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# Environmental management accounting practices and Islamic corporate social responsibility compliance: evidence from ISO14001 companies

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## Abstract

The purpose of this paper is to explore the environmental management accounting practices, specifically the environmental management accounting activities within Malaysian organizations as well as to shed some light on environmental management accounting activities compliance with *Shariah* principles. An online questionnaire for data collection was deployed to all ISO 14001 certified Malaysian organizations registered with the Federation of Malaysian Manufacturing (FMM). The survey revealed that these organizations to a great extent, have implemented environmental management accounting practices. The implementation of environmental management accounting practices might be beneficial to overcome the problem of traditional management accounting which fails to incorporate environmental hidden costs.

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*Keywords:* Environmental Management Accounting, ISO 14001, *Shariah*, i-CSR, Survey Method

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## 1. Introduction

Mankind is accountable to Allah and as Khalifah on the earth is entrusted to protect the environment. To drive day-to-day individual and organizational activities, the underlying premise is to embed in oneself the self-righteous and values in accordance to Islam.

Muslim and non-Muslim scholars have contributed their thoughts on accounting and environment from Islamic perspective. According to Ahmed (2012), accounting from Islamic perspective is an area which has recently attracts Muslim scholars to ponder upon. Recently, Johnston (2012) suggests that majority of Muslim scholars favour some role of traditional Islamic law to address the current environmental issues. Thus, under this premise

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this paper aims to shed some light on environmental management accounting practices and its compliance with Shariah principles.

Environmental issues as a result of human activities which include deforestation, pollution and carbon emissions caused climate change. Climate change is a significant concern as it impacts living life on earth. The main sources of environmental issues can be linked to business organizations, as such they are subject to pressures from various parties inside and outside the country in which they operate to produce environmentally friendly products (Eltayeb, Zailani and Jayaraman, 2010). Business organizations face pressures from different environmental regulatory bodies, environmental expectations from society and pressures from peer council. The pressures that these organizations are facing have forced top management to implement environmental management accounting practices. Environmental management accounting practices were implemented in order to overcome the limitation in conventional management accounting which cannot provide sufficient information relating to environmental management (Ranganathan and Ditz, 1996; Sulaiman and Mokhtar, 2010; Swamy, 2010). Ranganathan and Ditz (1996) pointed out that hidden costs for environment-related activities cannot be revealed with the use of conventional management accounting. The revelation of hidden environmental costs which include the labor cost of maintaining environmental-related equipments which is usually not charged as environmental costs (Kitzman, 2001) would promote organizations with better decision making (Ferreira et al. 2010; Gibson and Martin, 2004) as well as improve organizational performance (Sirisom and Sonthiprasat, 2011).

Primarily, the aim of this paper is to explore the environmental management accounting practices, specifically the environmental management accounting activities within ISO 14001 certified Malaysian companies. Furthermore, this paper will sheds some light on the environmental management accounting activities compliance with *Shariah* principles. For this assessment, the Islamic Corporate Social Responsibility (*i*-CSR) Recommended Practice (ISORP 2014) was referred to.

The remainder of this paper is organized as follows. Section 2 provides the literature review while section 3 elaborates on the research method adopted for this study. Section 4 presents the results and discussions. The final section highlights the concluding comments.

## 2. Literature Review

ISO 14001 primarily focuses on environmental management system. It is designed to introduce environmental improvement on the entire organization's operations and enable organizations to incorporate environmental issues into the corporate decision-making process. As such, ISO 14001 certified organizations' benefits include improvement in environmental performance (Ann et al. 2006), minimization of waste, conservation of energy and water, enhancement of corporate image (Bansal and Bogner, 2002), reduction in environmental risks and incidents, and compliance of legislation (Cassells, Lewis and Findlater, 2011).

### *Environmental Management Accounting Practices*

There is no absolute definition, scope, or procedure for environmental management accounting (Setthasakko 2010). According to Setthasakko (2010, p. 317), environmental management accounting is define as

*“a business tool that provides essential data for corporate environmental management ranging from simple to comprehensive methods that link physical and monetary information for decision making”*

Based on the guidelines of the International Federation of Accountants (IFAC, 2005) as cited by Sulaiman and Mokhtar (2010, p. 18), environmental management accounting identifies, collects, analyses and uses physical information coupled with monetary information to make decision. Physical information is the information relating to the usage and flow of water, energy and material including wastage, whilst monetary information from the environmental management perspective relates to costs, earnings and savings. The deployment of strategic environmental management accounting would certainly help organizations to overcome the limitations that exist in conventional accounting system in relation to environmental matters (Setthasakko, 2010).

Prior studies for example Sulaiman and Mokhtar (2010) and Swamy (2010) suggest that conventional accounting is unable to provide sufficient information relating to environmental management. This is due to incomplete data and failure to incorporate hidden environmental costs that exist in the current accounting system (Ranganathan and Ditz, 1996; Setthasakko, 2010; Swamy, 2010). As a result, despite being environmentally proactive, some organizations are unable to realize the full benefits gained from environmental management

(Sulaiman and Mokhtar, 2010). Perhaps, this is due to the fact that most organizations develop procedures that only take significant environmental issues into account and overlook on the extent and growth of environmental costs (Ranganathan and Ditz, 1996), which in turn, limits the opportunity to prevent emission and waste at an early stage (Setthasakko, 2010). Therefore, the implementation of environmental management accounting practices must be in place to enable organizations to effectively identify, generate and analyze environmental related data for internal decision making. This will subsequently help organizations to realize the perceived benefits of being environmentally proactive, such as reduction of operational costs (Cassells, Lewis and Findlater, 2011), identification of new opportunities (Ferreira et al., 2010) and improvement in organizational performance (Ann et al., 2006).

#### *Islamic Corporate Social Responsibility Statement of Recommended Practice*

The European Commission (2001, p. 6) has defined Corporate Social Responsibility (CSR) as  
 “a concept whereby companies integrate social and environmental concern in their business operations and in their interaction with their stakeholders on a voluntary basis”

The current CSR framework does not include spiritual concept as the core aspect in explaining organizations involvement in social responsibility relating to their obligation to Allah. This put forward that the current framework may not be able to provide guidelines for CSR practice by Islamic organizations. Thus, the Islamic Corporate Social Responsibility Statement of Recommended Practice (*i*-CSR SORP 2014) was developed to provide a holistic guideline for Islamic organizations on the implementation of Islamic CSR policies and practices in line with the philosophy and values of the Qur’an and Sunnah (*i*-CSR SORP 2014). The *i*-CSR conceptual framework prescribes new sets of standard for Islamic organizations to adhere to as well as to engage in CSR activities. The *i*-CSR framework would enable Islamic organizations to better prioritize their CSR activities in accordance with *Shariah*, the Islamic law of human conduct that regulates all aspects of the lives of Muslims. The key dimensions of *i*-CSR uses the existing four key dimensions of CSR which comprised of Community, Workplace, Marketplace and Environment to categorize CSR practices of Islamic organizations since these dimensions are in line with the spirit and teaching of Islam (see Darus, Yusoff and Azhari, 2013; *i*-CSR SORP 2014; Yusuf and Bahari, 2011).

Specifically, *environment* the third key dimensions of *i*-CSR emphasizes on man’s relationship with the environment. As a Khalifah of the Earth, man has been entrusted to protect the environment and ensure its sustainability (Yusoff, Darus, Fauzi and Purwanto, 2013). The environment accountability is seen from the Islamic perspective which consists of business operations and work practices. Table 1 presents a summary of the recommended environmental-related activities based on the prioritization of *i*-CSR.

Table 1. Summary of the recommended environmental-related activities based on the prioritization of *i*-CSR

Key Area 1	Environmental Related Policy	
	• Policy formulation	
Key Area 2	Climate Change Mitigation and Adaptation	
	• Energy consumption	• Stakeholder engagement
	• Sustainable initiatives	• Continuous monitoring initiatives
	• Research and development programme	• Climate change policy
Key Area 3	Prevention and pollution	
	• Prevention initiatives	• Virtual communication
Key Area 4	Green products and Services	
	• Products	• Virtual marketing
Key Area 5	Protection and Restoration of the natural Environment	
	• Environmental preservation	• Education and training

(*i*-CSR SORP 2014, pp. 30-32)

### 3. Research Method

This study has adopted the survey method through an online questionnaire for data collection. The survey aims to explore the environmental management accounting practices among ISO 14001 certified Malaysian companies registered with the Federation of Malaysian Manufacturing (FMM). As at the end of year 2012, there were 430 ISO 14001 certified companies registered with FMM (FMM, 2012). According to Ann et al. (2006), companies with ISO 14001 certification were most likely to be able to reduce the negative impact of their activities on the environment since this certification prescribes the environmental management system framework, which demonstrates a sound environmental management. Therefore, the Malaysian companies that are ISO 14001 certified can be seen as being actively involved in environmental activities, hence justifies the selection of these companies. The sample selection was in line with Goh and Wahid (2010) who also conducted a study on ISO 14001 certified small and medium enterprises in Malaysia. They found that the certification has positively enhanced business performances. The target respondents were the chief executive officers, managing directors, finance managers and other key personnel related to environmental management at the respective company.

Environmental management accounting activities reflect the activities that identify, collect and assess environmental related physical and monetary information (Ferreira et al., 2010). The environmental management accounting activities were measured based on 12 statements developed by Ferreira et al.'s (2010) which considers both physical and financial information. Respondents were asked to indicate the extent to which their companies have performed each of the 12 environmental management accounting activities in the past three years based on 5-point Likert scale that ranged from "has not done at all" (1) to "has done to a great extent" (5). The draft online questionnaire was pre-tested on academicians, auditors and accountants to determine the quality of the survey instrument (Iraossi, 2006) and its smooth execution (Ramli, 2010). The pre-test of the survey resulted into 12 usable responses from a total of 20 distributed. The internal consistency (Cronbach alpha = 0.986) of the variable environmental management accounting activities was excellent (George and Mallery, 2003). The feedback from the pre-test of the questionnaire revealed only minor changes such as several vague terms in the questionnaire which was duly addressed. The online survey was administered using Survey Monkey web-based survey tool, via the following link <https://www.surveymonkey.com/s/CXB6SY5>. As shown in Table 2, after three follow-ups, 52 responses were obtained of which only 36 were usable. The usable response rate obtained for this study was 8.37% (36/430). Low number of responses from online survey were also reported in other studies (Park and Chen, 2007; Ramli, 2010).

Table 2. Survey responses

Period		Responses	Usable Responses
1	11 <sup>th</sup> March 2013 to 23 <sup>rd</sup> March 2013	0	0
2	8 <sup>th</sup> April 2013 to 16 <sup>th</sup> April 2013	29	17
3	23 <sup>rd</sup> April 2013 to 26 <sup>th</sup> April 2013	23	19
Total		52	36

The data collected was analyzed descriptively using SPSS software version 20.

### 4. Results and Discussion

This section presents the results from the descriptive analysis of the data gathered from the survey of ISO 14001 certified Malaysian organizations. The results were then assessed in the context of Islamic values created by identifying environmental management accounting activities compliance with i-CSR recommended practice.

#### 4.1 Background of respondents

Respondents' background include their job position, length of service, proportion of time spent on environmental management, and type of industry in which respondents' organizations belong to.

#### Job positions

Table 3 shows the different job positions of respondents in the survey. Approximately 53% of the responses came from the health, safety and environmental officers. This was followed by equal number of responses from

both the quality assurance officers and human resources and administrative officers, suggesting personnel from other departments are also engage in environmental management.

Table 3. Job positions

	Frequency	Percentage
Finance Officers and Accountants	3	8.3
Human Resources and Adiminstrative Officers	7	19.4
Health, Safety and Environmental Officers	19	52.8
Quality Assurance Officers	7	19.4
Total	36	100.0

#### *Length of service*

Table 4 presents the result of respondents' length of service with their current organization. The result revealed that 66.7% of the respondents have worked with their current organization for five years and more. The result indicated that a majority of the respondents are experienced worker.

Table 4. Length of service

	Frequency	Percentage
Less than one year	5	13.9
One to two years	4	11.1
Three to four years	3	8.3
Five years and above	24	66.7
Total	36	100.0

#### *Percentage spent on environmental management*

Table 5 presents the results of respondents' extent of involvement in environmental management at their organization. In general, the results suggest that respondents have some experience in environmental management.

Table 5. Percentage Spent on Environmental Management

	Frequency	Percentage
1%-29% (very little)	8	22.2
30%-49% (to some extent)	9	25.0
50%-69% (to a great extent)	9	25.0
70%-100% (to a very great extent)	10	27.8
Total	36	100.0

#### *Type of industries*

Table 6 summarizes the companies in the sample by type of industries. The result indicates 72.2% of companies in the sample are involved in manufacturing while the remaining companies are from services and plantation industries. A higher number of ISO 14001 certified manufacturing companies was observed in this study. This situation can be attributed to manufacturing companies' extensive involvement in environmentally sensitive activities which can have negative impact on the environment (Ann et al 2006).

Table 6. Type of industries

	Frequency	Percent
Plantation	1	2.8
Services	3	8.3
Manufacturing	32	88.9
Total	36	100.0

#### 4.2. Environmental management accounting activities

The descriptive results of environmental management accounting activities among Malaysian ISO 14001 certified organizations registered with FMM are presented in Table 7. A 5-point Likert scale that ranged from “has not done at all” (1) to “has done to a great extent” (5) was used to determine the frequency of environmental management accounting activities over the past three years. The environmental management accounting activities were ranked based on the mean values.

The mean values for seven of the top ten items exceeded 3.5 suggesting that generally, ISO 14001 companies have, to a great extent carried out environmental management accounting activities over the past three years. The activity ‘allocation of environmental related costs to production processes’ was ranked first (mean value = 3.69) followed by both ‘identification of environmental related cost’ and ‘product improvement analysis’ (each with mean value = 3.67) ranked second. ISO 14001 certified companies commonly charged environmental related costs into their production processes or to the right activity in order to improve product pricing decision (Gibson and Martin, 2004). This treatment differs from the conventional management accounting which pool environmental costs in overheads accounts (Ranganathan and Ditz, 1996) and allocate them to each product line, which eventually leads to overpricing of products (Kitzman, 2001). Further to that, with the identification of environmental related cost and opportunities for reduction of environmental impact companies would be able to determine which activities give rise to negative impact either directly or indirectly to the environment, hence the explicit and embed environmental costs would be charged to its respective root caused activity (Kitzman, 2001). According to Ranganathan and Ditz (1996), the identification and allocation of environmental related costs to production processes are necessary in order to overcome the limitation of conventional management accounting that could not detect hidden environmental related costs within business operation.

Table 7. Top environmental management accounting activities

Rank	Environmental Management Accounting Activities	Mean
1	Allocation of environmental related costs to production processes	3.69
2	Identification of environmental related cost	3.67
3	Product improvement analysis (i.e. identification of opportunities for reduction of environmental impact)	3.67
4	Allocation of environmental related costs to product	3.64
5	Develop and use of environmental related key performance indicators (KPIs)	3.64
6	Introduction or improvement to environmental related cost management	3.61
7	Classification of environmental related costs	3.56
8	Product impact analysis (i.e. assessment of the environmental effect of competing product designs)	3.47
9	Creation and use of environmental related cost accounting	3.19
10	Product inventory analysis (i.e. the specification of the types and quantities of material and energy required and the amount residue released to the environment)	3.11

\*All standard deviations were closed to 1.

#### 4.3 Environmental management accounting activities and *i-csr* practice

The top ten environmental management accounting activities are mapped with the Prioritization of *i-CSR* as shown in Table 8. The aim is to determine whether the environmental management accounting activities carried out are in line with the recommended *i-CSR* practice. The mapping of the two practices revealed that the environmental management accounting activities to a certain extent do subscribed to the *i-CSR* practice; specifically in terms of Key Areas 1 (Environmental Related Policy), 2 (Energy Consumption) and 3 (Prevention of Pollution).

Table 8. Linking environmental management accounting activities with *i-csr* practice

Rank	Environmental Management Accounting Activities	Key Areas
1	Allocation of environmental related costs to production processes	KR2 Energy consumption KR3 Prevention of pollution
2	Identification of environmental related cost	KR 2 Energy consumption
3	Product improvement analysis (i.e. identification of opportunities for reduction of environmental impact)	KR2 Continuous monitoring initiatives Prevention of pollution KR3
4	Allocation of environmental related costs to product	KR 2 Energy consumption KR3 Prevention of pollution
5	Develop and use of environmental related key performance indicators (KPIs)	KR1 Environmental related policy
6	Introduction or improvement to environmental related cost management	KR2 Continuous monitoring initiatives
7	Classification of environmental related costs	KR1 Environmental related policy
8	Product impact analysis (i.e. assessment of the environmental effect of competing product designs)	KR2 RandD programme, Continuous monitoring initiatives
9	Creation and use of environmental related cost accounting	KR1 Environmental related policy
10	Product inventory analysis (i.e. the specification of the types and quantities of material and energy required and the amount residue released to the environment)	KR2 Continuous monitoring initiatives

The environmental management accounting activities were then assessed as to whether these activities are the vital or recommended activities in line with *i-CSR* Practice. Vital activities reflect the fundamental activities that are essential to be carried out by Islamic organizations while recommended activities are discretionary activities that give rise to additional rewards and betterment (see *i-CSR* SORP 2014, p. 38). The mapping of both the practices suggests that environmental management accounting activities to some extent comprised of both fundamental and discretionary activities.

Table 9. Linking environmental management accounting activities with *i*-CSR practice

Key Area	Recommended Environmental-Related Activities based on the Prioritization of <i>i</i> -CSR	Vital	Recommended
1	Environmental related policy	/	
2	Climate change mitigation and adaptation	/	/
	- Energy consumption		/
	- RandD programme		/
	- Continuous monitoring initiatives		/
3	Prevention of pollution	/	
4	Green products and services	(Obtaining ISO 14001 Certification)	

## 5. Conclusion

This paper has explored the environmental management accounting practices, specifically the environmental management accounting activities within ISO 14001 certified Malaysian organizations and its compliance with *Shariah* principles. The main findings revealed that Malaysian ISO 14001 certified organizations have implemented environmental management accounting practices to a great extent. However, environmental management accounting practices were mostly adopted by ISO 14001 certified manufacturing organizations. It was anticipated that the operation from the manufacturing industry adversely impacts the environment as organizations that fall under this industry are typically high users of natural resources (Ferreira et al., 2010). Its implementation into organizations' operation might be beneficial to overcome the problem of traditional management accounting which fails to incorporate environmental hidden costs (Swamy, 2010). The environmental management accounting activities within Malaysian ISO 14001 certified organizations to some extent also reflect their accountability towards Allah as the Giver and towards preserving the environment. Based on the *i*-CSR framework, Islamic organizations can better align their environmental management accounting activities as well as their CSR activities in accordance to *Shariah* principles.

Nonetheless, the low number of responses received and the lack of depth on the assessment of environmental management accounting activities in relation to its compliance with *Shariah* principles suggest further research work that can be undertaken in this area. In conclusion, ISO 14001 certified organizations through environmental management accounting practices are actively asserting their role as responsible social players as well as *Khalifah* on the Earth, and the perceived environmental concerns has become an integral part of their routine operations, which clearly revealed continuous commitment towards environmental responsibility.

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