



An Analysis and Assessment of Environmental Disclosure in the Libyan Oil and Gas Sector

Ali Masoud Aldrugi^{1*}, 'Hasen Ahmed Salama²

^{1,2}Libyan Authority for Scientific Research, Tripoli, Libya

تحليل وتقييم الإفصاح البيئي في قطاع النفط والغاز الليبي

علي مسعود الدروقي^{1*}، حسن احمد سلامة²
^{1,2}الهيئة الليبية للبحث العلمي طرابلس، ليبيا

*Corresponding author: aldrugi@aonsrt.ly

Received: July 11, 2026

Accepted: September 20, 2026

Published: October 05, 2026

Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract:

This study aims to evaluate the level and nature of environmental disclosure in Libyan oil and Gas Sector, as well as to identify the channels through which environmental information is reported, and to examine the existence of environmental accounting systems and the ability of companies to train their employees. The results, based on 48 questionnaires, showed that the level of environmental disclosure is moderate and varies depending on the type of information and the channels used. Companies also tend to focus on disclosing positive aspects and preventive measures, while disclosure of negative aspects such as fines and violations remains weak. In addition, descriptive reporting predominates, with a lack of precise quantitative data. The study also found that standalone environmental reports are the most commonly used channel. Finally, it concluded that most companies have environmental accounting systems and provide training programs for their employees; however, the level of training needs to be improved to promote a comprehensive culture of environmental disclosure.

Keywords: Environmental Disclosure, Environmental Accounting, Libyan oil and Gas Companies, Accounting information, Environmental costs.

الملخص:

تهدف هذه الدراسة إلى تقييم مستوى وطبيعة الإفصاح البيئي في شركات النفط الليبية، بالإضافة إلى تحديد القنوات المستخدمة للإبلاغ عن المعلومات البيئية، ودراسة مدى وجود أنظمة للمحاسبة البيئية وقدرة الشركات على تدريب موظفيها. وقد أظهرت نتائج الدراسة، التي استندت إلى 48 استبانة، أن مستوى الإفصاح البيئي يُعد متوسطاً ويختلف تبعاً لنوع المعلومات المُفصح عنها والقنوات المستخدمة في الإفصاح. كما بينت النتائج أن الشركات تميل إلى التركيز على الإفصاح عن الجوانب الإيجابية والإجراءات الوقائية، في حين يظل الإفصاح عن الجوانب السلبية، مثل الغرامات والمخالفات البيئية، محدوداً وضعيفاً. بالإضافة إلى ذلك، يغلب على التقارير الطابع الوصفي، مع نقص في البيانات الكمية الدقيقة المتعلقة بالأداء البيئي. وأظهرت الدراسة أيضاً أن التقارير البيئية المستقلة تُعد القناة الأكثر استخداماً للإفصاح عن المعلومات البيئية. وأخيراً، خلصت الدراسة إلى أن معظم الشركات تمتلك أنظمة للمحاسبة البيئية وتوفر برامج تدريبية لموظفيها، إلا أن مستوى التدريب يحتاج إلى مزيد من التطوير لتعزيز ثقافة الإفصاح البيئي الشامل وتحسين ممارساته.

الكلمات المفتاحية: الإفصاح البيئي، المحاسبة البيئية، شركات النفط الليبية، المعلومات المحاسبية، التكاليف البيئية.

Introduction:

Environment is considered as one of the major issues of social responsibility since pollution created major negative issues in developed and less developed countries (AAA, 1973). The problem of pollution due to industrialisation, urbanization and overcrowding as well as using chemical fertilizers and pesticides have aggravated problems related to air pollution, water pollution soil pollution and noise pollution. According to Wang et al. (2004), Industry was responsible for around 40% of water pollution and around 80% of air pollution in China 2000. Therefore, these results reveal that environmental effects are greater than other effects from social issues (AAA, 1973). To maintain nature and keep it free from pollution. Establishments and companies need to address repairing the damages caused to the environment due to industrial practices try and diminish sources of pollution and to find suitable programs and solutions. Therefore, companies and industries have to endure heavy costs and responsibilities to fulfill these requirements which are called environmental costs.

An environmental cost can be described as costs that the company incurs due to its industrial practices to minimize pollution or remove the negative effects caused on the environment voluntarily or by following environmental legislation and requirements. Examples of environmental costs include pollution control costs including planning and control costs. Costs for measurement prevention of pollution and reduction or treating pollution costs. Costs Incurred on removing environmental damages caused by companies and factory such as; disposal of solid waste and liquid waste. Factory smoke emissions and any other environmental costs.

Since these costs are major and growing bigger each year. It was deemed necessary to separate these costs from production costs and disclose them either on financial reports and statements or on different reports separate from financial reports. So that these statements can give a fair view and reflect the correct financial position of the company and satisfies the requirements of users of financial statements. Environmental performance disclosure is defined as the communication of information regarding the environmental costs that companies incur to keep the environment free from damages caused by pollution whether it affects human beings plants water or air. This information is being disclosed through different channels either on financial reports, managerial reports and non-financial reports (Environmental reports).

Literature Review:

Environmental disclosure can be considered as one of the basic pillars on which transparency and accountability process in oil sector should be built. Disclosure of environmental information in oil sector is of special concern and considered highly important as operating in this industry imposes specific sensitivity towards the environment and communities residing in those areas. The purpose of this section is to summarize the previous studies and literature review related to environmental disclosure in general and specifically environmental disclosure in oil industry.

Through reviewing the previous studies, the researcher tries to summarize the main results came out from those studies about level, quality and format of environmental disclosure and also the channels of delivering environmental information. This chapter is considered to build a strong conceptual foundation for the previous experiences in environmental disclosure in oil industry. It is worth mentioning that the results of this chapter are very essential for reviewing and analyzing the targeted companies' performance. In addition, it helps in drawing several practical recommendations to improve the quality of environmental disclosure.

Sharifah Buniamin (2010) conducted a study to determine the extent of environmental reporting by the 243 companies listed on the Main Board of Bursa Malaysia in 2005. The study used content analysis to measure both the quantity and quality of environmental disclosures in annual reports. The results revealed that only 28% of the companies disclosed environmental information. The quantity of environmental reporting averaged five sentences per company. The average quality of environmental reporting per company was 3.24%. Larger firms and firms in environmentally sensitive industries disclosed more information and produced higher-quality environmental reporting. Firms that provided more quantitative environmental information had significantly higher quality reporting as well.

Al-Taher et al (2011), The current study aimed to measure the extent to which National Cement Company discloses its environmental performance from an accounting point of view and to identify the barriers hindering the accounting disclosure of environmental information. A questionnaire was distributed to the financial and accounting departments' employees (36 questionnaires). The results revealed that the company does not account disclose its environmental performance, and there are several barriers that prevent it from doing so. The most important of these are: lack of programs promoting awareness on environmental disclosure, lack of an appropriate accounting system, lack of mandatory regulations, difficulty of measuring environmental costs and the reluctance to disclose costs incurred from environmental damages even if they can be measured.

Hamidan and Tayseer (2011) aimed to measure the extent to which Jordan National cement Company discloses its environmental performance and to identify the barriers hindering such disclosure. The study used a questionnaire which was distributed to 36 employees working in the financial and accounting departments. The results revealed that the company does not disclose its environmental performance. Lack of educational programs directed to inform the importance of environmental disclosure was one of the major obstacles. Other obstacles include lack of a suitable accounting system, lack of mandatory laws that should force the company to provide environmental disclosure, difficulty in measuring environmental costs & the companies reluctance to provide costs that are incurred from environmental damages even if they can be measured.

Study by Odera et al (2016) intends to determine the extent and nature of social and environmental disclosures made by Nigerian oil companies. The study analyses the nature and extent of SED activities presented in annual reports using content analysis research methodology. The study's findings indicate that although most of the companies publish information about social and environmental activities, employee disclosures constitute the highest type of disclosures made. On the other hand, few disclosures were made concerning the environment, and the disclosures made were of poor quality. These findings are in sharp contrast to public outcry about environmental degradation caused by oil companies.

This study advances knowledge on social and environmental disclosures practices in developing countries. Suleman Hamed (2016) The objectives of this study are to assess Libyan oil and gas companies' ability to disclose environmental costs and liabilities and explore obstacles they encounter when doing so. This study targeted chief financial officers (CFOs) and accountants and distributed 94 questionnaires through postal and online services. Upon analysis using descriptive statistics and inferential statistics, the study discovered that the sampled companies were unable to disclose their environmental costs and liabilities because they did not know what environmental accounting entailed. They also have insufficient staff and ineffective accounting systems to be able to record and report their environmental costs. The study suggests that stakeholders should implement legislation that will force organizations to practice environmental accounting and offer tax exemption and incentives to organizations that comply with environmental accounting regulations. Besides, stakeholders should come up with environmental accounting standards.

Aldrugi and Abdo (2016) conducted their study to explore environmental disclosure practices by Libyan oil companies and to what extent the companies respond to environmental concerns. The researchers gathered data through interviews with managers and accountants employed by oil and gas companies operating in Libya. The study's findings established that Libyan managers and accountants are knowledgeable about and understand CSR and environmental disclosure requirements. Most oil companies publish some environmental information in their annual reports or plans to include them in their annual reports in the near future. Oil companies in Libya provide three types of environmental information disclosed annually: positive environmental information, neutral environmental information, and negative environmental information. Prasad et al (2016) examined environmental disclosures by Indian firms based on legitimacy theory.

This paper uses content analysis on annual reports of 137 firms for two time periods 2011–2012 and 2014–2015. The findings reveal that: (a) extent as well as quality of environmental disclosures has increased from year 2011 to 2012 and 2014 to 2015, though it was not statistically significant; (b) quality of disclosures is majorly descriptive in nature; and (c) there is variation in disclosure levels across as well as within industries. The paper also concludes from econometric analysis that firm-specific factors such as industry, size, age, and foreign customer have a positive impact on extent as well as quality of environmental disclosures. Meanwhile, leverage is negatively related to environmental disclosure.

In Mansour and Omri (2017) study tries to attempt to develop an index for mandatory disclosure of environmental information whether financial, quantitative or descriptive information index by the basic information related to environmental performance presented in a way that suits the oil sector in Libya. Researchers used Descriptive statistics to identify items of mandatory environmental information to be disclosed. The study showed that mandatory environmental disclosure whether financial quantitative or descriptive disclosure through financial statements and reports are insufficient according to stakeholders' view. Despite stakeholders in oil companies and expertise have demands and interest on the information type related to environmental activities whether it is financial information quantitative information or descriptive information.

Adams and Akomolafe (2017) conducted a study that aimed to identify inadequacies in both the quantity and quality of corporate environmental disclosures in Nigeria's manufacturing firms. The secondary data was extracted from annual reports of fourteen (14) manufacturing companies selected through purposive sampling technique for the period 2010–2015. Interpretative content analysis was used to mine relevant information from these annual reports. The study found out that corporate

environmental disclosure is very minimal among manufacturing firms in Nigeria. The study recommended companies should be aware of their environment role, sanctions should be put in place by regulators or the government should force companies to participate in environmental reporting.

Abdel Samad and Yahyaoui (2018) this study aims to assess the reality of environmental performance disclosure in cement companies through an analysis of the annual financial reports of the Cement Company of Aïn El Kebira – Sétif – issued during the last five fiscal years. The research concludes that this disclosure is realized through the Book entitled “Activity Report” included in management report and through the notes to the financial statements. This disclosure is considered positive as it aims to provide environmental information of good nature about the expenditure that the company made for the sake of protecting environment and about the procedures followed during the implementation and evaluation of the environmental management system. However, this does not cover material (non-monetary) information about the adverse effects that the activity of the company may have on the environment like environmental performance indicators related to air pollution emissions.

Fatouha and Al-Jundi (2019) tried to study environmental accounting practices reality in Eni Gas Company in Mellit, especially evaluating whether the accounting system operated by the company is sufficient to provide the necessary information about the company's contribution to protecting the environment, and awareness of the importance of environmental accounting from the management, and finally identifying the obstacles faced by the company in applying environmental accounting. They designed a questionnaire that was distributed to the group consisting of managers, accountants, and environmentalists working at Eni Gas in Mellit city. Data was coded and analyzed using SPSS. Results revealed weak environmental accounting use, the need to develop employees and raise awareness of the importance of environmental accounting from the company management. Finally, obstacles facing environmental accounting implementation in the organization are weak knowledge from management, current political and economic conditions in the country, lack of qualified human cadres, and lack of sufficient detailed information.

In Al-Jilali and Rahima (2019) study shed light on accounting disclosure of environmental costs and difficulties that may face its implementation in industrial companies. Distributed 34 questionnaires to employees of the accounting and financial departments and heads of senior management in Chlef in order to detect the relationship between these two variables. The study concluded that the Cement and Derivatives Company in Chlef implicitly and not separately bears the environmental costs generated by its activity since they are presented as part of general accounts. On the other hand, the company is experiencing weak accounting disclosure of environmental costs due to the obstacles it is facing.

Al-Gharyani et al (2019) The study aimed to identify the level of environmental performance disclosure in Libyan cement manufacturing companies and detect the barriers facing them from disclosing this information in financial statements companies. The study used a case study technique depending on the data collected from annual financial reports of the National Cement Company for the years 2011–2018 in addition to conducting a personal interview with officials from the financial management, senior management, and training department. Results showed the complete absence of any environmental performance disclosure by the company, weaknesses in the company financial system which is not consistent with the requirements of environmental disclosure. Also, regulatory bodies and environmental organizations play a weak role in monitoring companies that pollute the environment.

Omar et al (2021), conducted Interviews with nine managers working at Libyan oil and gas companies to explore how managers think and behave when deciding whether or not to disclose CSER activities their companies undertake. Each interview was transcribed and analyzed thematically. Managers recognized their social and environmental responsibilities toward society. They are willing to disclose their social responsibilities by their own initiative but are hesitant to disclose environmental responsibilities unless there is a threat to the environment by their operations. Furthermore, managers are aware that their operations may have negative consequences for society and the environment which require them to act responsibly. The study found that there is no framework that incorporates all CSER requirements that should be practiced by Libyan companies.

Disclosure on Accounting for Environmental Performance at the Phosphate Mines Company of Bir El Ater in Tebessa (Qalqul qnd Azizia, 2022), the goal of this study is to assess accounting disclosure on environmental performance at Phosphate Mines Company of Bir El Ater in Tebessa (WAEP). A descriptive-analytical study was carried out to collect, measure and interpret the texts of reports and documents presented by the company. The conclusions of this study showed that the company does not have any environmental accounting system to report environmental costs either in the financial statement statements or in the annexes. Also lack of employees specialized in environmental field. Finally, according to this study were developed some recommendations, including the most important

recommendations; increase environmental awareness among staff by training and capacity-building workshops organized and attendances specialized course of development.

The analysis of previous research has unveiled several gaps in knowledge in spite of the increase in concern for environmental disclosure within oil sector companies and others. Firstly, there are several studies that explain how environmental disclosure practices are insufficient and lack quality by merely providing descriptive information as opposed to specific quantitative information regarding companies' environmental performance. Secondly, studies indicate lack of practice regarding environmental accounting among companies due to a lack of knowledge of environmental accounting systems as well as competent personnel and weak systems to track and record environmental costs. Thirdly, studies explain lack of governing bodies/mandated laws to implement environmental disclosure along with incompetent authorities to hold companies accountable therefore not allowing companies to fully disclose information. Fourthly, most companies tend to disclose positive or neutral environmental information but fail to disclose information about environmental issues and the actual impact their operations have on the environment showing a discrepancy between policy and practice. Lastly, previous studies tend to focus on specific regions or sectors with limited number of studies focused on oil companies within developing countries like Libya that also measure the level of disclosure and how environmental disclosure may impact stakeholders, financial performance, and the environment.

Problem Statement:

In today's business environment companies are judged by their financial performance as well as their degree of corporate social responsibility reporting and environmental disclosure. Information about corporate social responsibility reporting and environmental disclosure is communicated in companies' corporate social responsibility reports, environmental reports and sustainability reports. By disclosing CSR, environmental and sustainability information, firms provide accountable and transparent information to shareholders and stakeholders. As a result, it can help firms build their corporate image and assist them in achieving their financial goals such as reducing their cost of equity and enhancing their financial performance.

Therefore, social and environmental disclosure have been emerged as one of the major topics of interest among researchers studying corporate reporting. However, by scanning through accounting literature we find that developed countries have been the main focus of researchers studying CSR and ED whereas countries with developing economy have been somewhat ignored. Even the comparative cross-national studies have been limited to the developed countries ignoring the social, economic, cultural and political differences which might affect CSR and ED practices in those countries. Some Researchers has also argued that we cannot apply results from developed countries studies to the developing world because of institutional and socio economic and political differences between these two groups of countries (Archambault & Archambault, 2003; Dumontier & Raffournier, 1998).

Keeping this point in our mind, not many studies have been conducted that look into CSR and ED issues in the developing world. Belal (2001) points out that there are only few studies that deal with the issue of CSR in developing countries and shows concern about future studies concentrating on the impact of social and economic conditions of the host country. In the same way Raman (2006) says that Most of the studies dealing with the topic of CSR have been done under the economic and organizational settings of Europe and America. Only limited research has been conducted in developing countries. Although environmental disclosure is gaining significant importance there are very few studies dealing with environmental disclosure specifically.

Libya being a developing country hasn't been widely studied in terms of environmental disclosure throughout all its economic sectors. It has its own social, political and economic environment which is different from the countries which have been widely studied. Therefore, the present study will attempt to find out the extent, nature and mechanisms of environmental disclosure in Libya keeping in mind the environmental scenario of the country and not comparing it with the results of other countries. This gap is more crucial because oil industry is Libya's most polluting industry and contributes about 70% of industrial GDP and 98% of total exports. These percentages make it worthy to conduct comprehensive research about environmental disclosure in the oil industry. Therefore, this study aims to investigate the environmental disclosure in Libya's oil and gas industry.

Objectives of the Study:

The primary aim of this study is to assess the extent, nature, and channels of environmental disclosure within the Libyan oil and gas sector. This goal can be realized through achieving the following sub-objectives:

1. Determining the readiness of oil companies operating in Libya to disclose environmental information & to what extent has this disclosure reached.
2. Determining the nature of the information disclosed whether (Positive- Neutral - Negative).

3. Determining the nature of environmental disclosure in oil companies whether (Descriptive – Quantitative).
4. Determining where is environmental information published whether: Inside financial statements & reports or there are separate statements & reports issued specifically for this purpose.
5. Offering some recommendations according to the results of this study in order to help oil & gas companies as far as disclosing environmental information in particular & other concerned entities in the country in general are concerned.

Significance of the Study:

The reasons why this study is important and needed are the following; Environmental costs are becoming increasingly important day by day. Moreover, users of financial statements are demanding more environmental pollution related information for their economic decision-making. Another reason is that companies/factories are being inflicted with heavy financial costs and liabilities either by cleaning pollution levels to make environment safe or by treating elimination of harmful environmental effects occurred by the business process. Hence there is a need to identify and measure environmental costs separately from industrial costs if we are to determine product cost accurately. Accurate product cost determination allows for setting proper sale prices as well as helping managerial and financial decisions be more effective.

So, Environmental costs needed to be disclosed whether in financial statements & reports or in separate reports on the environment to satisfy financial statement users and have better transparency in financial reporting. From practical point of view, it is hoped that the results of this study will help in raising the awareness of society and competent authorities in Libya about the degree of environmental disclosure practiced by oil companies operating in Libya and to develop some standards and policies to improve environmental disclosure. From academic point of view, this study will help in fulfilling the gaps that exist in the accounting literature especially concerning social disclosure in general and environmental disclosure in particular in developing countries and Libyan oil industry in particular."

Study questions:

To achieve the objectives of the study and contribute to enriching the accounting literature, this study seeks to answer the following questions:

1. What is the extent of environmental disclosure in oil and gas sector in Libya?
2. What is the type of environmental disclosure (positive – neutral – negative)?
3. What is the form of environmental information disclosure (descriptive – quantitative)?
4. Where is environmental information disclosed (in financial reports and statements – in separate reports and statements)?
5. Does the company have an environmental accounting system for preparing environmental reports, and are employees trained in this field?

Research Methodology:

This study was divided into two parts, where the first section consisted of answering and fulfilling the requirements for the theoretical portion of the study. This includes the scope, features, and mechanism of environmental disclosure. The next section is the empirical portion of the study. This chapter will compile and discuss the major findings that adhere to the purpose and research questions of this study. Included in this section is the summary of the results and recommendations and suggestions to stakeholders and individuals who may take an interest in this field of study. In order to answer the research questions, the following statistical analyses were utilized to determine the validity and reliability of this study:

1. Frequencies and percentages.
2. Cronbach's Alpha coefficient.
3. Weighted mean and relative weight.
4. Pearson correlation coefficient.

Internal Consistency Validity:

For the purposes of calculating weighted mean and relative weight, a five-point Likert scale was utilized in determining the participants' agreement with the statements given in the questionnaires. The answers were tabulated according to the following degrees: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. As shown in Table 1, each degree was assigned with a particular weight.

Table (1): Tthe response weights according to the five-point Likert scale for the ranks.

Opinion	Strongly Disagree	Disagree	Neutral	Disagree	Strongly Disagree
response	5	4	3	2	1

According to Table No. (1), the attitudes of the sample members were determined based on the five-point Likert scale, such that the length of the interval used became (4/5), i.e., approximately (0.80). The

interval length was calculated on the basis that the weights of the five responses (1-2-3-4-5) for positive statements, and the reverse for negative statements, are divided into four intervals. The following table illustrates this.

Table (2): The determination of the sample's attitudes according to the five-point Likert scale based on the weighted mean.

Likert Scale Category	Weight Range	Interpretation
Strongly Disagree	From 1, to less than 1.8	Very Low
Disagree	From 1.81 to less than 2.60	Low
Neutral	From 2.61 to less than 3.4	Moderate
Agree	From 3.41 to less than 4.2	High
Strongly Agree	From 4.3 less than to 5	Very High

Table (2) shows that the weighted mean for the response "Strongly Disagree" ranges from 1 to less than 1.80, while the weighted mean for "Disagree" ranges from 1.81 to less than 2.60. The weighted mean for "Neutral" falls between 2.61 and less than 3.40, whereas "Agree" ranges from 3.41 to less than 4.20. Finally, the weighted mean for "Strongly Agree" spans from 4.21 to 5.

Firstly: Validity and Reliability of the Measurement Instrument (Questionnaire):

1. Validity:

Internal consistency validity was used, which is based on calculating Pearson correlation coefficients between each item of a dimension and the total score of the dimension to which it belongs. The following table shows the internal consistency validity of the study's measurement dimensions:

Table (3): Correlation coefficients between the items of the measurement dimensions and the total dimension scores

	The First dimension	The second dimension	The third dimension	The fourth dimension
1	.483**	.546**	.561**	.815**
2	.563**	.741**	.396**	.898**
3	.504**		.405**	.936**
4	.501**			
5	.476**			
6	.630**			
7	.596**			
8	.416**			

It can be seen from Table (3) that all correlation coefficients across the dimensions were statistically significant at the 0.00 level, which is below the conventional significance level (0.05). This statistical significance indicates that the items possess internal consistency validity, as they are consistent with the other items within their respective dimensions. Therefore, this instrument can be relied upon to collect the study's data, ensuring the reliability and validity of the results obtained

2. Overall Reliability of the Questionnaire:

Reliability of the questionnaire was tested by Cronbach's alpha test and the obtained coefficient was equals to (0.88), shows that questionnaire has high degree of reliability gives the researcher confidence about the results.

Secondly: Analysis of Data and Results:

The following represents data collected from the Study using questionnaire form with an additional question to whether company/institution runs training courses and workshops for its employees on environmental disclosure and environmental accounting beside the two scales mentioned previously each consists of four dimensions:

1. Scales that measures the level of environmental information disclosure in oil and gas Sector in Libya and consists of (7 items).
2. Scales that measures the type of environmental information disclosed by oil and gas companies (positive – neutral– negative) and consists of (3 items).
3. Scales that measures the form of environmental information disclosure (descriptive – quantitative) and consists of (2 items).
4. Scales that measures the method of environmental information disclosure (in financial reports and statements – in separate reports and statements) and consists of (3 items).
5. Indicates the extent to which the company has an environmental accounting system which can be used to measure environmental costs and issue reports related to environmental costs and whether

the company runs training courses and workshops for employees in the field of environmental disclosure and environmental accounting (2 items).

1. Answering the first question:

- To what extent has environmental information disclosure been reached in oil and gas companies in Libya?

Table (4): The sample's responses regarding the extent to which environmental information disclosure has been achieved in oil and gas companies in Libya.

Statements	N	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Weighted mean	relative weight
The company discloses all necessary information regarding its environmental performance.	N	1	8	11	21	7	3.52	%70
	%	2.08	16.6	22.9	43.75	14.5		
The company discloses the policies adopted for the treatment of environmental costs.	N	0	11	6	20	11	3.65	%73
	%	0.00	22.9	12.5	41.67	22.9		
The company discloses all environmental costs related to all company operations	N	1	6	12	23	6	3.56	%71
	%	2.08	12.5	25.0	47.92	12.5		
The company discloses the costs incurred as a result of environmental waste disposal.	N	2	6	12	18	10	3.58	%72
	%	4.17	12.5	25.0	37.50	20.8		
The company discloses the costs of treating environmental pollution damage	N	2	12	6	18	10	3.46	%69
	%	4.17	25.0	12.5	37.50	20.8		
The company discloses the procedures it has implemented to reduce the effects of pollution and the extent of its compliance with environmental protection standards.	N	1	6	8	22	11	3.75	%75
	%	2.08	12.5	16.6	45.83	22.9		
The company discloses environmental assets and the related liabilities and provisions	N	2	9	8	24	5	3.44	%69
	%	4.17	18.7	16.6	50.00	10.4		

Results indicated that Table (4) reveal that disclosure of all the required information about the achieved environmental performance scored (3.52) and the percentage weight (70%) while disclosure of the adopted policies for treating the environmental costs achieved (3.65) and percentage weight (73%). Disclosure of all environmental costs caused by all operations scored (3.56) and percentage weight (71%), disclosure of costs relating to environmental waste disposal achieved (3.58) and percentage weight (72%) while disclosure of costs of treatment of environmental pollution damage gained (3.46) and percentage weight (69%). Moreover, the highest means were related to disclosure of the procedures that the company has established to reduce pollution effects and assurance that the company complies with environmental protection standards scored (3.75) and (75%) respectively. The lowest mean is represented by disclosure of environmental assets and disclosure of the related liabilities and provisions scored (3.44) and the percentage weight (69%). Overall, these results reveal that disclosure level is between the moderately high level since the weighted means ranged from (3.38–3.75). These results show that the respondents seem to have positive movement towards environmental disclosure when it comes to policies and prevention measures. However, there is partial disclosure when it comes to all environmental factors.

2. Answering the second question:

- What is the nature of the environmental information disclosed by oil and gas companies (positive – neutral – negative)?

Table (5): shows the sample responses regarding the nature of the environmental information disclosed by oil and gas companies.

Statements	N	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Weighted mean	relative weight
The company discloses negative environmental costs, such as financial fines resulting from failure to disclose environmental information.	N	4	9	16	15	4	3.13	%63
	%	8.33	18.7	33.3	31.25	8.33		
The company discloses only positive information, such as the improvements it has made to preserve the environment.	N	1	7	8	21	11	3.71	%74
	%	2.08	14.5	16.6	43.75	22.9		
The company discloses only neutral environmental information that does not harm its interests.	N	3	10	7	22	6	3.38	%68
	%	6.25	20.8	14.5	45.83	12.5		

The Analysis of Table (5) showed that Negative environmental costs disclosure concerning economic fines that could be levied against organizations when they fail to disclose information obtained a weighted average of (3.13) and a percentage weight of (63%). Neutral disclosure, i.e., revealing information which does not favor or go against companies, got a weighted average of (3.38) and a percentage weight of (68%). The highest ranking is related to Positive environmental disclosure about the improvements that companies carry out in order to protect the environment as it got the highest weighted average of (3.71) and a percentage weight of (74%). Companies prefer to disclose positive information about what they do in order to protect the environment more than any other kind of disclosure followed by neutral information. They less prefer to disclose negative information about what violates the environment they operate in or could be fined. They tend to show themselves in a positive light before society and authorities rather than completely complying with disclosure transparency.

3. Answering the third question:

- What is the form of environmental information disclosure (descriptive – quantitative)?

Table (6): The sample responses regarding the form of environmental information disclosure (descriptive – quantitative).

Statements	N	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Weighted mean	relative weight
The company discloses its environmental performance using quantitative data only	N	1	16	12	17	2	3.06	%61
	%	2.08	33.3	25.0	35.42	4.17		
The company discloses its environmental performance in a descriptive manner.	N	0	8	15	21	4	3.4	%69
	%	0.00	16.6	31.2	43.75	8.33		

As shown in Table (6), disclosing quantitative environmental information only recorded weighted mean equals to (3.06) and percent weight equals to (61%) whereas disclosing descriptive environmental information only scored weighted mean equals to (3.40) and percent weight equals to (69%). Therefore; we can say that descriptive disclosure is dominant practice within Libyan oil and gas sector, followed by partial descriptive disclosure via internal channels while accurate quantitative disclosure scored only (61%) showing the lack of or weak application of quantitative measures or accounting standards.

4. Answering the fourth question:

- Where is environmental information disclosed (in reports and financial statements or in separate reports)?

Table (7). The sample responses regarding the form of environmental information disclosure

Statements	N	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Weighted mean	relative weight
The company discloses its environmental performance through reports separate from the annual financial statements.	N	1	12	9	19	8	3.43	%69
	%	2.08	25.0	18.7	39.58	16.6		
The company includes environmental performance data in the income statement	N	0	13	9	22	4	3.35	%67
	%	0.00	27.0	18.7	45.83	8.33		
The company prepares the statement of financial position including data on its environmental performance.	N	2	11	8	23	4	3.33	%67
	%	4.17	22.9	16.6	47.92	8.33		

As shown in Table (7), disclosing environmental information through publishing separate reports independent of the annual financial statements came with a weighted average of (3.43) and a percentage weight of (69%) as second option. With holding environmental information in the income statement registered a weighted average of (3.35) and a percentage weight of (67%). Preparing the statement of financial position with environmental information contained scored a weighted average of (3.33) and a percentage weight of (67%). These outcomes indicated that companies/institutions tend to disclose their environmental information separately from financial statements. In other words, environmental information could be found not only in official financial statements but also in separate reports that help society and regulating authorities get a wider and clearer picture about the performance of the company in their environmental disclosure.

5. Answering the fifth question:

- Does the company have an environmental accounting system for preparing environmental reports, and are employees trained in this field?

The table (8): shows the availability of an environmental accounting system in the company and the training of employees in environmental disclosure

Statements	N	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Weighted mean	relative weight
The company possesses an internal accounting system for preparing reports on environmental costs.	N	0	6	14	25	3	3.52	%70
	%	0.00	12.5	29.1	52.08	6.25		
The company conducts training courses and workshops for employees in the field of environmental disclosure and environmental accounting.	N	0	9	8	20	10	3.66	(%73
	%	0.00	18.7	16.6	41.67	20.8		

Table (8) revealed that oil and gas companies have environmental accounting system that issues environmental reports which reflect environmental costs the Weighted mean equal (3.52) and the percentage of weight (70%). Companies give training courses and workshop for employees about environmental disclosure and environmental accounting .41.67 % of the sample were agree while 20.8 % were strongly agree. The Weighted mean equal (3.66) and the percentage of weight (73). Study results revealed that companies have environmental accounting system that allows them to measure environmental costs and issue environmental reports. Also, they have revealed that companies have

interest in training and raising awareness about environmental accounting and environmental disclosure however this percent lie in average so they need to be better organized and developed in order to ensure embedding the culture of environmental disclosure completely both employees and management.

Conclusions and Recommendations:

This section presents a summary of the study and its main findings. Recommendations and suggestions are also provided based on these findings. They can help enrich existing practices, fix current flaws, and provide new pathways for future research pertaining to the topic of study.

Conclusions:

The objectives of the present study are to study the level of environmental disclosure practiced by Libyan oil and gas companies as society requires accurate information about the environment to make economic decisions today under greater pressure from governments and regulators. The specific objectives are to study the extent to which Libyan oil and gas companies disclose environmental information and know its nature and items and channels adopted for disclosure as well as the existence of environmental accounting systems and their ability to train their employees to enable them to practice better and efficient environmental disclosure.

Research Methodology: Descriptive-analytical questionnaire distributed to oil and gas companies' financial departments. The study relied on distributing 55 questionnaires and the valid returns represented 48 of those distributed. The following statistical tools were used: frequencies and percentages, Cronbach's alpha coefficient to ensure reliability. The weighted mean was used to identify the degree of importance and the Pearson coefficient (R) to ensure internal consistency.

Findings: The Libyan oil and gas sector's environmental disclosure level ranges between moderate and neutral responses with a clear distinction according to the items of information disclosed and channels of disclosure. As for items of disclosure, the companies surveyed provide positive information to a greater extent as environmental policies and preventive measures got the highest mean score. Negative information is what these companies avoid disclosing as much as possible such as fines and violations due to their desire to polish their image in front of society. As for the nature of disclosure, descriptive disclosure is what is applied to a great extent followed by partially descriptive disclosure. Disclosure by quantities is limited.

This indicates the absence of unified quantitative standards and weak implementation of environmental accounting which in turn limit the ability of these companies to disclose accurate and comparable information that can help in making financial decisions. As for channels of disclosure, the companies practice their disclosure by issuing separate environmental reports and see them more complete than cramming them in the annual financial reports. About two-thirds of the sample reveals that the companies have environmental accounting systems that enable them to measure environmental costs and prepare reports, along with training courses and workshops for employees. Regarding training and awareness of employees about the importance of environmental issues facing them, the degree of attention is moderate. The study concludes that there is an urgent need to enhance institutional capacities within these companies, particularly in developing environmental accounting systems, improving the level of disclosure, and achieving greater transparency and balance between positive and negative information.

Recommendations:

From these findings, we can come up with several practical and academic recommendations **as follow:**

1. **Encourage quantitative disclosure:** Creating quantitative measures to track environmental costs and using them consistently. Therefore, we can ensure better reliability by concentrating on validity and comparability among corporations when revealing environmental disclosure data.
2. **Improve negative disclosure transparency:** Promoting environmental fines and violations disclosure by corporations to balance between publishing improvements and achievements versus publishing risks and failures. Doing so will provide more reliable information to the community.
3. **Build employee skills and knowledge:** Conducting advanced training courses periodically and holding workshops to enhance employees' familiarity with environmental disclosure and environmental cost accounting. Also, ensuring that environmental disclosure culture is built at all levels in the company. Developing management capabilities to help them in their decision-making process.
4. **Maintain clear environmental policies and procedures:** Developing policies and procedures that specify how to measure and record environmental costs. Also, keep policies and procedures updated routinely and make sure they are consistent with international policies. Keep track of whether units are following environmental policies and procedures to reduce environmental violations that may occur.

5. **Empower institution responsible for social responsibility:** Link environmental disclosure with the company's strategy of social responsibility to make both environmental performance and economic performance more cohesive. This will lead to increasing the companies' contribution to the country's sustainable development.

References:

1. Adams, A., and Akomolafe, A., 2017, Environmental Disclosure Practices in Annual Reports of Listed Manufacturing Firms in Nigeria, SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2951272
2. Aldrugi, A., and Abdo, H., 2016, Social and Environmental Disclosure Rating in the Libyan Oil and Gas Sector, *Change Management*, Vol.16, N. (3), 1: <https://doi.org/10.18848/2327-798X/CGP/v16i03/1-17>
3. Hamidan, A., and Tayseer, A., 2011, Accounting Disclosure of Environmental Performance in the National Cement Company in Libya: An Exploratory Study, *Damascus University Journal of Economic and Legal Sciences*, Vol 27, Issue 1
4. American Accounting Association (AAA), 1973. Committee on Environmental Effects of Organization Behavior, *The Accounting Review* 48 (4), 72-119.
5. Archambault, J., Archambault, M., 2003, A Multinational Test of Determinants of Corporate Disclosure, *The International Journal of Accounting* 38 (2), 173-194.
6. Al-Taher, A., Al-Masry, T., and Saleh, N., 2011, Accounting Disclosure of Environmental Performance in the National Cement Company of Libya: "An Exploratory Study, *Damascus University Journal of Economic and Legal Sciences*, Vol.27, Issue.1
7. Belal, A., 2001. A Study of Corporate Social Disclosures in Bangladesh, *Managerial Auditing Journal* 16 (5), 274-289.
8. Al-Jilali, B., and Rahima, H., 2019, Accounting Disclosure of Environmental Costs and the Obstacles Facing It: A Case Study of the Cement and Derivatives Company of Chlef, *Majami'Al-Marifa Journal*, Vol. 06, Issue.1
9. Mansour, D., and Omri, M., 2017, Towards a Mandatory Environmental Accounting Disclosure Index a Field Study on the Libyan Oil Sector, *Alameai Journal*, issue 25
10. Dumontier, P., and Raffoumier, B., 1998, Why Firms Comply Voluntarily with IAS: An Empirical Analysis with Swiss Data, *Journal of International Financial Management and Accounting* 9 (3), 216-245
11. Omar, M., Echchabi, A., and Al-Hajri, S., 2021, Determinants of Social and Environmental Reporting Practices Disclosure in Libyan Oil and Gas Industry: A Managerial Perspective, *International Journal of Energy Economics and Policy*, Vol,11, Issue.4
12. Prasad, M., Mishra, T., and Kalro, A., 2016, Environmental disclosure by Indian companies: an empirical study, *Environment, Development and Sustainability*, Vol 19, pages 1999–2022
13. Fatouha, M., and Al-Jundi, I., 2019, The reality of environmental accounting practices at Eni Gas Company in Mellit, *Accounting Studies*, Issue ((3)
14. Samad, N., and Yahyaoui, E., 2018, Accounting Disclosure of Environmental Performance in the Financial Reports of the Aïn El Kebira Cement Company – Sétif, *Journal of Human and Social Sciences*, Issue 38
15. Odera, O., Scott, A., and Gow, J., 2016, An examination of the quality of social and environmental disclosures by Nigerian oil companies, *Corporate Governance*, VOL. 16 NO. 2, 400–419. <http://dx.doi.org/10.1108/CG-05-2015-0065>
16. Al-Gharyani, O., Abu Stala, A., Madi, S., and Bakir, E., (2019), Accounting Disclosure of Environmental Information in Financial Reports A Case Study of the Libyan National Cement Company, *The Third Academic Conference on Economic and Business Studies*
17. Buniamin, S., 2010, The Quantity and Quality of Environmental Reporting in Annual Report of Public Listed Companies in Malaysia, *Social and Environmental Accounting*, Vol. 4, No. 2. Pp 115-135
18. Raman, R., 2006. Corporate Social Reporting in India: a View from the Top, *Global Business Review* 7 (2), 313-324.
19. Qalqu, S., and Azizia, S., (2022), Evaluation of the reality of accounting disclosure of environmental performance in the economic institution, "Journal of Studies in Economics and Business Administration." Vol5, No2 P.P 187-206
20. Hamed, S., (2016), Assessment of the Environmental Accounting Disclosure An Empirical Evidence from oil & gas Sector of Libya, *The Fourth Scientific Conference of Environment and Sustainable Development in the Arid and Semi- Arid Regions (ICESDA: Ajdabiya- Libya*
21. Wang, H., Bi, J., Wheeler, D., Wang, J., Cao, D., Lu, G., Wang, Y., 2004. Environmental Performance Rating and Disclosure, *Journal of Environmental Management* 71 (2), 123-133