The Impact of Green Accounting on Improving Environmental Performance, A Case Study of a Sample of Institutions in El Oued State, Algeria

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Abstract:

This study aims to assess the contribution of environmental accounting to enhancing the environmental performance of economic institutions under study.

The primary data collection method utilized in this study was a questionnaire, complemented by various statistical methods to analyze the data and test the hypotheses. The findings revealed that the officials and staff of the economic institutions under study were aware of the significance of environmental management. However, these institutions do not measure environmental costs due to the absence of green accounting practices. Integrating such practices would lead to an improvement in their environmental performance.

Key words: Green Accounting, Environmental Costs, Environmental Performance, Measurement, and Accounting Disclosure.

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1. Introduction

The topic of the environment has become one of the significant and modern trends that has received considerable attention in recent years in various societies and countries. This is due to the increasing damage to the environment, making environmental pollution a global economic, social, and political problem. To address this, legal regulations have been established, obligating companies at times to use methods and practices to ensure environmental protection. This has given rise to the concept of environmental costs, which are additional costs incurred by companies in response to these pressures to mitigate the damage caused to the environment.

This has added a new and evolving dimension to the accounting profession, which was previously limited to financial and economic aspects only. Therefore, the adoption of environmental accounting has become necessary due to its significance in identifying and measuring environmental costs. Companies need to provide adequate and sufficient information about their environmental performance, just as they do for their financial and economic performance. This includes information about environmental costs, leading to increased transparency in financial statements and achieving a competitive advantage for the company.

Study problem: The problem of this study can be formulated in the following main question:

To what extent does green accounting contribute to improving the environmental performance of economic institutions?

The following sub-questions fall under this problem:

- What is the level of awareness of the benefits of environmental accounting in economic institutions?
- How available are the requirements for implementing environmental accounting in economic institutions?
- To what extent can green accounting contribute to improving the environmental performance of economic institutions?
- What difficulties and obstacles hinder the contribution of environmental accounting in economic institutions?
- Are there statistically significant differences within various axes due to individual and functional characteristics?

Study Hypothesis: This study proceeds from the following hypotheses:

- There is a high level of awareness of the benefits of environmental accounting in economic institutions.
- Economic institutions have a high level of requirements for implementing environmental accounting.
- There is a significant possibility for green accounting to improve the environmental performance of economic institutions.
- There are considerable difficulties and obstacles that prevent the contribution of green accounting in economic institutions.

Study objectives: This research aims to highlight the following:

- Understanding environmental accounting and its role in reducing environmental pollution resulting from various industrial activities managed by institutions.
- Explaining the nature of environmental costs and how environmental accounting measures, analyzes, and treats them.
- Demonstrating how environmental accounting discloses environmental performance in financial statements and reports.
- Attempting to emphasize the importance of environmental accounting in economic institutions and its role in improving their environmental performance.

Study importance: This topic holds significant importance as it allows:

- Implementing environmental accounting in economic institutions to provide comprehensive information regarding environmental aspects, giving a complete picture of their environmental performance.

- Addressing the measurement and accounting disclosure of environmental costs incurred by institutions to improve their environmental performance.

- Drawing the attention of institutions, especially those involved in polluting industries, to the necessity of adopting environmental accounting as an evaluation and improvement tool for environmental performance.

Reasons for Choosing this Research Topic: Personal reasons:

- The nature of the specialization (accounting).

- Personal interest in addressing these topics.

Objective reasons:

- Shedding light on the importance of focusing on the environmental dimension.

- Understanding the extent to which economic institutions comply with environmental accounting practices.

- Learning about the accounting measurement bases for environmental costs and benefits and how to disclose them.

2. Literary review

- Study by Lulu, Yahya Jamal (2016) titled "The Availability of Environmental Cost Accounting in Industrial Companies Operating in Gaza Strip: A Field Study," Unpublished Master's Thesis, Faculty of Commerce, Islamic University of Gaza, Palestine. This study aimed to identify the availability of components for implementing environmental cost accounting in industrial companies and its role in reducing environmental problems. The study found a lack of environmental awareness among top management in industrial companies, leading to inadequate adoption of environmental cost accounting. It recommended increasing environmental awareness and disseminating it among employees in industrial companies, as well as implementing laws and regulations to preserve the environment and its natural resources.
- Study by Jramuni, Asmaa (2015) titled "The Role of Environmental Cost Accounting in Achieving Competitive Advantages for Industrial Institutions." This study aimed to highlight the role of cost accounting in achieving competitiveness for industrial institutions and understanding the various methods for measuring environmental costs, optimizing them to achieve competitive advantages. The study identified an increasing interest in pollution issues by governments and environmental associations, leading to accurate tracking of environmental costs separately from other expenses. The study recommended giving more attention to environmental cost accounting and applying modern methods to determine and measure these costs in institutions.
- Study by Musa, Mohammad Abdullah Saleh (2015) titled "Environmental Awareness and Its Role in Implementing Environmental Accounting Disclosure in Jordanian Industrial Companies: A General Contribution and Its Impact on Investor Decisions in the Financial

Market." This study aimed to understand the role of environmental awareness in implementing environmental accounting disclosure and its importance for investors in Jordanian industrial companies. The study assessed the inclusion of environmental accounting information in financial statements of industrial companies to assist in making appropriate financial decisions. It emphasized the need to activate and apply Jordanian environmental legislation and laws and recommended workshops to convince financial managers of the importance of environmental accounting and its implementation.

- Study by Lungu, Caraiani, & Dascalu (2011): This study investigated the relationship between company characteristics and environmental and social disclosure, which included human resources disclosure. The study analyzed 50 global companies and found no relationship between the size of the company and the level of environmental and social disclosure. However, there were statistically significant inverse relationships between disclosure and company profitability.
- Study by Albertini, Elisabeth (2011) titled "Environmental Commitment of Companies: A Literature Review in Accounting, Economics, and Society." This study presented a theoretical analysis of corporate environmental responsibility, focusing on two aspects: first, companies' environmental commitment to meet legal pressures (accountability) and second, a research study on how environmental strategies improve the financial performance and create strong competitive advantages. The study discussed economic determinants of environmental commitment and the relationship between environmental and financial performance. It concluded that voluntary and mandatory environmental disclosure is used by companies to support their legitimacy, and environmental initiatives impact companies' profitability and financial performance.

3. The Conceptual Framework of Green Accounting

3.1. Concept of Green Accounting

Green accounting has several definitions, and the most important ones are as follows:

It is a branch of accounting that includes methods of measurement and disclosure of information related to the environmental impact of the organization in financial reports or separate reports. It involves measuring and disclosing environmental costs in addition to other elements related to environmental activities such as assets, benefits, and environmental liabilities. Its aim is to provide internal stakeholders and external parties of the organization with necessary information to make decisions, monitor, and evaluate the environmental performance of the organization (Samad & Maqri, 2016, p. 60).

The U.S. Environmental Protection Agency (EPA) defined green accounting in 1975 as the identification, definition, collection, analysis, and disclosure of environmental cost information and reliance on such information for economic decision-making (Tounsi & Burnan, 2017, pp. 09-10).

The EPA also defined green accounting in three aspects (Reda, 2013, pp. 38-39):

- **Green accounting from an economic perspective:** This phase involves measuring and analyzing the quantity and value of input factors of production and often reflects the level of economic well-being of the individual and society.

- **Green accounting as an extension of financial accounting:** In this phase, financial statements are prepared according to accounting standards and principles, including information about environmental impacts to assist users of these statements, such as investors, creditors, and shareholders.

3.2. Motives for Green Accounting

In the context of the relationship between accounting and the environment, the main reasons for the interest in green accounting can be summarized as follows (al-Majeed & Amin, 2017, p. 29):

- **Emergence of Environmental Protection Laws:** The negative impacts of economic institutions have compelled many countries to issue environmental laws aimed at protecting and preserving the environment to ensure sustainable economic progress without harming the human environment.

- **Lenders:** Lenders have become concerned about the financial impacts resulting from various environmental factors. Traditional accounting methods are unable to provide such information, leading to the need for environmental accounting to address environmental issues.

- **Consumers:** Consumers seek information about product performance and prefer environmentally friendly products that do not harm the environment.

- **Shareholders and Investors:** Investors take into consideration the extent of an institution's commitment to environmental requirements to ensure the continuity of profit flow. Poor environmental practices increase liabilities, risks, and reduce profits.

- **Pressure from Environmental Advocacy Groups:** Environmental groups in many countries exert increasing pressure on institutions and governments to preserve and protect the environment from various damages.

- **Trade Exchanges:** Expanding trade exchanges and intensified competition impact the costs incurred by products, including environmental costs.

- **Improving Product Quality and Pricing:** The growing role of green accounting and its associated costs in product pricing involves considering all environmental costs when calculating revenues and expenses for environmental institutions, making investment decisions, and addressing consumers' inclination towards using environmentally friendly products while considering quality and price considerations.

3.3. Levels of Green Accounting

We can distinguish between three levels of green accounting, each complementing the other (Lako & CSR, 2003, p. 06):

- **National Level Green Accounting:** At this level, the focus is on dealing with the economy at the national level, taking into account the use of natural resources and the impact of national policies on the environment. It involves measuring sustainable development indicators, such as health status, growth rates, and progress. The primary concern is human well-being, and the concept relies on preserving human and social capital as a guarantee for continued development and economic growth.

- **Sectoral Level Green Accounting:** At this level, national accounts are prepared to assess the performance of various sectors based on how well they consider environmental aspects and considerations, especially for sectors that deplete environmental resources. It involves separating the accounts for physical capital from the activities related to natural resources.

- **Organizational Level Green Accounting:** Within this level, different concepts exist regarding the establishment of an integrated framework for environmental accounting. Some classify it as part of corporate environmental responsibility accounting, while others term it pollution control accounting.

Accounting for Corporate Environmental Responsibility: This accounting covers two main aspects: the interests of the organization and the extent of its positive environmental impact on various stakeholders who benefit from financial reports and statements. It is considered a branch of accounting that aims to determine the results of the organization's activities and its financial position through an environmental lens, considering the organization as an open system.

Accounting for Pollution Control: Accounting, as an information system, is not only influenced by the environment but also has an active role in affecting it through its role in making and implementing economic, social, and administrative decisions in society. This important role is achieved by providing accounting information related to the environmental activities conducted by economic organizations and included in their financial statements.

3.4. The Objectives of Green Accounting

The application of green accounting is not an objective in itself but rather a means to achieve a set of objectives, which include (Jarmouni, 2015, p. 51):

- Contributing to the sustainability of economic development by improving knowledge and understanding of the increasing interactions between the environment and the economy.

- Designing new forms of accounting systems, information systems, financial, and non-financial control systems to encourage environmental management practices.

- Developing new methods for performance evaluation and internal and external environmental communications.

- Providing data and information on sales and total costs aimed at environmental preservation.

Preparing reports on environmental expenses to demonstrate the extent of the organization's commitment to complying with laws and regulations related to environmental protection.

4. The Theoretical Framework of Environmental Performance

4.1. Concept of Environmental Performance

There are several terms used to refer to environmental performance, including environmental status, environmental improvement orientation, environmental efficiency, environmental effectiveness, and compliance with environmental laws (Lundberg & Balfors, 2009, p. 1018). ISO 14001 standard defines environmental performance as "measurable results of an organization's management of its environmental aspects, which can be measured within the

framework of an environmental management system based on the organization's policies, objectives, and environmental goals, or other environmental performance requirements". (ISO , 2015, p. 02)
From the same perspective, it is also defined as "all activities and operations carried out by the organization, whether mandatory or optional, that prevent or mitigate the environmental and social damages resulting from the organization's production or service activities" (Al-Shahada, 2010, p. 283).

4.2. Accounting Measurement of Environmental Performance

Before delving into the concept of accounting measurement of environmental performance, it is essential to define accounting measurement, which is the comparison of numbers with past, present, and future events of the entity based on historical or current observations under specific rules. It involves matching a specific characteristic, which is the monetary pluralism property of a certain economic event within a specific economic field, which is the economic project (Al-Sayed, 2009, p. 181).

Environmental accounting measurement refers to determining values for all cost elements generated by the organization's commitment to specific social and environmental responsibilities, whether this commitment is purely voluntary or legally mandated (Shahir, 1998, p. 81).

4.2.1. Importance of Measuring Environmental Performance Costs

The prevailing industrial systems in most developing countries consist of traditional industrial systems. These systems involve various inputs, such as energy and raw materials (raw materials or intermediates, etc.), and labor to carry out the manufacturing process, leading to primary outputs, which are products and waste.

From a purely economic perspective, the industry aims to reduce input costs and increase returns, or in other words, maximize profit by minimizing production costs to the utmost extent. This manufacturing pattern has led many industries to refrain from spending on waste treatment or taking other measures to reduce pollution resulting from waste, all in pursuit of lowering production costs. Many industries have resorted to releasing waste into the air, water bodies, or onto land, resulting in harmful effects on the environment and human health (Al-Shahada, 2010, p. 283).

4.3. Disclosure of Environmental Performance and Its Types:

4.3.1. Concept of Accounting Disclosure

Researchers view the contemporary evolution of the term "disclosure" as an alternative to the terms publication or presentation of information. This is in line with the traditional definition of the accounting function, which aims to measure the results of economic activity and communicate them to the beneficiaries. Accounting disclosure is defined as "clarity and lack of ambiguity in presenting accounting information when preparing accounts, financial statements, and accounting reports" (Sabayhi, 2013, p. 04).

On the other hand, disclosure is also defined as "providing information and data to users in a meaningful, accurate, and appropriate manner to assist them in decision-making, encompassing both internal and external users simultaneously" (Halwah, 2001, p. 211).

It is defined as "the clarity that includes disclosing the financial statements to the public and the private parties concerned with the performance of the economic unit in accordance with the requirements of the environmental and health authorities, and that also takes into account the compatibility of environmental and health performance indicators with the principles of economic activity" (Al-Qaisi, 2011, p. 11).

4.3.2. Types of Accounting Disclosure

We can categorize types of disclosure into two categories (Nazzal, 2011, p. 60):

- **Financial Disclosure:** This type of disclosure involves revealing various financial performance aspects of the institution based on specific rules. It includes providing financial and non-financial data about the organization's commitments related to its environmental and social responsibilities, whether voluntarily chosen or mandated by law. It also includes discussing the effects of these commitments on the financial statements, highlighting the economic consequences of environmental and health events, and other related financial aspects.
- **Non-Financial (Narrative) Disclosure:** This type of disclosure involves providing non-financial data along with financial data. It encompasses a comprehensive overview of various aspects of the organization's activities, its environmental commitments, the progress made in achieving these commitments, and the challenges faced. It addresses topics such as environmental performance indicators, corporate social responsibility initiatives, sustainable development goals, environmental risk management, and the potential impact of environmental issues on the organization's financial performance.

4.4. Factors Influencing the Degree of Environmental Accounting Disclosure

There are several factors affecting the extent of environmental accounting disclosure in various industrial contexts. These factors include but are not limited to (Samad & Maqri, 2016, p. 72):

- **Organizational Size:** Larger enterprises with extensive environmental impacts tend to have more comprehensive and detailed environmental accounting disclosures. This is due to the increasing scrutiny from environmental, regulatory, social, and financial stakeholders, driving the need for a thorough representation of the organization's environmental commitments and impact.
- **Industry Practices:** Different industries exhibit varying levels of environmental accounting disclosure. Sectors with higher environmental sensitivity, such as energy, manufacturing, and chemicals, tend to provide more detailed disclosures due to the significant impact their operations can have on the environment.
- **Regulatory Environment:** The extent of environmental accounting disclosure is influenced by the regulatory framework in place. Stricter environmental regulations often lead to enhanced disclosure practices as organizations aim to comply with reporting requirements and demonstrate their environmental responsibility.
- **Stakeholder Pressure:** External pressure from stakeholders, including investors, customers, NGOs, and communities, can drive organizations to provide more transparent and detailed environmental accounting disclosures. Stakeholders increasingly seek information about an organization's environmental performance and its commitment to sustainability.

- **Organizational Culture:** An organization's commitment to environmental responsibility and sustainability may influence the degree of its environmental accounting disclosure. Companies with strong environmental values and a culture of transparency are more likely to disclose detailed information about their environmental performance.

4.5. The Role of Green Accounting in Enhancing Environmental Performance in Organizations

Green accounting, when integrated into corporate accounting practices, aims to address the shortcomings of traditional accounting. Moreover, the implementation of green accounting is expected to meet corporate needs in terms of identifying, measuring, recording, summarizing, reporting, and disclosing social and environmental accounting information in an integrated manner.

In the context of legitimacy theory, companies need to affirm social norms and values. Furthermore, the concept of legitimacy also implies a social contract where the company is responsible for societal and environmental demands. The application of green accounting within the company reflects the concept of legitimacy. This is anticipated to lead to a positive evolution of the industry by boosting sales, followed by increased profits, sustained business operations, and enhanced industry valuation in the eyes of investors.

Furthermore, comprehensive and accurate environmental information will contribute to sound environmental performance. The disclosure of environmental costs by management has demonstrated a positive impact on environmental performance. Similar studies have also discovered results relating to the application of green accounting for the improvement of environmental performance (Wahyuni, et al., 2019, pp. 131-132).

5. Case Study

This field study aims to identify the opinions and viewpoints of a sample of institutions within the study area in El Oued State regarding the subject of the current study: " The Impact of Green Accounting on Improving Environmental Performance." After delving into the theoretical aspect of key concepts related to green accounting and environmental performance, and to shed further light on the topic and test the study hypotheses, a questionnaire was employed. This questionnaire was distributed to a sample of economic institutions. Accordingly, the study will address the description of the sample and the study population, the study instrument, questionnaire distribution, data collection and analysis, and ultimately, the testing of the study hypotheses using the SPSS software.

5.1. Methodological Framework of the Field Study

5.1.1. Study Population and Sample

The study population is defined as: "All entities that possess the characteristics required for study." In the following table, some institutions within the scope of the field study are presented:

Table No. (01): Some Institutions within the Scope of the Field Study

N	Institution Name	Type of Activity

1	El Oued Flour Foundation	Productive
2	Sarl Traomat	Productive
3	Eurl HM General Medical	Productive
4	Certified Accounting Office - Al-Nasser Ibn Hala District - 300 Housing Units, Al-Wadi	Service
5	El Oued Ophthalmic Medical Institution	Service
Total Institutions under Study: 05		

Source: Prepared by researchers

As previously clarified, this field study will be conducted on a sample of production, service, and mixed institutions to investigate the opinions and attitudes of managers and accountants working in the institutions under study. The total number of respondents was 61 individuals.

5.1.2. Questionnaire Design and Distribution

The questionnaire is considered "the most commonly used tool in social and human research, as it serves as a means of collecting data by containing a set of questions or statements that respondents are asked to answer." The questionnaire is typically distributed either manually or through methods such as email or mail.

The electronic questionnaire link was sent via email to the institutions. At the end of the data collection process, a total of 61 responses were obtained from individuals affiliated with the institutions under study. Upon downloading the Excel file from the questionnaire link and reviewing all responses, it became apparent that all collected responses were valid for statistical analysis and processing.

5.2. Presentation of Study Results

5.2.1. Calculation of Questionnaire Reliability

Reliability refers to the ability of the questionnaire to consistently yield the same results when applied multiple times under the same conditions. There are several equations and statistical methods for calculating the reliability of a questionnaire. In our study, the reliability of the survey's dimensions was assessed using the Cronbach's Alpha coefficient.

Table No. (02): Displays the Value of Cronbach's Alpha Coefficient for the Questionnaire

Dimensions and Axes of the Questionnaire	Cronbach's Alpha		
	Cronbach's Alpha Coefficient	Paragraphs	Result
Value of the Reliability Coefficient for all Statements in Axis 01	0.768	6	Constant

Value of the Reliability Coefficient for all Statements in Axis 02	0.761	6	Constant
Value of the Reliability Coefficient for all Statements in Axis 03	0.831	6	Constant
Value of the Reliability Coefficient for all Statements in Axis 04	0.822	6	Constant
Total Statements of the Questionnaire	0.892	24	Constant

Source: Prepared by researchers

Commentary on the Table above: We observe that the values of Cronbach's Alpha coefficient are high for all dimensions of the questionnaire, and the overall value for all questionnaire items reached 0.892. This value is greater than the minimum threshold of 0.6, indicating the reliability of the study instrument. It is worth noting that the Cronbach's Alpha coefficient approaches 1 as its value increases, indicating higher reliability.

5.2.2. Descriptive Analysis of Personal Data and Sample Respondents' Answers and Attitudes

Table No. (03): Illustrates the Distribution of Sample Respondents According to Personal Information Variables

		Frequency	Percentage
Type of Activity	Productive	20	32,8
	Service	26	42,6
	Mix	15	24,6
Organization Size	Small	18	29,5
	Large	11	18,0
	Medium	32	52,5
Organization Age	Less than 05 years	14	23,0
	Between 05-10 years	14	23,0
	Between 11-15 years	3	4,9
	More than 15 years	30	49,2
Educational Qualifications	Senior Technician	3	4,9
	Ph.D. (Doctorate)	7	11,5

	Bachelor's Degree	17	27,9
	Master's Degree	3	4,9
	Master Degree	31	50,8
Job Position Level	Other	10	16,4
	Administrative	12	19,7
	Accountant	23	37,7
	Administrative Manager	8	13,1
	Financial Manager	8	13,1
Professional Experience	Less than 05 years	29	47,5
	Between 06-10 years	23	37,7
	Between 11-15 years	6	9,8
	More than 15 years	3	4,9
Total		61	100,0

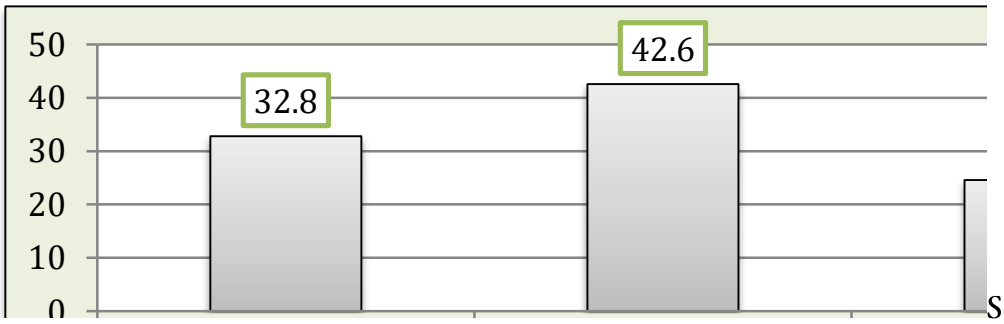
Source: Prepared by researchers

Commentary on the Table:

A. Regarding the distribution of the study sample

Concerning the variable of the type of institution's activity, we find that 42.60% of the sample favors institutions with service activities, which is the highest percentage. Additionally, 32.80% favor production activities, and 24.60% favor mixed activities, as shown in the following figure:

Figure No. (01): Graphical Representation of the Distribution of Sample Respondents by the Variable of Institution's Activity

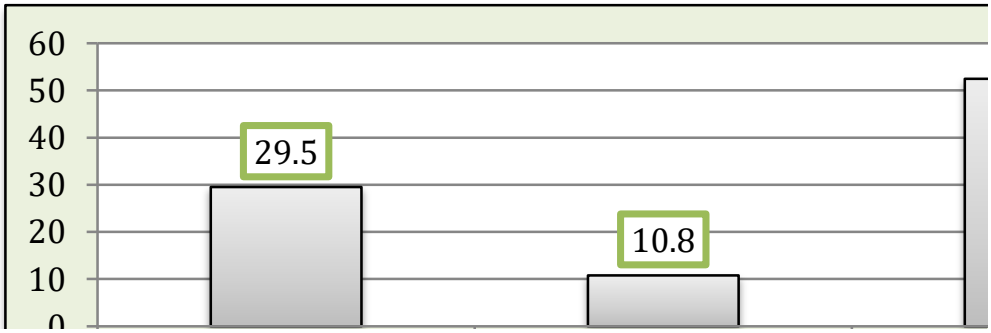


Source: Prepared by the researcher using Excel software.

B. Concerning the variable of institution size

We find that 52.50% of the sample favors medium-sized institutions, which is the highest percentage. The rest are distributed with 29.50% for small size and 18.00% for large size institutions, as shown in the following figure:

Figure No. (02): Graphical Representation of the Distribution of Sample Respondents by the Variable of Institution Size

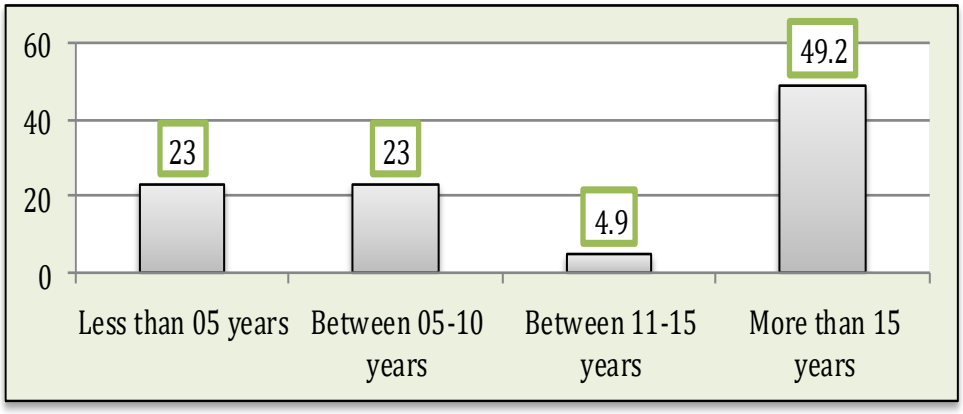


Source: Prepared by the researcher using Excel software.

C. Concerning the variable of institution age

We find that 49.20% of the sample favors institutions with an age of over 15 years, which is the highest percentage. The rest are distributed with 23.00% for less than 5 years and 27.90% for institutions aged between 11-15 years, as shown in the following figure:

Figure No. (03): Graphical Representation of the Distribution of Sample Respondents by the Variable of Institution Age

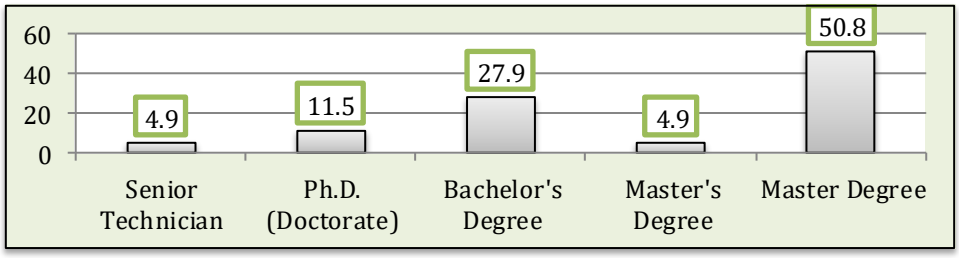


Source: Prepared by the researcher using Excel software.

D. Concerning the variable of respondents' educational qualifications

We find that the sample respondents are distributed according to their educational qualifications, with 50.80% holding a Master's degree, followed by 27.90% holding Bachelor's degrees. Other categories have varying percentages, as shown in the following figure:

Figure No. (04): Graphical Representation of the Distribution of Sample Respondents by the Variable of Respondents' Educational Qualifications in the Study Institutions

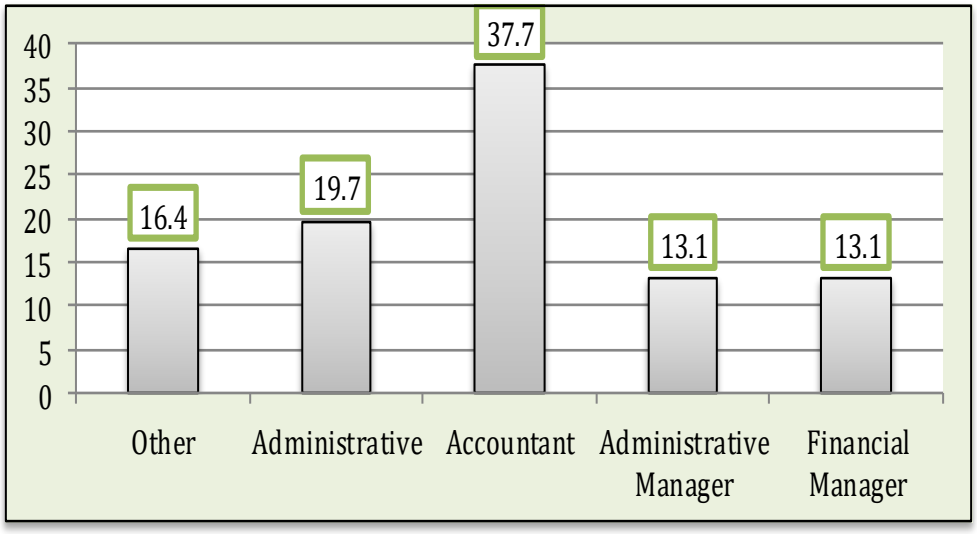


Source: Prepared by the researcher using Excel software.

F. Concerning the variable of respondents' job level

we find that the sample respondents are distributed with 37.7% in the category of accountants, which is the highest percentage. Other categories have varying percentages, as shown in the following figure:

Figure No. (05): Graphical Representation of the Distribution of Sample Respondents by the Variable of Job Level of Respondents in the Study Institutions

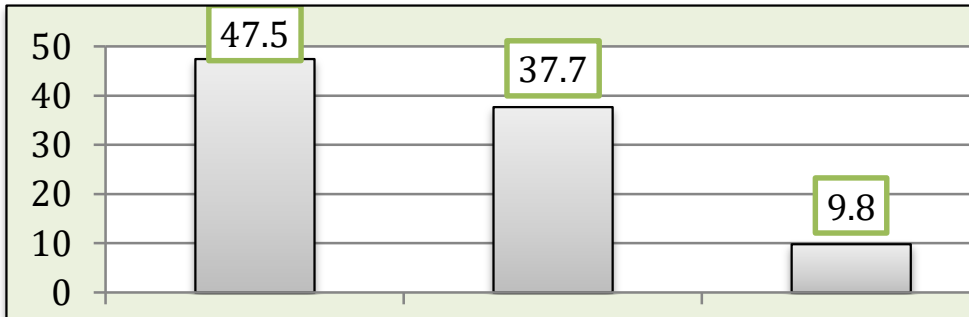


Source: Prepared by the researcher using Excel software.

J. Concerning the variable of respondents' work experience

They are distributed across different categories. The category of (5 years or less) represents 47.50% and 29 respondents, indicating experienced and efficient employees and professionals (accountants and others) with a deeper understanding of their roles, accurate survey responses, and varying percentages for other categories, as shown in the following figure:

Figure No. (06): Graphical Representation of the Distribution of Sample Respondents by the Variable of Work Experience of Respondents in the Study Institutions



Source: Prepared by the researcher using Excel software.

5.3. Testing Study Hypotheses and Discussing Results

To verify the validity of the study hypotheses, the One-Sample T-Test was employed.

The theoretical value for the hypothesized mean is determined using the following:

$$a = \frac{(H + L)}{2}$$

Where:

- H: Represents the value of the upper limit of the measurement scale a (Constant)
- L: Represents the value of the lower limit of the measurement scale

In our study, the measurement scale of respondents' responses is the Likert pentad scale.

$$a = \frac{(H + L)}{2} = \frac{(1 + 5)}{2} = 3$$

Number 03 represents the mean (neutral) value in the Likert pentad scale.

5.3.1. Testing Hypothesis 01

Hypothesis Statement, There is a significant degree of awareness about the benefits of environmental accounting in economic institutions.

To test this hypothesis, it is reformulated statistically at a significance level of (0.05) as follows:

- **Null Hypothesis (H0):** There is no significant degree of awareness among the management of the studied economic institutions regarding the benefits of environmental accounting, according to the perspective of the respondents, at a significance level of (0.05).
- **Alternative Hypothesis (H1):** There is a significant degree of awareness among the management of the studied economic institutions regarding the benefits of environmental accounting, according to the perspective of the respondents, at a significance level of (0.05).

5.3.2. Testing Hypothesis 02

Hypothesis Statement, Economic institutions have a significant degree of requirements for implementing environmental accounting.

To test this hypothesis, it is reformulated statistically at a significance level of (0.05) as follows:

- **Null Hypothesis (H0):** The studied economic institutions do not possess a significant degree of requirements for implementing environmental accounting, according to the perspective of the respondents, at a significance level of (0.05).
- **Alternative Hypothesis (H1):** The studied economic institutions possess a significant degree of requirements for implementing environmental accounting, according to the perspective of the respondents, at a significance level of (0.05).

5.3.3. Testing Hypothesis 03

Hypothesis Statement, There is a significant potential for green accounting to contribute to improving environmental performance in economic institutions. To test this hypothesis, it is reformulated statistically at a significance level of (0.05) as follows:

- **Null Hypothesis (H0):** There is no significant potential for green accounting to contribute to improving environmental performance in the studied economic institutions, according to the perspective of the respondents, at a significance level of (0.05).
- **Alternative Hypothesis (H1):** There is a significant potential for green accounting to contribute to improving environmental performance in the studied economic institutions, according to the perspective of the respondents, at a significance level of (0.05).

5.3.4. Testing Hypothesis 04

Hypothesis Statement, There are significant difficulties or obstacles hindering the transformation of green accounting contribution in economic institutions. To test this hypothesis, it is reformulated statistically at a significance level of (0.05) as follows:

- **Null Hypothesis (H0):** There are no significant difficulties or obstacles hindering the transformation of green accounting contribution in the studied economic institutions, according to the perspective of the respondents, at a significance level of (0.05).

Alternative Hypothesis (H1): There are significant difficulties or obstacles hindering the transformation of green accounting contribution in the studied economic institutions, according to the perspective of the respondents, at a significance level of (0.05).

5.3.5. Summary of Hypothesis Testing Results

Table No. (04): Presents a summary of hypothesis testing results

N	Hypothesis	Average respondents answers	Statistical significance of respondents' results			Decision
			Statistical value of T-test	**Probability value (SIG)**	**Sig / Not sig**	

1	There is a high degree of awareness of the benefits of environmental accounting in economic institutions.	36,776	7,363	0,000	SIG	Hypothesis accepted
2	Economic institutions have a high degree of requirements for implementing environmental accounting.	40,984	18,221	0,000	SIG	Hypothesis accepted
3	There is a significant potential for green accounting to contribute to improving environmental performance in economic institutions.	38,197	11,023	0,000	SIG	Hypothesis accepted
4	There are significant difficulties or obstacles hindering the transformation of green accounting contribution in economic institutions.	40,109	12,358	0,000	SIG	Hypothesis accepted
"Tabulated T value = 2.000 at a significance level of 0.05 and degrees of freedom = 60.						

If the calculated T value is greater than the tabulated T value, we reject H0 (null hypothesis) and accept H1 (alternative hypothesis). Alternatively, if the Sig value is less than the adopted significance level in the study, which is 0.05, we reject H0 (null hypothesis) and accept H1 (alternative hypothesis)."

Source: Prepared by researchers

Based on the results of the field study, we will discuss the findings of hypothesis testing, attempting to employ and integrate what we have covered in the theoretical aspect and previous studies, as follows:

- Regarding the result of Hypothesis 01, we have reached the acceptance of the hypothesis, which states: "There is a significant degree of awareness about the benefits of environmental accounting in economic institutions."

- Concerning the result of Hypothesis 02, we have reached the acceptance of the hypothesis, which states: "Economic institutions have a significant degree of requirements for implementing environmental accounting."

- As for the result of Hypothesis 03, we have reached the acceptance of the hypothesis, which states: "There is a significant potential for green accounting to contribute to improving environmental performance in economic institutions."

6. Conclusion

The study addressed the problem of "the extent of green accounting's contribution to improving the environmental performance of economic institutions." Through this study and based on the theoretical framework in the first chapter of the thesis, it is evident that within the context of environmental preservation and reducing environmental degradation, institutions of various types work to adopt or implement systems that contribute to environmental conservation. Green accounting is one of these systems that contribute to achieving this goal as it combines both environmental and economic aspects. This form of accounting is a branch of accounting that aims to determine the results of an organization's operations and its financial position through an environmental perspective. This is because institutions have relationships with various segments of society, and they are responsible for addressing the negative impacts resulting from their economic activities.

Efforts and serious attempts have been made to adopt environmental costs, albeit with variations in measurement and accounting methods.

In the practical aspect, the study delved into the awareness of economic institutions under study about the importance of environmental management and environmental protection issues. It also examined their adoption of accounting measurement approaches for environmental costs. Through the analysis of data collected from the field study, hypotheses were tested. In the conclusion of this study, the results and derived recommendations will be presented.

The conclusion of the study encompasses a set of findings in both theoretical and practical aspects:

6.1. Theoretical Findings

- The concept of green accounting is a modern concept that is not well known among decision-makers and employees in the institutions under study.

- The economic institution, to improve its environmental performance, has made significant financial investments to reduce pollution, whether in terms of waste disposal, emissions, or energy consumption, as well as waste management.

- Low environmental awareness among stakeholders has led to a lack of concern from top management in economic institutions about environmental pollution.

- Economic institutions' interest in environmental aspects leads to a reduction in environmental pollution, contributes to the reuse of production waste, reduces emissions, and improves the institution's reputation and image in society.

- Achieving clean production and environmental protection contributes to fulfilling the requirements of sustainable development.

6.2. Practical Findings

- The management of the institution does not fully realize that implementing green accounting can improve the institution's image and enhance community relationships.

- There is no established accounting system for environmental purposes.

- There are no mandatory laws for measuring environmental costs.

- Difficulty in measuring environmental costs.

- 92% of the sample participants perceive the absence of green accounting in the institutions under study.

- Lack of application of environmental costs due to a lack of qualified human resources and low environmental awareness.

6.3. Recommendations

Based on the theoretical study and the field study's results, several recommendations can be proposed, including:

- The need to promote an environmental protection culture among various institution members, especially decision-makers.

- The necessity of legislating laws requiring the measurement and disclosure of environmental costs.

- Institutions should adopt the disclosure of environmental accounting information within separate and independent reports from traditional financial statements to facilitate environmental auditing and control.

- Leveraging the experiences of advanced countries in implementing environmental cost accounting to determine, measure, account for, and disclose environmental costs in their financial statements.

- Providing incentives for institutions that measure and disclose their environmental costs.

- Mandatory training and development of accountants' qualifications and expertise to align with environmental protection requirements, enabling them to apply accounting principles and undergo specialized training courses and expert consultations for environmental auditing.

- Institutions should transparently disclose programs and policies for environmental preservation and pollution reduction.

- The necessity of developing an appropriate tax system and green accounting policy.

- With the increasing focus on the environment, economic institutions must embrace green accounting.

- The inclusion of all measurable environmental costs in the institution's financial reports to provide users of these reports with insight into the institution's green accounting practices.

- Increased attention to environmental protection authorities by encouraging investment in the environmental field.

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