The impact of environmental management accounting on the decision making: A Case study for (RASCO)

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Abstract

The concerns of human societies about the environment have increased nowadays due to technological development. The environment variations could influence human beings as well as their activities including the industrial development. This study, therefore conducted in order to explore the impact of environmental management accounting on the decision making in Ras Lanuf Oil and Gas Processing Company (RASCO) in Libya. To achieve the objectives of the study, a questionnaire has been developed to gather the data from respondents totaled (69) individuals employed at the (RASCO). The Statistical Package for Social Sciences (SPSS) program was used to analyze the data and test the hypothesis. Subsequently, a several results were reached including that the environmental management accounting significantly affects the decision making in (RASCO)

Key words: Environmental Management Accounting, Decision Making. Ras Lanuf Oil and Gas Processing Company (RASCO)

Introduction

Accounting is the field, which is not only plays a key role in the internal operations of an organization, it is also externally plays a huge role toward stakeholders (Lodhia, 2003 & Eltaib, 2012). Externally, accounting is an important element for stakeholders as it is responsible for providing an appropriate information regarding several issues including social responsibility, accountability and sustainability (Adebimpe et al. 2015). As recently, the public concern of environmental issues have increased dramatically, and the industrial activities have become a key social focus (Beck et al. 2010; Gray & Bebbington, 2001; Lamberton, 2005; Milne & Gray, 2007). The organization should provide valuable and sufficient environmental information for all stakeholders in order to make suitable decisions (Cho et al. 2008; Eltaib, 2012; Thabit & Jasim, 2016). Internally, in order to support any managers at any level in organization to make better operational decisions, the accounting information must include related environmental information (Eltaib, 2012).

Environmental management accounting as subfield of environmental accounting can provide a relevant environmental information (Yakhou & Dorweiler, 2004). Environmental management accounting is a considerable instrument to analysis and produce high quality environmental information such as information related to the environmental cost for decision making (Yakhou & Dorweiler, 2004). Since the late 1990s the environmental cost has gained a great focus in

businesses, because of the great burden companies faced due to high of cost. Therefore, it became very important to recognize and allocate the environmental costs to produce suitable information for management decision-making (Zachry, et al. 1998). In addition, the environmental information is useful for controlling overhead and capital budgeting (Yakhou & Dorweiler, 2004). Furthermore, environmental management accounting has a vital role, which played toward the external stakeholders such as governments by providing environmental information with relevant and sufficient environmental issues. This can limit the levels of environmental pollution and then formulating an appropriate decisions that can decrease and control the pollution which is also a non-governmental concern (Rahahleh, 2011).

The study problem

The information produced by the environmental management accounting in the organizations should be available to all stakeholders, who have paid great attention to it (Shuaibu et al. 2019), in order to help at decision making (Eltaib, 2012). In environmentally sensitive industries such this industry, decisions value and success depends upon the role of environmental management accounting in producing valuable and suitable information. For example, through the information, governments and organizations can decipher the level of environmental pollution, and then make the decisions that can control this pollution, which is not just a governmental concern but also a non-governmental concern (Rahahleh, 2011; Elgobbi & Elghannai, 2018). In Oil and Gas sector, Oraka (2021) recommended that the Oil and Gas Companies should be friendly toward environment to gain several benefits such as competitive advantage. Elgobbi and Elghannai, (2018) stated that the Arabian Gulf Oil Company in Libya did not consider the importance of the variety of both pure narrative and numerical approaches of the information, their study also revealed that the information in the Arabian Gulf Oil Company was not sufficiently up-to-date for the required work and does not has the required quality. In Libya, there is not sufficient research done in the area of environmental accounting including the field of environmental management accounting (Ahmed, 2004; Ahmed & Mousa, 2010; Eltaib, 2012; Elgobbi & Elghannai, 2018). In addition, an exploratory study has been done upon the sample of this study (RASCO), which discovered numerous issues related to the decision making and Environmental Management Accounting including: (a) the field of environmental management accounting has not known perfectly among the employees of the company. (b) there are some difficulties faced the decision makers related to the access to the information. (c) the provided information in the company does not meet requirements of decision makers.

Consequently, this study comes to explore the environmental management accounting and its impact on the decision making in (RASCO) in Libya . The study problem is summarized to answer the following question:



Is there an impact of the environmental management accounting on the decision making in (RASCO) in Libya?

The study hypothesis

According to the study problem, the main hypothesis of the study is:

There is a significant impact of the environmental management accounting on the decision making in (RASCO) in Libya

The study objectives

This study comes to investigate the environmental management accounting and its impact on the decision making in Libya in (RASCO), and it tries to reach several objectives including:

- 1- To find out the impact of the environmental management accounting on the decision making in (RASCO) in Libya.
- 2- To find out the relation and the correlation between the environmental management accounting and the decision making in (RASCO).
- 3- Contributing to the literature by discussing principles and concepts of environmental management accounting and the decision making in Libya.
- 4- To identify the deficiencies in the decision-making process and its needs.
- 5- To provide some recommendation regarding the environmental management accounting in Libya.

The study significance

This study gain its significance from both aspects, the subject and the research site. The subject of environmental management accounting and environmental accounting in general have become an attractive area of research due to the increasing public concern about environment and industries impacts. Also, the Libyan context is considered as a row area of research which has shortage of related research. To sum, this study acquire its significance from following:

- 1- This study contributes to the academic literature in the Libyan context and to the literature of environmental accounting through exploring the environmental management accounting and decision making and the relationship between them.
- 2- By providing recommendation, this study will be a starting point for further research to the field of environmental management accounting.



Conceptual framework:

1- Environmental Management accounting:

In the 1970s, the researchers' efforts were commenced to develop the field of environmental accounting (Matthews, 1997). Since the first introduction of environmental management accounting in 1990s, several scholars and institutions have attempted to provide a definition to the concept of environmental management accounting. The start was by the United States Environmental Protection Agency(1995) as it defined the environmental management accounting as: it is the branch of environmental accounting that focuses to develop information for decision making. According to Burritt (2004, p13), "environmental management accounting is concerned with the accounting information needs of managers in relation to corporate activities that affect the environment as well as environment-related impacts on the corporation". In addition, Bartolomeo et al.(2000) defined the environmental management accounting as the process to generation and analysis of financial and non-financial information for management support (an example of this information: information related to compliance with environmental legislation, information necessary to operational programs and strategic investment decisions). Furthermore, the United Nations Division for Sustainable Development provides a definition of environmental management accounting. As the UNDSD states:" The general use of environmental management accounting information is for internal organizational calculations and decision making.

Environmental management accounting procedures for internal decision making include both physical procedures for material and energy consumption, flows and final disposal, and monitories procedures for costs, savings and revenues related to activities with a potential environmental impact". (UNDSD, 2001). With implementing the environmental management accounting, several benefits could be achieved by any organization (Debnath et al. 2012). According to Bennett and James (1998) one of important benefits of environmental management accounting is assisting to achieve the sustainable development. In this regard, the importance of accessing the external stakeholders to information related to the financial benefits and costs of the environmental activities (Eltaib, 2012). In addition, Debnath et al. (2012) stated that the environmental management accounting provides the decision-makers with information related to the energies, flow and stock of materials, water, wastages, or any other environmentally sensitive element that organization used. As traditional methods of cost and financial accounting have not offer any new mechanism to improve the decision (Comite, 2009), environmental management accounting brought in the concepts to measure and analyze the costs to track wastage and resource utilization(Laughlin & Varangu, 1991). Furthermore, such kind of information provided by the environmental management accounting can be a good indication to manage and improve the environmental performance of organizations as it includes energy, material and resources efficiency (Debnath et al. 2012).

2021 **202**

2- Decision making:

Decision-making is one of the most important function of management in any organization (Franklin and Krieger, 2011), and it is a reality every day. Therefore, decision-making is the first required administrative skill to be developed, and the success of the management of the managers achieved from a right decision-making (Drucker, 2006). Many definitions are provided including the definition of Kinicki and Kreitner (2005) stating that decision making is a process which contains identifying and choosing between several alternative solutions to achieve a required state of affairs. In addition, Franklin and Krieger (2011) identify that the Decision-making is the process which includes defining the nature of a problem or an opportunity, to develop alternative solutions, to evaluate these solutions and select between the available alternatives. According to Herrera (2008) Decision-making defined in three ways: first, as a selection only one alternative of a set of decision choices, according to the decision maker's rational optics. Second, as an elimination of alternatives solutions with the exception of solution that suitable to achieve the objectives of the organization, and third as information and data processing to define instructions by which a system removes deviations in its operation.

In some degree, decisions have often ambiguity, uncertainty and complexity. Therefore, the process of decision making needs a combination of data, experience and knowledge as well as Contribution from various employees by provide appropriate inputs information (Socea, 2012). According to O'Brien & Marakas (2006), accounting is a managerial information subsystem used for support management decision-making, they justified that as accounting system provides financial information to internal users including the management and external users so they can make right decisions. Accounting also considered as a control tool, as it produces financial statements for decision making as well as for analyzing and interpreting the financial statements, in order to plan, control and make decisions for the organization's activity (Polo, 2013 & Coral & Gudiño, 2014). According to Socea (2012) the main advantage of accounting represented in its ability to provide a well-defined overview that continuously preferable to a multitude of views.

Literature review:

Few decades ago, organizations have faced increasing pressure in order to improve their activities (Medley, 1997; Unerman et al. 2007; Chinedu & Ogochukwu, 2020). This pressure because of several reasons including: improvement of environmental legislations and laws (Medley, 1997), and increased public, consumers, investors and employees awareness about the environment (Prothero & McDonagh, 1992 & Simintiras et al. 1997). In addition, Burritt et al. (2002) and Beer and Friend (2006) stated that the conventional financial accounting and the cost accounting have not been incapable to face this pressure. This because, as Burrit (2004), traditional management accounting mostly ignores or is not able to appropriately identify, measure, classify and report the environmental information, specifically environmental costs. As

result, most organizations do not take into account their environmental costs into decision making (Burrit, 2004).

Because of the above, large amount of studies raised up in the 1970s attempting to develop the environmental accounting (Barnett & James, 1974; Dilley & Weygandt, 1973; Mathews, 1997; Mobley, 1970). Well known Academic researchers have widely discussed environmental accounting and published a considerable quantity of studies from different approaches (as outlined by Burrell and Morgan (1979), i.e. functionalist, interpretative and critical approach).in the 1990s, there was a significant increase in the number of environmental accounting studies covering different areas of environmental accounting including: environmental reporting, theoretical framework, sustainability and environmental auditing (Gray & Collison, 1991; Harte & Owen, 1991; Roberts, 1991; Patten, 1992; Roberts, 1992; Batley& Tozer, 1993; Tozer & Mathews, 1994; Deegan et al. 1995; Gibson & Guthrie, 1995; Geno, 1995).

During the 1990s the environmental management accounting has commenced. Stone (1995) in his study provided a discussion about the role that management accounting play in assisting with the environment and sustainable development in the United States. Later on, Rikhardsson et al.(2005) stated that environmental management accounting is being implemented with traditional management accounting in different forms. Despite academic literature has revealed that corporations which have implemented environmental accounting have achieved positive results on their economic and environmental performance (Klassen and McLaughlin, 1996; Leal et al., 2003). There are some concerns regarding whether implementation of environmental management accounting will really increase profitability, also concerns about the requirement to development of the infrastructure before commencing environmental management accounting may hamper its implementation (Nik Muhammad et al., 2004; Wagner et al., 2002).

A study done by Masanet-Llodra (2006), which titled Environmental Management Accounting: A Case Study Research on Innovative Strategy, revealed that there some incompatibilities might exist between a company's environmental behavior and its environmental strategy, that means the organization might have high environmentally commitment and awareness but organization's commitment has not been reflected in its decision making and translate the decision to action. In addition, Sendroiu et al., (2006) stated that environmental management accounting must be designed according to the special requirements of the organization instead of applied as a general system. Rikhardsson et al. (2005) conducted a study to explore the Implementing of environmental management accounting, its status and challenges that it faces. They stated that whether implementing environmental management accounting is supportive to decision making, the environmental management accounting has a significant impact when it is used as a tool to assistance decision making and incorporate it within all levels of operation for long term. In some undeveloped countries, environmental management accounting has been gained focus. Khalid et al. (2012) conducted a study which titled environmental management accounting implementation in environmentally sensitive industries in Malaysia. They adopted an interpretive approach of methodology by interviewing seven environmentally sensitive companies in Malaysia in order to investigate the implementation of environmental management accounting in the companies. Khalid et al. (2012) concluded that some elements of environmental management accounting are existed in some of studied companies, and the motivation behind this implementation was to reduce cost. In Libyan context, few studies were conducted in the area of environmental accounting (Ahmed, 2004; Ahmed & Mousa, 2010; Eltaib, 2012; Elgobbi & Elghannai, 2018), which none of them study the environmental management accounting. Ahmed (2004) in his study examined the corporate environmental disclosure in Libya in the period between1998 - 2001. He did not found any indications to support the existence of corporate environmental disclosure.

Another empirical study done by Ahmed and Mousa (2010) which conducted on the 18 large industrial companies to investigate the corporate environmental disclosure practices. They found some improvement in the corporate environmental disclosure practice in the sample companies. Recently, Elgobbi & Elghannai, (2018) conducted a study to examine the impact of quality information on the environmental accounting disclosure in Libyan oil and gas sector, they adopted a case study approach by questionnaire distributed randomly to 31 respondents in the Arabian Gulf Oil Company. Elgobbi & Elghannai, (2018) found in their results that the quality of information has a significant on the level of details, the nature and the type of information of the environmental accounting in the Iron and Steel sector in Libya: A Case study in the Libyan Iron and Steel Company , Misurata– Libya. He reached that, despite of the medium level of obstacles facing the (LISC) in applying the environmental accounting, the (LISC) highly applies the environmental accounting and highly aware of the importance of applying the environmental accounting for the company.

This study goes beyond the previous studies that have been conducted in Libya, given that it focuses on one of the elements of environmental accounting and is not only study environmental accounting in general as it explores the impact of environmental management accounting on the decision making in Ras Lanuf Oil and Gas processing company (RASCO) in Libya. This is in addition to the fact that the environmental management accounting has not completely been addressed in Libya.

The study methodology

The positivist approach was adapted in this study. Positivist approach is "capture and describe a surrogate assumed to convey meaning and reporting intent" (Beck et al. 2010, p. 208). Hence,

the study focused on the volume and frequency. Moreover, questionnaire was designed and used as a method to collect the data of this study as it is appropriate method in descriptive and exploratory study. Furthermore, the collected data was reviewed and analyzed by The Statistical Package for Social Sciences (SPSS) to be transferred to digital, whereas five levels of practice score were used to determine every answer of the participant as showed in the Table (1).

 $Category Length = \frac{maximum \ score - minimum \ score}{number \ of \ levels}$

= 5 - 1 = 0.80

Table (1): Levels of practice scale							
Practice	Very low	Low	Medium	High	Very high		
Scale							
Levels	Less than 1.80	1.80 less than	2.60 less than	3.40 less than	4.20 less		
		2.60	3.40	4.20	than 5		

The Reliability of the Questionnaire:

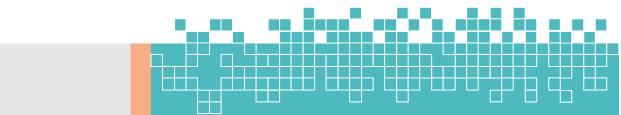
In this study, to determine the reliability of the questionnaire, a Cronbach's Alpha Coefficient was applied, and revealed that the value of Cronbach's Alpha Coefficient is very high (94 %) as it showed in table (2). As a result, the used questionnaire has high percentage of reliability for the study purpose and it is considered suitable measurement tool.

<i>Table</i> (2):	Cronbach's	s Alpha	Coefficient

Cronbach's Alpha	N of Items
0.940	14

The case study background (RASCO):

Ras Lanuf Oil and Gas Manufacturing Company was established by the resolution (137) in 1982. It is a joint stock company with Libyan nationality and wholly owned by the National Oil Corporation. The (RASCO) was established for the purpose of carrying out all the operations of the oil industry and its derivatives and the production of petroleum chemicals, organic plastics and fibers. In addition, it has several plants includes ethylene plant and polyethylene plant. (RASCO) is located on the costal 200 KM east of Sirte, this location was chosen based on accurate technical and economic studies, which took into account several things, including: (a) Proximity of the site to the areas of crude oil production, (b) Passage of the coastal road directly



to facilitate communication with the various cities of Libya, (c) The site is close to the sea, in order to facilitate the provision of water and the export of petroleum products (RASCO, 2021).

Study population and sample:

This study was conducted on the (RASCO), In particular, the focus was on three departments including: financial affairs, environmental affairs and administrative affairs administrations, which have approximately (150) employees. Therefore, (108) copies of the questionnaire were distributed, and after reviewing (74) returned, (69) copies were valid for the analyzing by the Statistical Package for Social Sciences (SPSS).

The empirical analysis:

Demographic variables of the study sample:

Table (3) presents the results of the descriptive analysis of the participants' personal data, that including: age, gender, occupation, educational qualification and work experience. Regarding the age, it is clear that approximately (33.3 %) of the participants are categorized under category of " from 30 to 40 years" and about (31.9 %) of the participants are categorized under category of " less than 30 years". Furthermore, vast majority of the participants is males as it is about (71 %) of participants are males. In addition, the respondents with Bachelor Degree has the vast majority with percentage of (35.7 %). Moreover, in the regard of the occupation, the (33.3 %) of participants are categorized under categories of accountant. Finally, it is clearly evident that about (80 %) of participants have work experience more than 10 years and (33.3 %) of participants have work experience from 10 to 20 years, and approximately (49.3) of participants are categorized under category of " from 20 to 30 years".

Ν	Variable	Category	Frequency	Percent
1	The Age	less than 30 years		31.9 %
		From 30 to 40 years	23	33.3 %
		From 40 to 50 years	17	24.6 %
		More than 50 years	7	10.1 %
Total		69	100 %	
2	The gender	Male	49	71 %
		Female	20	29 %
-	Total	-	69	100 %
3	The Educational qualification	PhD Degree	2	2.9 %
		Master Degree	6	8.7 %
		Postgraduate Diploma	10	14.5 %
		Bachelor Degree	29	42 %

Table (3): Description of Demographic variables

		Higher Diploma	15	21.7 %
		Intermediate Diploma	7	10.1 %
	Total	69	100 %	
4	The Occupation	Director of Administration	3	4.3 %
		Head of Department	11	15.9 %
		Administrative	14	20.3 %
		Accountant	23	33.3 %
		Supervisor	9	13 %
		Technician	9	13 %
	Total	-	69	100 %
5	The work experience	Less than 5 years	8	11.6 %
		From 5 to 10 years	2	2.9 %
		From 10 to 20 years	21	30.4 %
		From 20 to 30 years	34	49.3 %
		More than 30 years	4	5.8 %
	Total		69	100 %

The application of environmental management accounting:

In this section, the elements of the independent variable " The application of environmental management accounting" are discussed and the statistical distribution of the responses of the respondents are highlighted. As it is showed in the table (4), it is evident that the phrase " environmental management accounting in a company provides information related to the level of environmental performance" is the most important phrase, as it comes with a very high level of importance and a weighted mean of about (4.41) and a standard deviation of almost (0.734). In contrast, the phrase " The company's environmental management accounting provides information on costs and their analysis" is showed as the least important phrase as it comes with a weighted mean of approximately (4.14) and a standard deviation of almost (0.753). This gives insight that there is a lack of consideration about the environmental cost and its analysis, consequently, more focus should be taken toward the environmental cost to produce sufficient and complete information. Regarding to the entire independent variable (the application of environmental management accounting), it has a weighted mean of approximately (4.2518) with a standard deviation of almost (0.58610). in addition, the T-test of the entire independent variable is statistically significant, because the T value is (60.259) with a significance level of (0.000). This value is smaller than the level of significance of (5%). Consequently, this supports the existence of a very high application of the environmental management accounting in the (RASCO).

Table (4): The application of environmental management accounting.						
No.	Statements	Mean	Std. Deviation	Level of application	T- Value	Sig.
1	Environmental management accounting in a company provides information related to the level of environmental performance.	4.41	0.734	Very high	49.859	0.000
2	Thecompany'senvironmentalmanagementaccountingprovidesinformation on costs and their analysis.	4.14	0.753	high	45.728	0.000
3	A company's environmental management accounting provides information on products that have high environmental costs.	4.19	0.713	high	48.809	0.000
4	Environmental management accounting provides information in the company about the efficiency with which its resources can be used (water, energy, raw materials, treatment, waste).	4.29	0.688	Very high	51.781	0.000
5	Environmental management accounting provides information in the company to ensure that risks are minimized and future opportunities are exploited.	4.32	0.737	Very high	48.644	0.000
6	Environmental management accounting in a company provides information on its compliance with environmental legislation.	4.33	0.721	Very high	49.935	0.000
7	Environmental management accounting in the company provides the information needed to make decisions related to operational programs.	4.19	0.648	High	53.693	0.000
8	Environmental management accounting in the company provides the information needed to make decisions related to strategic investment decisions.	4.14	0.772	High	44.586	0.000
	Sum	4.2518	0.58610	Very high	60.259	0.000

Table (4). The	application	of environmental	management accounting.
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Decision making:

This section deals with the elements of the dependent variable " decision making " and table (4) highlights the statistical distribution of the responses of the participants. As it showed in the

table, the phrase " preserving the environment is part of the company's strategic and operational plans" is the most important phrase as it has a very high level of importance and a weighted mean of approximately (4.43) with a standard deviation of almost (0.653). Furthermore, the phrase " the company takes into account the environmental impacts and risks when making investment decisions" is the least important phrase as it has a standard deviation of approximately (0.718), and weighted mean of about (4.12). this indicates that the company should take into account the necessity of the environmental impacts in the investment decisions. In addition, the entire dependent variable "decision making" has a weighted mean of approximately (4.2367) with standard deviation of almost (0.53199). Regarding to the T-test, it is clear that the T-test of the entire dependent variable is statistically significant, as the T value is (49.503) with a significance level of (0.000).

No.	Statements	Mean	Std. Deviation	Level of application	T- Value	Sig.
1	Preserving the environment is part of the company's strategic and operational plans.	4.43	0.653	Very high	56.452	0.000
2	The information generated from the environmental management accounting system is effective and helps in making decisions in the company.	4.16	0.633	High	54.586	0.000
3	The company's environmental accounting system provides the required information for decision-makers in accordance with environmental laws and legislations.	4.16	0.678	High	50.970	0.000
4	The company takes into account the environmental impacts and risks when making investment decisions.	4.12	0.718	High	47.606	0.000
5	Analyzing environmental costs helps the company avoid many environmental compensation and penalties for breaching environmental protection laws.	4.32	0.630	Very high	56.948	0.000
6	Environmental management accounting is one of the important tools for measurement, control and decision- making.	4.23	0.710	Very high	49.503	0.000
	Sum	4.2367	0.53199	Very high	66.153	0.000

Table	(5):	Decision	making.
10000	(2)	Decision	

Testing the Hypothesis:

This study comes to test the hypothesis that stated " *There is a significant impact of the* environmental management accounting on the decision making in (RASCO). Therefore, the simple linear regression applied in order to explore the impact of environmental management accounting "independent variable" on the decision making (dependent variable). According to the table (7) the T value is (8.810) with a significance level of (0.000), which smaller than the level of significance of (5 %). This indicates that the environmental management accounting impacts the decision making in (RASCO). Furthermore, the R value is (0.540), that means there is a positive relationship between the environmental management accounting and the decision making, and the value of R^2 is (0.537) which means any change in the environmental management accounting will be offset by a change in the decision making of (53.7 %). Regarding the Durbin Watson test, its value is (1.927), which is smaller than 2, and this means the environmental accounting impacts the decision making in (RASCO). Based on the analysis above, the hypothesis is accepted which stated " *There is a significant impact of the* environmental management accounting on the decision making in (RASCO). ".

Variable	T- Value	R	R ²	F	Durbin- Watson	Sig.
the decision making	8.810	0.733	0.537	77.616	1.927	0.000

Table (7): Test regression coefficients and correlation results.

Discussion of findings:

This study devoted to find out the impact and relations of the environmental management accounting on the decision making in (RASCO). It was revealed that the environmental management accounting was very highly applied in the (RASCO), This finding agrees with the study of Rikhardsson et al. (2005), which stated that the environmental management accounting was being implemented with traditional management accounting in different forms. It also aligns with the study of Khalid et al. (2012) who concluded that some elements of environmental management accounting were existed in some researched companies. In addition, the motivation of this implementation was intended to decrease the cost. Furthermore, this study aligns with the study of Abdalmajeed (2021) who reached that, the Libyan Iron and Steel Company ,Misurata–Libya (LISC) highly applies the environmental accounting. However, this finding runs contrary to the study of Ahmed (2004) who concluded that there was no any indications supporting the existence of corporate environmental disclosure in Libya.

Moreover, a significant finding has been revealed in this contest which is that the environmental management accounting significantly affects the decision making in (RASCO), and also the relationship between them is a positive relationship. This finding agrees with the study of Rikhardsson et al. (2005) who stated that the environmental management accounting has a significant impacts when it is used as a tool to assist decision making and incorporate it within all operation levels for long term. However, in contrast with this finding, the study of Masanet-Llodra (2006) concluded that the organization might have high environmentally commitment and awareness but organization's commitment has not been reflected in its decision making.

Results:

Based on the analysis above, some results have been revealed, include:

- 1- The environmental management accounting is very highly applied in the (RASCO).
- 2- Environmental management accounting significantly affects the decision making in (RASCO).
- 3- The relationship between the environmental management accounting and the decision making is a positive relationship.

Recommendation:

Based on the results above, some recommendations have been highlighted as following:

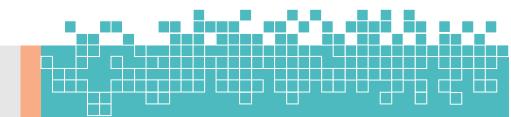
- 1- The (RASCO) should pay more attention toward the environmental cost and its analysis in order to provide an appropriate information.
- 2- More focus should be take place toward the environmental cost, environmental information quality as they are considered to be a raw area of research which needs more discover.

Reference list:

- Abdalmajeed, E. E. (2021), "The reality of the application of environmental accounting in the iron and steel sector in Libya: A Case study in the Libyan Iron and Steel Company , Misurata– Libya.", Journal of Research and Economic Studies, Vol. 15, No. 6, PP. 406-423.
- 2. Adebimpe, O. U., Ekubiat, J. U. &, Bokime, S. G. (2015), "Environmental, Social and Governance Disclosures: A Call for Integrated Reporting in Nigeria", *Journal of Finance and Accounting*, Vol. 3, No. 6, pp. 227-233.
- **3.** Ahmed, N. S. (2004), "Corportate Environmental Disclosure in Libya: Evidence and Environmental Determinism Theory", PHD Thesis, Napier University, UK.

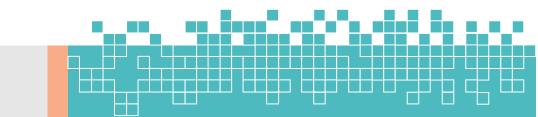


- **4.** Ahmed, N. & Mousa, F. (2010), "Corporate Environmental Disclosure in Libya: A Little Improvement", *World Journal of Entrepreneurship, Management and Sustainable Development*, vol. 6, no. 1/2, pp. 149 -159.
- **5.** Barnett, A. H. & James, C. C. (1974), "Accounting for Corporate Social Performance: A Survey", *Management Accounting*, vol. 56, no. 5, pp. 23-26.
- **6.** Bartolomeo, M., Bennett, M., Bouma, J. J., Heydkamp, P., James, P. & Wolters, T. (2000), "Environmental management accounting in Europe: current practice and future potential", *The European Accounting Review*, vol. 9, no. 1, pp. 31–52.
- 7. Batley, H. & Tozer, L.E. (1993), "Sustainable development: an accounting perspective", *Accounting Forum*, vol. 17, no. 2, pp. 38-61.
- 8. Beck, A.C., Campbell, D. & Shrives, P.J. (2010), "Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British–German context", *British Accounting Review*, vol. 42, no. 3, pp. 207-222.
- **9.** Berr, P. & Friend, F. (2006), "Environmental accounting: A management tool for enhancing corporate environmental and economic performance", *Ecological Economics*, vol. 58, no. 3, pp. 548-560.
- **10.** Burrell, G. & Morgan, G. (1979), *Sociological paradigms and organizational analysis*, Heinman, London.
- Burritt, R.L., Hahn, T. & Schaltegger, S. (2002), Towards a comprehensive framework for environmental management accounting – Links between business actors and environmental management accounting tools, Australian Accounting Review, vol.12, no. 2, pp. 39-50.
- **12.** Burritt, R.L. (2004), "Environmental management accounting: Roadblocks on the way to the green and pleasant land", *Business*, *Strategy and the Environment*, vol. 13, pp. 13-32
- **13.** Chinedu, E. N. & Ogochukwu, O. G. (2020), "Relationship between environmental accounting disclosures and financial performance of manufacturing firms in Nigeria", *International Journal in Management and Social Science*, vol. 8, no. 2, pp. 171-193.
- 14. Cho, H., Chen. J. & Roberts, R. (2008), "The politics of environmental disclosure regulation in the chemical and petroleum industries: Evidence from the Emergency Planning and Community Right-to-Know Act of 1986", *Critical Perspectives on Accounting*, vol. 19, no. 4, pp. 450-465.
- **15.** Comite, U. (2009). The evolution of a modern business from its assets and liabilities statement to its ethical environmental account. *Journal of Management Research*, vol. 9, no. 2, pp. 100-120.
- 16. Coral, L. & Gudiño, E. (2014), Contabilidad Universitaria, Editorial Mc Graw Hill, Bogotá.

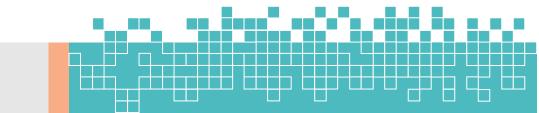


- 17. Debnath. S., Bose. S.K. & 2 R.S.Dhalla. R.S. (2012), "Environmental Management Accounting: An Overview of its Methodological Development", *International Journal of Business Insights and transformation*, vol. 5, no. 1, pp. 44- 57.
- **18.** Deegan, C., Geddes, S. & Staunton, J. (1995), "A survey of Australian accountants" attitudes on environmental reporting", *Accounting Forum*, vol. 19 no. 2/3, pp. 143-163.
- **19.** Dilley, S. C. & Weygandt, J. J. (1973), "Measuring Social Responsibility: An Empirical Test", *The Journal of Accountancy*, vol. 136, no. 3, pp. 62-70.
- **20.** Drucker, P (2006). Harvard Business Review. La Toma de Decisiones, Editions Deusto, Editorial Planeta Colombia S.A. Bogotá.
- **21.** Elgobbi, E. M. & Elghanni, E. E, (2018), " the impact of quality information on the environmental accounting disclosure: A case study for the Arabian Gulf Oil Company in Libya", *journal of economic studies*, vol. 2, no. 3, pp. 262-280.
- **22.** Eltaib, E. E. (2012) "Environmental Accounting Disclosure of Australian Oil and Gas Companies", Master Thesis, School of Accounting and Finance, University of Wollongong, Australia.
- **23.** Franklin, E. & Krieger, M. (2011), Comportamiento Organizacional. Enfoque para América Latina, Editorial Pearson, Prentice Hall, México.
- **24.** Harte, G. & Owen, D. (1991), "Environmental disclosure in the annual reports of British companies: a research note", *Accounting, Auditing & Accountability Journal*, vol. 4, no. 3, pp. 51-61.
- **25.** Herrera, M. (2008), Toma de decision esenambientesturbulentos. Modelos y herramientas para las ciencias de la complejidad, University Autónomaof Baja California, México.
- **26.** Kinicki, A & Kreitner R, (2005), Comportamien to Organizacional, conceptos, problemas y practices, Editorial Mc Graw Hill, México D.C.
- **27.** Geno, B.J. (1995), "Accounting for sustainability: an exploration of accounting needs in the ecologically rational society", *Accounting Forum*, vol. 19, no. 2/3, pp. 176-194.
- **28.** Gibson, R. & Guthrie, J. E. (1995), "Recent environmental disclosures in annual reports of Australian public and private sector organisations", *Accounting Forum*, vol. 19, no. 2/3, pp. 111-127.
- **29.** Gray, R.H. & Collison, D. (1991), "The environmental audit: green-gauge or whitewash", *Managerial Auditing Journal*, vol. 6, no. 5, pp. 17-25.
- **30.** Klassen, R. D. & McLaughlin, C. P. (1996), "The impact of environmental management on firm performance", *Management Science*, vol. 42, no. 8, pp. 1199-1214.
- **31.** Khalid, F. M., Rae Lord, B. & Dixonb, K. (2012), " environmental management accounting implementation in environmentally sensitive industries in Malaysia", *6th NZ Management Accounting Conference, Palmerston North*, 22-23 November.
- **32.** Lamberton, G. (2005), "Sustainability accounting-a brief history and conceptual framework", *Accounting Forum*, vol. 29, no. 1, pp. 7-26.

- **33.** Laughlin, B., & Varangu, L. K. (1991). Accounting for waste or garbage accounting: Some thoughts from non-accountants. *Accounting, Auditing & Accountability Journal*, vol. 4, no. 3, pp. 43-50.
- **34.** Leal, G. G., Fa, M. C., and Pasola, J. V. (2003),"Using environmental management systems to increase firms' competitiveness", *Corporate Social Responsibility and Environmental Management*, vol.10, pp. 101-110.
- **35.** Lodhia, S. (2003), "Accountants' responses to the environmental agenda in a developing nation: an initial and exploratory study on Fiji", *Critical Perspectives on Accounting*, vol. 14, no. 7, pp. 715-737.
- **36.** Mathews, M. R. (1997), "Twenty-five years of social and environmental accounting research", *Accounting, Auditing & Accountability Journal*, vol. 10, no. 4, pp. 481-531.
- 37. Masanet-Llodra, M. (2006), "Environmental Management Accounting: A Case Study Research on Innovative Strategy", *Journal of Business Ethics*, vol. 68, no. 4, pp. 393-408.
- **38.** Medley, P. (1997), "Environmental accounting what does it mean to professional accountants?", *Accounting, Auditing & Accountability Journal*, vol. 10, no. 4, pp. 594-600.
- **39.** Milne, M.J. & Gray, R. (2007), "Future prospects for corporate sustainability reporting", *Sustainability Accounting and Accountability*, vol. 1, pp. 184-207.
- **40.** Mobley, S. C. (1970), "the Challenges of Socio-Economic Accounting", *the Accounting Review*, vol. 45. No. 4, pp. 762-768.
- **41.** Nik Muhammad, N. M., Johari, R. J. and Wan Mustafa, W. M. (2004),"Social Responsibility Accounting in Malaysia: Challenge and Opportunity", *The National Conference on Accounting and Finance (NCAF)*, Kuala Lumpur, 23-24 August.
- **42.** O'Brien, J. & Marakas, G. (2006), Sistemas de información gerencial, Editorial Mc Graw Hill, México.
- **43.** Oraka, A (2021), " environmental costs and financial performance of oil and gas companies in Nigeria", *Research Journal of Management Practice*, vol. 1, no. 5, pp. 1-18.
- **44.** Patten, D.M. (1992), "Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory", *Accounting, Organizations and Society*, vol. 17, no. 5, pp. 471-475.
- **45.** Polo, B. (2013), Contabilidad de Costosen la Alta Gerencia, Group Editorial Nueva Legislación, Bogotá.
- **46.** Prothero, A. &McDonagh, P. (1992), "Producing Environmentally Acceptable Cosmetics? The Impact of Environmentalism on the United Kingdom Cosmetics and Toiletries Industry", *Journal of Marketing Management*, vol. 8, no. 2, p. 147-166.



- **47.** Rahahleh, M.Y. (2011), "Means for Implementation of Environmental Accounting Jordanian Perspectives", *International Journal of Business and Management*, vol. 6, no. 3, pp. 124-135.
- **48.** Ras Lanuf Oil and Gas Processing Company (RASCO), (2021), <u>http://raslanuf.ly/</u>, accessed on 25/7/2021.
- **49.** Rikhardsson, P. M., Bennett, M., Bouma, J. J., & Schaltegger, S. (2005),"Implementing Environmental Management Accounting: Status and Challenges", vol. 18, Springer Netherlands.
- **50.** Roberts, C.B. (1991), "Environmental disclosures: a note on reporting practices in mainland Europe", *Accounting Auditing & Accountability Journal*, vol. 4, no. 3, pp. 62-71.
- **51.** Roberts, C.B. (1992), "Determinants of corporate social responsibility disclosure: an application of stakeholder theory", *Accounting, Organizations and Society*, vol. 17, no. 6, pp. 595-612.
- **52.** Sendroiu, C., Roman, A. G., Roman, C. and Manole, E. (2006), "Environmental management accounting (EMA): Reflection of environmental factors in the accounting processes through the identification of the environmental costs attached to products, processes and services", *EconPapers: Theoretical and Applied Economics*, vol. 10, no. 505, pp. 81-86.
- **53.** Simintiras, A.C., Schlegelmilch, B.B. & Diamantopoulos, A. (1997), 'Greening' the marketing mix: a review of the literature and an agenda for future research, in P. McDonagh & A. Prothero (eds) Green management a reader, The Dryden Press, London.
- **54.** Shuaibu, K., Muhammad, A. & Isah, U. (2019), " corporate governance and environmental information disclosure of listed cement companies in Nigeria", *International Journal of Management and Commerce Innovations*, vol. 7, no. 1, pp.292-305.
- **55.** Socea, A. D., (2012), "Managerial decision-making and financial accounting information", *Social and Behavioral Sciences*, vol. 58, pp. 47-55.
- **56.** Stone, D. (1995), "No longer at the end of the pipe, but still a long way from sustainability: a look at management accounting for the environment and sustainable development in the United States", *Accounting Forum*, vol. 19, no. 2/3, pp. 95-110.
- 57. Thabit, H. T & Jasim, Y. A. (2016), "The Role of Environmental Accounting Disclosure to Reduce Harmful Emissions of Oil Refining Companies", *Journal of Pure and Applied Sciences*, vol. 28, no. 6, pp. 54-60.
- **58.** Tozer, L. E. & Mathews, M. R. (1994), "Environmental auditing: current practice in New Zealand", *Accounting Forum*, vol. 18, no. 3, pp. 47-69.
- **59.** Unerman, J., Bebbington, J. & O'Dwyer, B, (2007), *Sustainability accounting and accountability*, Routledge, London.
- **60.** United Nations Division for Sustainable Development, (2001)"Improving the Role of Government in the Promotion of Environmental Management Accounting.", Environmental Management Accounting Procedures and Principles. New York, USA.



- **61.** Unites States Environmental Protection Agency (1995), An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms, June, EPA, Washington D.C.USA.
- **62.** Wagner, M., Phu, N. V., Azomahou, T., Wehrmeyer, W. (2002), " The relationship between the environmental and economic performance of firms: An empirical analysis of the European paper industry", *Corporate Social Responsibility and Environment Management*, vol. 9, pp. 133-146.
- **63.** Zachry, B., Gaharan. C. & Chaisson, M. (1998), "A critical analysis of environmental costing", *American Business Review*, vol. 16, no. 1, pp. 71-73.
- **64.** Yakhou, M. & Dorweiler, V.P. (2004), "Environmental accounting: an essential component of business strategy", *Business Strategy and the Environment*, vol. 13, no. 2, p. 65-77.