.52	0.35	2.86	0.27	0.0001*
Total score of energy conservation	2.23	0.38	2.71	0.29	0.0001*
Total score of raising awareness	2.19	0.53	2.69	0.31	0.0001*
Total score of marketing approach	2.21	0.58	2.74	0.34	0.0001*

\*significant at 0.05 level

Customers were asked to evaluate the importance of fifteen environmental practices divided into the four sections of EMS practices: waste management, water conservation, energy conservation and raising awareness. Mean and standard deviation have been calculated to evaluate customers' opinion and develop a ranking of each area (Table 4).

Based on the analysis of mean values, the most important environmental practice were the energy conservation with a mean of 2.70 followed by the water conservation (mean=2.67) and the waste management (mean=2.52) and lastly raising awareness with a mean that scored 2.48.

The top environmental practices in the energy conservation section were having an automatic control of light and temperature when the room is unoccupied (mean=2.72), having an energy efficient lighting (mean=2.71), using renewable sources of energy (mean=2.69) and having an energy conservation program (mean=2.67).

Concerning the water conservation section, respondents evaluated having a water conservation program as the most important (mean=2.78) followed by installing water flow regulators on basin faucets and shower (mean=2.63) and changing towel and linen only on guest's demand (mean=2.60).

In the waste management part, having recycling bins in guestrooms seemed to be the most important for customers (mean=2.60) followed by, buying recycled products and adopting an electronic check-out to minimize paper use with a mean of 2.51 and finally using soap and shampoo dispensers in guestrooms (mean=2.45).

Concerning the raising awareness practices, knowing that the hotel is an eco-friendly was the most important environmental practice according to customers (mean=2.58) followed by encouraging customers' participation on environmental issues (mean=2.48), having access to the hotel's environmental policies (mean=2.44) and finally organizing on-site activities for raising environmental awareness for children and adults (mean=2.40).

**Table 4: Evaluation of the importance of some environmental practices by customers**

Practices	Mean	S.D	Ranking
<b>Waste Management</b>	<b>2.52</b>	<b>0.64</b>	<b>C</b>
Having recycling bins in guestrooms	2.60	0.59	1
Buying recycled products	2.51	0.66	2
Adopting an electronic check-out to minimize paper use	2.51	0.63	3
Using soap and shampoo dispensers in guestrooms	2.45	0.68	4
<b>Water Conservation</b>	<b>2.67</b>	<b>0.58</b>	<b>B</b>
Having a water conservation program	2.78	0.49	1
Installing water flow regulators on basin faucets and shower	2.63	0.58	2
Changing towel and linen only on guest's demand	2.60	0.66	3
<b>Energy Conservation</b>	<b>2.70</b>	<b>0.56</b>	<b>A</b>
Having an automatic control of light and temperature when the room is unoccupied	2.72	0.57	1
Having an energy efficient lighting	2.71	0.56	2
Using renewable sources of energy	2.69	0.55	3
Having an energy conservation program	2.67	0.55	4
<b>Raising Awareness</b>	<b>2.48</b>	<b>0.59</b>	<b>D</b>
Knowing that the hotel is an eco-friendly one	2.58	0.57	1
Encouraging guests' participation on environmental issues	2.48	0.61	2
Having access to the hotel's environmental policies	2.44	0.61	3
Organizing on-site activities for raising environmental awareness for children and adults	2.40	0.57	4

## **7. Discussion and conclusion**

The results of this research have confirmed that 95% of the participating hotel managers are aware of EMS and nearly 80% of them accurately defined the term. The high level of awareness could be interpreted as a result of their affiliation with 5-star hotel chains. In fact, despite the growing popularity of environmental management in hotels, only large hotels have been found to be at the forefront of environmental management (Wahab and Pigram, 1997; Mauforth and Munt, 1998; Alvarez Gil et al., 2001). This category of hotels is the most susceptible of adopting EMS for managerial, financial and organizational reasons. Indeed, Chan (2008) examined all hotels in Hong Kong and found that only 57% of the respondents had a reasonable understanding of the ISO 14001 standard. Nearly 91% of managers said that they have EMS implemented in their property. However, all those who answered with a negative response have the intention to implement it. Some hotels may have implemented some environmental practices to save energy and water costs for instance, but, in fact, they do not have a formal EMS in place. A formal EMS should include commitment and policy, planning, implementation, measurement and evaluation, and review and improvement (Hersey, 1998). This can only be achieved by adopting one of the many certification programs that exists. By adopting an environmental certification and meeting its standards, the hotel signals the society its commitment to environmental management and thus enhances its positive image. Certification ensures also the compliance with environmental legislation, the development of an effective and systematic structure to implement environmental programs, the achievement of continuous improvement in environmental performance and the improvement of employee environmental awareness and efficiency (Boiral and Sala, 1998; Rondinelli and Vastag, 2000; Jiang and Bansal, 2003; Chan and Wong, 2006). Actually, despite the high response rate of EMS implementation, it has been found that third of the hotels has no certification program. The researchers did not address the barriers to adopt a formal EMS in order to explain this score but few researchers did as Chan (2008) who found that the top three barriers are the implementation and maintenance cost, lack of professional advice and lack of knowledge and skills. This result corresponds with results found by Hillary (2004).

Chan (2008) found that nearly 30% indicated that their hotel have an EMS in place, while 12% were ISO certified. In fact, it has been noticed in a study conducted by Maier and Vanstone (2005) that EMAS

certification is less widespread than ISO 14001. There is a clear preference for ISO 14001 certification, either because of its global nature, thereby being more useful and more easily recognizable or because the requirements of EMAS are more demanding than those of ISO 14001.

Many studies of environmental management attempted to determine the motives and reasons for implementing EMS (Taylor, 1992; Townsend, 1993; Hemenway and Hale, 1995; IHA, IHEI, & UNEP, 1995; Peattie, 1995; Shrivastava, 1995; Gustin & Weaver, 1996; Hart, 1997; Kim, Shanklin, Su, Hackes and Ferris, 1997; Welford, 1998; Bâli & Balfe, 1998; Meade and Pringle, 2001; Wolfe and Shanklin, 2001; Chan and Wong, 2006; Scanlon, 2007; Best, 2008; Seiffert, 2008; Molina-Azorín, Claver-Cortés, Pereira-Moliner, and Tarí (2009). The outcome of this research has identified two principal motives of hotels for implementing EMS; to save cost (35%) and to have a positive image in the society (27%) followed by compliance to laws and regulations (19%), the customers' pressure (7%) and finally the staff pressure (5%). These results are not surprising since it has been found that the two most implemented practices are those which contributed directly to save costs; water and energy conservation. This result is consistent with the outcome found by Chan and Hawkins in 2010 who investigated the implementation of ISO 14001 in a case study of international hotel in Hong Kong. They found that savings on costs and resources as well as good publicity were the main motivations for the hotel to implement environmental programs. In fact, Meade and Pringle (2001) examined the cost saving motive in five hotels in Jamaica since the implementation of environmental management systems. The results of the study proved that there is a direct evidence of environmental performance improvements that result from proactive environmental management. Total cost savings for the five properties survey was estimated to be \$615,500, or \$910 per room. Other authors pointed out the same finding that environmental practices can allow a hotel to save costs related to resources like water and energy consumption (Chan and Lam, 2003; Chan, 2005; Best, 2008).

It is important to note that customers' pressure has a low impact on the decision of stakeholder to implement EMS with a low response rate of 7%. In fact, Zografakis, Gillas, Pollaki, Profylienou, Bounialetou, and Tsagarakis (2011) found that only 53.2% of managers agreed or fully agreed that tourists select their hotel accommodation based on its environmental image. Moreover, Bohdanowicz (2006) argued that there is a low demand of consumers to be green, so it is not one of the hotels' main concerns. This finding is contradicted by Clark (1999) who pointed out that many multinational companies are adopting EMS in response to pressure from their customers.

It can be recognized that both managers and customers believe that the hospitality sector has a significant impact on environmental problems. This result is in line with a study conducted by Bohdanowicz (2005) where it was found that nearly all hoteliers answered that they were aware that hotel facilities had a medium to substantial impact on the natural environment. Likewise the findings of Best (2008), he found that for a small group of properties, the accommodations sector was perceived to have a positive impact on the environment (8%).

Regarding the organizational practices - raising awareness and the marketing approach - it has been noted that there is a significant variance between their implementation and their importance. This finding is supported by the score obtained when asking about the common practice implemented. Raising awareness was only 9% and marketing approach was only 5%. Best (2008) conducted a study to determine the extent of adoption of environmental management in the accommodation sector in the Caribbean, he found that 75% of hotels did include EM in their marketing, and 55% observed increases in room occupancy, which suggests that some competitive edge was gained by implementing EMS.

Despite the fact that the majority of managers (91%) stated that they have implemented EMS in their property, it can be stated that apart from water conservation practices, the rest of the practices are partially implemented. Consequently, it can be concluded that EMS practices are partially implemented in Sharm-Elsheikh hotels and thus hypothesis 1 is partially supported.

### **8. Recommendations**

Based on the literature review and the outcome of this study, the researchers can present a number of recommendations addressed to the Hotel industry and to the Egyptian government authorities.

1. Hotels' managers should consider investing in environmental practices; keeping in mind these long-term benefits that may accrue to them despite the unwillingness of customers to pay more.
2. Hotels' managers should observe continuously international and local environmental benchmarks for the hotel industry to identify the areas that need more improvements. It can be helpful to evaluate progress towards precise targets and eventually lead to the establishment of best practices within a hotel or across hotels in the industry.

3. Hotels' manager should cooperate with other hotels to exchange EMS experiences and share resources and costs. In addition, they should demonstrate the cost savings associated with such practices. Cost-benefit analyses should, therefore, be performed and the findings should be widely disseminated.
4. Trade associations (which mission is to enforce environmental standards), in cooperation with environmental organizations and hotel companies, should develop and offer special training courses for the hospitality sector. All staff members should be encouraged to participate in such courses. Such programs will effectively inform hotel managers about their responsibilities and help them to pursue adequate environmental management programs.
5. Hotels' manager should pay more attention to ways to increase positive attitude. Generating strong positive beliefs by communicating with their customers through various media would contribute to enhancing attitude.

Recommendations for the Egyptian government authorities may include the following:

1. Government should produce regulations and legislation that aim to motivate managers to implement EMS in their properties.
2. Penalties that are attributed to offenders of such legislation should be enforced and punitive enough to serve as deterrent.
3. Governments should become more involved by providing incentives for the industry to adopt environmentally-sound practices and offering benefits in taxes.
4. Green financing and green investment schemes, created specifically for the promotion of more environment-friendly and sustainable building practices, should be encouraged by the government to attract funding at reduced interest rates to promote green hotels.

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