

## ACCOUNTING FOR ENVIRONMENTAL COST IN HOSPITALS: BARRIERS AND MOTIVATIONS

### A CASE STUDY ON AL –BASLE HOSPITAL IN TARTOUS CITY

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#### ABSTRACT

In recent years environmental cost accounting (ECA) gained special interest in management accounting (MA) literature. However, research that tried to document the practice of (ECA) in developing countries is still rare in MA literature. This research explores the practice of (ECA) in a Syrian hospital – Al Basel Hospital in Tartous City-. It sheds light on the environmental costs incurred by the hospital, and how they are accounted for. The research further explores the motives and barriers for the practice of (ECA) in the case hospital. Data was collected using interviews. Content analysis is used to gain understanding from the data collected.

It was found that the hospital incurred several types of environmental costs such as prevention and treatment costs. However, the hospital did not account for environmental costs (EC) separately; rather these costs are obscured in the other expenses and charged to the income statement. Possible obstacles for not using ECA are the lack of awareness by managers and accountants, lack of a cost accounting system, and the lack of support from supervisory authorities. Future research is required to document ECA practices in a large sample of Syrian hospitals.

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**KEY WORDS:** EC, ECA, EMA, MA, Al Basel hospital

#### 1- INTRODUCTION

The end of the twentieth century witnessed increasing interest in environmental issues from governments around the world, accompanied by great interest from researchers in the subject of environmental management accounting (EMA). Research on the subject tried to review the literature to assimilate (EMA) methods and techniques (Jing and Songqing, 2011; Somnath, Debnath, S.K.Bose, Dhalla, 2012; Chang, 2013; Ismail. Ramli, and Darus, 2014; Wang et al, 2018), while few research emphasized factors and barriers which influence the practice of (EMA). (Mokhtar, Jusoh, Zulkifli; 2016 Jamil, Mohamed, Muhammad, Ali, 2015; Chang, 2013; Lee, 2011; Setthasakko, 2010 ;). However, despite this increasing interest in EMA, research that tried to document whether or not

environmental costs (EC) are measured, and how they are accounted for by organizations in developing countries, such as Syria, are still not well documented in the MA literature.

This paper contributes to the body of knowledge in management accounting literature, by exploring the environmental cost accounting (ECA) practices in a Syrian hospital (Al-Basel Hospital in Tartous city), it also explores perceptions of both accountants and managers working in the case hospital for benefits, barriers and motivations for the use of (ECA).

The remainder of this paper will present the theoretical framework of the research, the research problem and research questions, the research objectives, the research design, results and discussion, and finally the conclusion.

## **2- THE RESEARCH THEORETICAL FRAMEWORK**

### **2-1 THE IMPORTANCE OF ENVIRONMENTAL ISSUES AND EC IN THE HEALTH CARE SECTOR IN SYRIA**

The importance of social responsibility of different economic entities has recently increased in different countries, and maximizing profit is no longer the only standard for measuring and evaluating the performance of different firms. In Syria the environmental issues have gained considerable interest by Syrian government. The Syrian Arabic Standards and Measurement Organization (SASMO) endorsed the Syrian National Standard. (SNS 3603: 2011), which identified the treatment of liquid wastes resulted from the activities of health care institutions. This standard defined the wastes of health care institutions, as “ the wastes that result from the activities of hospitals, medical centers, clinics, laboratories, including the related research and teaching procedures, the medical treatment that take place at home, and obsolete drugs, that are probable to have”

It also covers the characteristics of risky medical materials, the transportation of health care wastes, and the treatment of health care wastes.

Nevertheless, the awareness for the measurement of EC, and how to treat them by hospitals is still not well tackled by Syrian researches.

### **2-2 COMPONENTS OF EC**

A review of EMA literature reveals that there are many different definitions of EC (E.C.) (Todea, et al, 2011; Sief, 2014 ;).

In general, EC contain all costs associated with firm’s activities that have environmental impacts. (Tsui, 2014)

The European Commission (Recommendation no. 453/2001) defined EC as “costs that must prevent, reduce or recover the environmental damage caused by the entity or one that is likely to occur as a result of activities they run. These include: prevention. elimination , or reduction of waste or waste

water, carbon, treatment of contaminated soils, landscapes radical changes, research and product innovation, cleaner production processes, quality control environment”

The definition given to EC by the United Nations Division for Sustainable Development (UNSD) suggests that they “comprise both internal and external costs and relate to all costs occurred in relation to environmental damage and protection.” (UNSD, 2001, p: 3)

The Environmental Protection Agency defined EC as being costs with a direct financial impact over entities (internal costs) and individual costs, for which the entity is not responsible (external costs). This definition represents the basis for the distinction between EC, which is seen below (de Beer & Friend, 2006)

Based on the definitions shown above EC can be classified into two main types: internal or private costs and external or societal costs (Tsui, 2014; UNSD, 2001; Burritt, 2004).

Lee (2011, p: 42) classified EC into four main categories: Pollution treatment activity costs, Pollution prevention activity costs, Stakeholder activity costs and Legal compliance and remediation activity costs. Table 1 summarizes these environmental cost categories and examples of each category as suggested by (Lee, 2011).

In this paper we will adopt (Lee, 2011) classification of (EC) to discover the different (EC) measured and accounted for by Al-Basel Hospital in Tartous city.

### 2-3 METHODS OF ACCOUNTING FOR EC

According to (Jing & Songqing, 2011) accounting for environmental cost should include identifying, distributing and measuring environmental costs. They further stated that the main source of obtaining environmental cost information come from corporate accounting system.

The authors, additionally, distinguished between two traditional treatments of environmental costs. They mentioned that:

"In foreign countries, environmental costs are generally included in "manufacturing costs" account; in our country, environment-related expenditures are generally included in "management fees" and other projects, and are not individually recognized and measured" (JING & SONGQING, 2011, p:148)

(ECA) involves determining and recognizing elements of these costs. According to Henri (2010), the methods used by the entities to determine EC are the life – cycle assessment method, the environmental balance method, the full cost method, the total cost assessment method and the activity based method (ABC).

**Life – cycle assessment method:** it includes three stages: the inventory of all flows related to energy, water, raw materials, air and emissions; the inventory of qualitative and quantitative measures that

impact the environment; interpretation of the results and an assessment of possible methods to reduce environmental impacts.

**The environmental balance method:** consists of identifying and measuring the inputs and outputs flows of an entity, of a service, process or product in terms of energy, water, materials, waste or emissions.

**The Full cost method:** full cost is an allocation of all the costs for a product (materials, salaries, etc.) including potential and real EC.

**The Total cost assessment method:** this method is used to measure the cost of capital investments. In addition, the classification of the costs used to assess total cost requires identifying the costs explicitly related to the environment.

**The ABC method:** this method allows an entity to allocate EC to activities, and then to products. Using ABC, EC are removed from overhead costs and traced to products and services by identifying the resources, activities and the attendant costs and quantities used to produce the output.

EC should be recognized in the period in which they are first identified. If the criteria for recognition as an asset have been met, they should be capitalized and amortized to the income statement over the current and appropriate future periods. EC should be capitalized if they relate, directly or indirectly, to future economic benefits that will flow to the enterprise through (United Nations, 1998):

- a- increasing the capacity, or improving the safety or efficiency of other assets owned by the enterprise;
- b- reducing or preventing environmental contamination likely to occur as a result of future operations; or
- c- Conserving the environment.

#### **2-4 BARRIERS AND MOTIVES OF (ECA)**

A scrutiny of EMA literature reveals several endeavors by researchers to document factors that motivate or preclude the EMA and environmental reporting.

According to (Yusoff<sup>1</sup>, et al, 2016, p:44), increasing shareholder value, stakeholder engagement and regulatory pressure are key motivating factors for accountants to adopt green accounting reporting in their financial reporting.

Setthasakko, (2010) suggests that the narrow focus on economic performance and the lack of building organizational learning are barriers for the adoption of EMA in Thai companies.

In their benchmarking study on the (ECA) for chemical and oil companies (Shields, Beloff, & Heller, 1996) suggest that the development of (ECA) systems is dependent on the corporate culture, or attitudes, in place. They further advocate that the success of the (ECA) systems is dependent upon

the favorable attitudes among top management, an internal champion, adequate funding, integration of the tool into everyday decision-making, and that without such support, the system will not have an impact.

**Table 1 Categories of EC and there items**

<b>Environmental cost category</b>	<b>Example of environmental cost items</b>
<b>Pollution treatment activity costs</b>	Maintenance costs (treatment facilities, wastes/emission/ water treatment costs) Wastes incineration related costs Wastes recycling facility-related costs Energy costs pollution treatment facilities Material costs for pollution treatment facilities
<b>Pollution prevention activity costs</b>	-Costs for pollution prevention activities (R&D, material sourcing, product development, waste treatment and re-materialization) -Costs for green purchasing /procurement -Costs for green products design and related facilities investments -Environmental management system operating/maintenance costs -Costs for technology development in green products and pollution prevention treatment
<b>Stakeholder activity costs</b>	Costs for environment-related community activities Costs for public relations (PR) Costs for Green advertisements (TV, media) Costs for environmental information disclosure(environmental/ sustainability report and related costs) Costs for legal reporting (published reports and related costs) Costs for environmental investor relations (promotion, events)
<b>Legal compliance and remediation activity costs</b>	Environmental compliance costs Environmental recovery costs (polluted land sites recovery, sites environmental inspection and consulting fees, etc.) Environmental fines Environmental legal costs (allegation, lawyer fees, etc.)

Source: (Lee, 2011, p: 42)

Table (2) summarizes results from several research on the barriers, benefits and motives for the adoption of EMA /or ECA and other environmental management practices.

Table 2 Summary of previous research for the barriers, benefits and motives for the adoption of EMA /or ECA and other environmental management practices.

The study	technique	Barriers of adoption	Motives
Massoud, et al, 2010	EMS ISO14001	-The lack of government support. -The lack of stakeholder demand. -ISO 14001 is not a legal requirement	Economical and organizational factors
<b>Bebbington, et al ,1994</b>	<b>Disclosur e of E data</b>	- Unsure about how to proceed - Lack of a legal requirement - benefits do not exceed the costs - insufficient demand for the information	
Brammer, et al, 2011	EM		Government Regulations
Lee, 2011	ECA		
Setthasako, 2010	EMA	-Not a legal requirement - No demand from customers or stakeholders -Lack of incentives -Lack of government support -Lack of resources -Cost/Duration -Creates competitive disadvantage - Lack of in-house knowledge/skills	-Customer requirements and stakeholder demands -Export barrier overcome -Accommodation of international regulations - Enforcement of fair competition -Company product /service recognition -Government encouragement or regulations -Cost reduction (reduction in operations and insurance) -Supply chain requirements

### 3- METHODS AND TECHNIQUES

This research is intending to achieve two main objectives:

- **The first:** to explore whether or not the case hospital measure EC and how these costs are accounted for?
- **The Second:** to explore the perceptions of interviewees in the case hospitals for the barriers, and motives of ECA.

To achieve the research objectives a case study method was used the case study method is suitable for this research, given the little body of knowledge available in the Syrian MA literature about (EC).

Data was collected using interviews with accounting staff and related managers at (Al-Basel Hospital), in addition to the site observations and the examination of hospital documents and records. Open ended semi structured questions are used in the interviews to enable rich data. All notes were written up during and after the interview (Dawson, 2002) Researchers took the notes and recorded the answers directly during the interviews. Answers to the questions are then analyzed using content analysis.

Questions in the interviews covered three main areas:

- The first is whether the case hospital measure EC, and what are the types of EC are being measured.
- How the EC are treated in the Case hospital according to the different treatments suggested by MA literature.
- What are the perceptions of the persons interviewed at (Al-Basel Hospital), about the barriers and motivations for the use of (ECA). (see the appendix 1 at the end of the paper)

#### **4- THE PRACTICE OF (ECA) AT AL-BASEL HOSPITAL**

##### **4.1 AN OVERVIEW OF AL-BASEL HOSPITAL**

Al-Basel Hospital is a public health scientific and tanning institution, enjoying financial and managerial independence. The hospital established in Tartous city, Syria, by the legislative decree No 426, and started to provide its services in 1995. The hospital aims at achieving the following objectives:

- Providing different medical healthcare services to hospital patients
- Providing training to physicians and to the students who are studying medicine in different Syrian universities.
- Doing medical research that are of interest to the hospital.

##### **4.2 EC AT AL-BASEL HOSPITALS**

The hospital adheres to the Syrian Ministry of Health requirements related to environment protection and public health. According to the Quality Office Manager (Q.O.M) at the hospital “Different types of waste and polluting materials are produced by our hospital. This includes dangerous medical materials, other waste materials, and polluted water”

He further added:

“The hospital approximately produces 800 to 900 K.G. of dangerous medical wastes weekly”

In response to Ministry of Health requirements the hospital signed a cleaning contract with a cleaning services company. According to this contract the cleaning services company will collect the different types of waste materials. The total value of the contract is (24) million Syrian Pounds annually.

Accounting Department Manager (A.D.M) at the hospital also mentioned:

“We have recently signed a contract with a supplier to purchase safety boxes, these boxes are used to collect dangerous medical waste materials, the value of the contract is (5550000) Syrian pounds. We have also recently paid (32) million Syrian pounds to purchase gloves and disinfection equipment”

The hospital also uses two different types of bags to collect wasted materials. According to Q.O.M., “We put in each patient room and in the common areas and surgeries two types of bags, yellow bags and black bags. Nursing staff are instructed to put dangerous medical wastes in the yellow bags that are then put in safety boxes, while black bags are used to collect other types of wastes”

The collected dangerous medical materials are then stocked in a freezing store, and are transferred weekly to a wastes treatment factory in Lattakia. The (Q.O.M) indicated this point as follows:

“A vehicle transfers the dangerous medical materials once a week; we actually pay 25000 Syrian pounds for the transportation charges. We additionally pay for the treatment of dangerous wastes (81) Syrian pounds per k.g. as fees to the treatment factory in Lattakia”

General Manager (G.M.) of the hospital pointed out the same idea, but he further stated:

“We have recently used a filter to control gas emission form some of the equipment’s employed in some of our departments”

The hospital interested in increasing the awareness of the staff for the environmental issues, particularly how to deal with dangerous materials. The (Q.O.M) talked about this point he said:

“We usually arrange periodic training programs for our staff in issues related to the importance of disinfection, and how to deal with dangerous medical materials. We also give written instructions to different departments for separating dangerous medical wastes from other wastes in their departments”

Contract Manager (C.M.) mentioned also that the hospital usually considers, when purchasing medical equipment’s, the environmental requirements and tries to purchase environment friendly equipment’s.

#### **4-3 HOW EC ARE TREATED AT AL-BASEL HOSPITAL**

While the case hospital incurred different EC, as mentioned above, the accounting of these costs is still elementary.



According to the (A.D.M) :

“The hospital doesn’t have a costing system, and EC are obscured in the other expenses item in the income statement”

When asked about whether or not the hospital applies any of the accounting methods used in accounting for EC such: life – cycle assessment, environmental balance, Full cost, total cost assessment, and ABC methods, the managers said:

“We don’t have even a cost accounting system and these cost accounting methods are still not well known in our hospital”

#### **4-4 MOTIVATIONS AND BARRIERS FOR USING EC ACCOUNTING**

The hospital operating in an institutional environment. The Ministry of Health and hospitals working under its supervision commits with several legal requirements relating to environmental protection particularly Syrian National Standard (SNS 3603: 2011) and other environmental legislations.

The lack of serious pressures from supervisory authority (Ministry of Health), apparently affecting the practice of (ECA) system. The (A.D.M.) point out this issue:

“Unfortunately we don’t have an environmental cost accounting system in our hospital, I think. Personally, that the ministry of health hold responsibility for not pushing hospitals towards adopting a uniform (ECA) system”

However, not only the institutional environment that seems to have its impact on the EC in the case hospital. As said by (Q.O.M):

“Our interest in environmental issues such as treating wastes and controlling infections in our hospital is actually based on our concerns of protecting our staff , patients and surrounding environment and community. This will improve the hospital image in the minds of its clients and the society as whole”

Other interviewees mentioned some obstacles for not using (ECA). For example (A.D.M.) referred to some of the barriers of not adopting (ECA):

“To be honest the accounting staff and other managers at different levels don’t appreciate the importance of measuring and accounting for EC. This may be due to the lack of knowledge about (ECA) techniques, and the difficulty of measuring some of the EC.”

He further added:

“Supervisory authorities don’t support enough the costing systems in hospitals and even don’t require environmental cost reports. The hospital doesn’t organize training programs on (ECA), I think that this issue is important to increase the awareness of accounting staff for the (E.C.A.) techniques.”

Engineering Manager (E.M.) had his own belief for the barriers for not measuring and accounting for EC:

"Our staff should be more aware when purchasing medical equipment's, and make sure that they purchase environment friendly equipment's. Unfortunately, however, we don't have technical capabilities to examine the purchased equipment's to make sure that they are environment friendly or not. Furthermore, we are still suffering from water pollution caused by our hospital because contaminated water is thrown into the sea through the public sewerage network. We actually need to build a treatment station to stop polluting the sea."

## 5- RESULTS

In this section we will summarize the results of content analysis. The main issues of concern in this research were divided into themes and interviewee's answers to the questions are summarized to find the correspondences in the interviewee's answers. The first theme is the EC incurred by the case hospital. Table (3) presents the EC incurred by Al-Basel Hospital:

**Table (3) The EC incurred by Al-Basel Hospital**

EC categories	Interviewees				
	G.M.	EM	C.M	Q.O.M.	A.D.M.
<b>Pollution treatment activity costs</b>					
Maintenance costs (charges paid to transfer and treat wastes at wastes treatment factory)	√		√	√	√
<b>Pollution prevention activity costs</b>					
Costs for pollution prevention activities including the costs of safety boxes, the wastes bags, the costs of gloves and disinfection equipment)	√		√	√	√
Environmental training program costs	√		√	√	√
<b>Stakeholder activity costs</b>	null		null	null	null
<b>Legal compliance and remediation activity costs</b>	null		null	null	null

As can be seen form table (3) Al-Basel Hospitals incurred some of the EC, these costs can be classified in two of the main groups suggested by Lee 2011, namely pollution treatment costs and pollution prevention activity costs. However, the hospital doesn't incur any of the other EC (stakeholder activity costs and legal compliance and remediation activity costs).

The other themes of interest in this research are the methods used in the accounting for EC , and the barriers and motivations of using (ECA).

Regarding the accounting methods used in the accounting for EC, all interviewees stated that the hospital doesn't use any of these methods.

Possible barriers and motives for (ECA) practices in this hospital are shown in table (4)

**Table (4) barriers and motives for (ECA) practices in Al-Basel Hospital**

Barriers and motives for using (ECA) at Al-Basel Hospital	Interviewees				
	G.M.	E.M.	C.M	Q.O.M.	A.D.M.
<b>Barriers</b>					
Lack of supervisory authorities support			√	√	√
Lack of training on ECA			√	√	√
Lack of technical capabilities		√			
Lack of awareness of staff and managers for EC		√			
Lack of interest from management and government authorities in EC reports		√	√	√	√
lack of a cost accounting system	√	√	√	√	√
<b>Motives for incurring EC</b>					
To protect the staff and surrounding community	√	√	√	√	√
To cope with environmental requirements issued by supervisory authorities (ministry of health)	√	√	√	√	√

As can be seen from table (4) interviewees in the case hospital indicated several barriers for not accounting for environmental costs. These include the lack of interest in EC reports by government authorities and the management of the hospital; and the lack of costing system, training and staff awareness for ECA. Table 4 shows also that there are main motives for the incurrence of EC at Al-Basel Hospital, the first is the protect the staff patients and the surrounding environment; the second is to cope with environmental requirements issued by supervisory authorities (ministry of health)

## 6- DISCUSSIONS

We explored in this research the practice of ECA in a Syrian hospital (Al Basel hospital). Interviews with different managers in the hospital reveals that the hospital incurs two types of EC as suggested by Lee (2011) classification, namely prevention costs and treatment costs. However, the hospital did not account for these costs and they were actually obscured in the budget and other accounts of the hospital under other expenses category. Furthermore, the case hospital did not prepare any EC reports, and it seems that the management of the hospital and the supervisory authorities alike did not demand or interested in such reports.



Barriers for not measuring EC and using ECA include some institutional factors informed by new institutional sociology (DiMaggio and Powell, 1983), such as the lack of pressures from government authorities. Other barriers include the lack of management support and the lack of awareness from different level managers for ECA. These factors were suggested by previous research as inhibitors for environmental accounting practices (Massoud, et al, 2010).

Our interviewees believed that the lack of a uniform environmental costing system in Syrian hospitals may be an obstacle for not using ECA. This actually supports (Setthasakko, 2010) findings that the absence of guidance on EMA is one of the barriers for not using EMA in Thai companies.

Similar to previous research in other developing countries that found that environmental accounting is in an embryonic stage (Okafor,, Okaro,. & Egbunike, 2013) it seems that ECA is still in its early stages in this Syrian hospital.

Further research is required to document ECA in a big sample of Syrian hospitals to gain better understanding of ECA in Syrian hospitals.

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### **Appendix 1**

#### **Questions posed in the interviews**

**Q1: Do you have an environmental management at your hospital?**

**Q2: Do you measure EC incurred to satisfy environmental requirements by your hospital?**

**Q3: Could you please mention EC incurred by your hospitals to satisfy environmental requirements?**

**Q4: What are the methods used by your hospital to account for EC?**

**Q5: If you don't measure EC that your hospital incurred and don't account for them, please set the reasons for that?**

**Q6: In your opinion what are the key motivations for measuring EC and accounting for them?**