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Green accounting (environmental accounting) as an approach to contemporary accounting thought and its importance in rationalizing decisions and preserving the environment: A case study of the Chlef Cement Corporation

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Abstract--Interest in environmental studies or the so-called green accounting is increasing as a result of the damage and risks facing the environment and society, and since human activities have a significant impact on the environment, which prompted increased concern at the global level about what these effects caused by the extinction of many plants, animals, the depletion of the ozone layer and high temperatures, and since industrial enterprises are responsible towards the environment and society, decision makers need accounting information about the environment to help them make sound decisions in order to achieve Balance between the objectives of the institution and its environmental and social responsibility, and therefore this study aims to identify the importance of environmental accounting in rationalizing financial decisions in the Cement and its derivatives Chlef Corporation, and it was concluded that this institution manages its environmental costs, which helped to rationalize its financial decisions.

Keywords---Environmental Costs, Environmental Accounting, Social Cost, Pollution.

I. Introduction

Environmental costs have become a fundamental expense borne by economic institutions due to the environmental violations these institutions inflict. Since the environment is the living space of humans, violating this space equates to violating human life. Therefore, economic institutions must bear a set of costs to reduce or eliminate the harm caused to the environment by pollution resulting from their production activities.

Industry is considered one of the largest sources of pollution contributing to environmental degradation, as it releases solid, airborne, and liquid pollutants. Thus, providing accounting data and information that measure these damages and costs helps decision-makers develop industries while maintaining a clean and pure environment. Given the inability of traditional accounting to provide data on the environmental impacts of economic institutions, and due to increasing pressures from governments and environmental conservation organizations for institutions to take responsibility for the environment and society, this has led economic institutions to develop their accounting systems to align with the nature of environmental costs and environmental disclosure. This has resulted in the emergence of what is known as green accounting or environmental accounting.

Accordingly, environmental accounting has become one of the important contemporary topics through which the costs of various activities are measured to aid in decision-making for the institution and to assess their impact on natural resources. The results of these measurements are used to help relevant authorities understand and rectify the negative effects of the institution's activities on the environment, especially industrial institutions, due to the damage and waste they cause to the environment. Therefore, we decided to study the role of environmental cost accounting in the ECDE Cement Company in Chlef.

Research Problem

Based on the above, the research problem can be formulated as follows:

What is the role of environmental accounting as an entry point to contemporary accounting thought in the ECDE Cement Company in Chlef in rationalizing decisions and protecting the environment?

Research Objectives

This study aims to identify the importance of environmental accounting as a contemporary accounting approach in rationalizing the economic decisions made by industrial institutions and in protecting the environment from pollution and the damages caused by the activities of industrial institutions, particularly the ECDE Cement Company in Chlef.

Importance of the Study

Green or environmental accounting is considered one of the branches of accounting in general and social accounting in particular. It is also a branch of contemporary accounting, which has evolved as a result of the rapid developments in the business environment and the increased demand for environmental accounting information. Moreover, environmental accounting plays a significant role in rationalizing decision-making processes and protecting the environment.

Previous Studies

- **Takherebine Walid and Mabssout Houaria, "The Reality of Environmental Accounting Usage in Industrial Institutions – A Case Study of NAFTAL Corporation in Tiaret,"** *Algerian Journal of Economics and Management*, Edition 15, Issue 02, 2021.

This study aimed to shed light on the reality of using environmental accounting in industrial institutions through a case study of NAFTAL Corporation in Tiaret. A questionnaire was used as the primary tool for the study, distributed to a sample of employees from the accounting and finance departments of NAFTAL's branches in Tiaret. The study concluded with several findings, the most important of which was that there is actual implementation of environmental accounting, along with an awareness of its importance among the individuals in the study sample.

- **Al-Sayed, Rania Omar, 2007.** "The Importance of Accounting for Environmental Costs to Improve the Quality of Accounting Information." Unpublished Master's Thesis, Faculty of Economics and Administration, King Abdulaziz University, Saudi Arabia.

The study found that there is no actual application of environmental accounting or measurement of environmental costs, and that the current cost accounting system only accounts for elements directly related to the institution's activities without considering environmental costs. This omission affects cost results and data used in decision-making. Most industrial institutions supported the necessity of measuring and analyzing environmental costs and called for the development of accounting systems to include data and information related to environmental activities. The study recommended the importance of measuring environmental costs to improve the quality of accounting information, enabling institutions and users of accounting data to make better decisions regarding product pricing, investment, and other related matters.

- **Nasser, Taha Alawi, and Al-Khuffaf, Haitham Hashim,** "The Importance of Accounting Measurement for Environmental Costs and Its Role in Enhancing the Quality of Accounting Information for Decision-Making," *Journal of Management and Economics*, Faculty of Management and Economics, University of Mosul, Issue 62, 2012.

The study concluded that all respondents agreed on the importance of measuring environmental costs and their impact on determining the final cost of products or services provided by industrial institutions in Mosul. This accurate cost determination contributes to proper pricing and supports the making of appropriate decisions.

Structure of the Study

This study is divided into three main sections. The first section focuses on environmental costs, their types, and how they are measured. The second section highlights the emergence of cost accounting and the evolution of its concept. In the third section, the study emphasizes the importance of cost accounting in rationalizing decisions in industrial institutions and its significance in preserving the environment from pollution and reducing global warming. The third axis was a field study of the role of environmental accounting in rationalizing decisions in the Cement and its derivatives Corporation Chlef.

II. The Nature of Environmental Costs

Definition of Environmental Costs:

The Association of Chartered Accountants defines environmental costs as including the costs of actions taken or required to manage the environmental impacts resulting from the institution's activities, in addition to other costs necessitated by the institution's environmental goals and requirements (Ibrahim Jaber, 2014, p. 92).

The United States Environmental Protection Agency (EPA) defines environmental costs as "the monetary and non-monetary effects caused by the institution or organization as a result of activities that affect environmental quality. These expenses include both traditional (known) costs, potential hidden costs, and less tangible costs" (Mohamed Abbas Badawy, Yousra Mohamed El-Beltagy, 2013, p. 167).

Based on the above definitions, we can define environmental costs as the penalty an institution pays to the environment due to the harm its activities inflict on it. Optimal management and administration of environmental costs assist the institution in making appropriate decisions. To manage these costs effectively, it is necessary to understand the methods for measuring and disclosing them, as data is essential for any decision-making process related to the institution.

Methods for Measuring Environmental Costs

Environmental costs are measured at three levels, as follows (Badawy, 2007, p. 158):

- **First Level: Inventory of Environmental Activities:** This involves measuring environmental and social operations that can be quantified using a monetary metric.
- **Second Level: Quantitative Information:** This includes measuring environmental and social operations that cannot be quantified using a monetary metric, for which non-monetary quantitative measures are available.
- **Third Level: Descriptive Information:** This refers to a narrative description of environmental and social operations that cannot be measured quantitatively.

Environmental Accounting Disclosure:

Environmental accounting disclosure holds great importance both at the institutional level and for the national economy as a whole. It aids in the precise determination of costs borne by each economic unit to achieve the goal of environmental protection and control of pollutants. The objectives of environmental accounting disclosure are as follows:

- Disclosure serves as a database for conducting studies related to the environmental impacts of similar industries.
- Environmental accounting disclosure reassures the institution's management regarding the efficiency and accuracy of procedures and operations related to environmental protection.
- It provides a good source of information for identifying any problem related to the origin and composition of polluting waste.
- It offers an opportunity for owners to recognize and understand their responsibilities early on, which helps them collaborate with management in attempting to reduce those costs.
- Every decision-maker in the institution requires evidence of the additional costs incurred due to environmental protection measures.

In conclusion, disclosing the institution's environmental activities has significant positive effects. It can motivate customers, thus expanding the institution's market share and positively influencing its financial standing. Furthermore, environmental accounting disclosure encourages investors to buy the institution's shares, thereby expanding investments and increasing the scale of its operations.

III. Methods of Measuring Environmental Costs and the Evolution of the Concept of Environmental Accounting

With industrial and technological development, increasing environmental risks, and growing awareness among institutions of their social responsibility towards society and the environment, environmental cost accounting has emerged. In this section, we will discuss how environmental costs are measured and the evolution of the concept of environmental accounting for institutions and society as a whole.

1. Methods of Measuring Environmental Costs:

Industrial institutions, through their production activities, have an impact on the environment in several ways:

- Disposing of waste and toxic pollutants into rivers and other water bodies.
- Emitting toxic gases from natural gas production plants.
- Releasing other airborne pollutants from factory chimneys, such as those from cement, fertilizer, chemical factories, and oil refineries.

Accordingly, the main types of environmental costs can be classified into three key categories:

- Air pollution.
- Water pollution.
- Soil pollution.

As a result, the institution undertakes a series of measures to reduce pollution, including:

- **Sanitary landfilling of waste** in sandy pits, covering it with soil or hard materials like cement. It is essential that this be done far from groundwater sources to prevent contamination. Alternatively, genetic engineering can be used to eliminate solid waste, such as cultivating fungi that thrive on specific components of that waste.
- **Installing filters on industrial chimneys** to purify smoke or trap airborne solid materials. In some cases, equipment can be used to return these pollutants to the production site for disposal or reuse in future production processes.
- **Direct sterilization** following any activity that increases pollution.
- Industrial institutions contributing to environmental pollution may also **allocate annual funds** to be paid to the government, represented by institutions or agencies responsible for improving the environment. These agencies then use these funds according to predetermined percentages, taking into account the nature and size of the institution's operations.

Naturally, costs arise from these measures, referred to as environmental costs. All assets used in pollution reduction processes, such as smoke filters or reverse equipment in factories emitting pollutants—such as cement and petrochemical plants—are considered part of environmental costs. Once the cost of these assets is measured, they are recorded in accounting books as new assets added to the unit's assets. This means that the "book value of the fixed asset, including all expenses required to make it ready for production + any additions to reduce pollution = the total asset value."

Additionally, the expenses incurred to reduce industrial and environmental pollution include:

- Expenses related to all production waste.
- Complete sterilization costs for work sites.
- Costs of sanitary landfill or burial of waste.
- Payments made by industrial institutions to government bodies, as required by existing laws and regulations, to reduce environmental pollution.

The Evolution of Environmental Accounting Concepts

Environmental accounting has been defined as a tool that reflects the environmental impacts of an organization on its surroundings and society within the financial reports issued by the institution. This helps decision-makers organize information that contributes to reducing costs and business risks or adding new value (Al-Qutati, 2007, p. 33). It is also defined as a system and social science that leads to a better understanding and management of environmental aspects and their associated costs. Environmental accounting identifies and quantifies, in monetary terms, the value of the environmental damages caused by an organization to its surrounding environment, whether due to its activities or the production of goods that harm the environment when consumed or after consumption. The process then involves accounting for these damages or reporting them in financial statements, whether for tangible or intangible costs,

which may include the preparation of an environmental report and an audit of the information (Abu Zar, 2007, p. 430).

- Sefcik et al. (1997) defined environmental accounting as a science that explores how environmental aspects affect the traditional accounting system. It is an effective tool for measuring and evaluating the physical environmental aspects of institutions.
- From this, we can conclude that environmental accounting is the process of measuring the damage caused by an institution during or after its production process to the surrounding environment. This damage must then undergo accounting treatment, and its value must be disclosed in the financial statements.

The Importance of Environmental Cost Accounting (Green Accounting) in Contemporary Accounting Thought

Industrial institutions, regardless of their type, have an impact on the environment. The processes of production and operation result in waste and production by-products, which necessitate specific actions, the most important being the disposal of this waste and how it is released into the surrounding environment. This, in turn, causes significant harm to both the environment and society. As a result, there has been a growing need to study environmental issues and the effects of environmental pollution on society. Human rights organizations have called for industrial institutions that pollute the environment to bear the costs required to protect the environment from pollution.

Many pressures have been placed on industrial establishments to ensure they protect the environment from the effects of pollution and production waste (Afaf, 2007: 428-429). Environmental pressures have varied greatly from one country to another and across different business sectors. These pressures often compel institutions to seek new, innovative, and cost-effective ways of addressing environmental impacts. Some of the prominent international pressures include:

- **Supply chain pressures:** Companies may require their suppliers to comply with environmental management systems based on International Organization for Standardization (ISO) standards.
- **Stakeholder pressures:** Various stakeholders demand that companies disclose their environmental performance in annual financial reports and environmental performance reports.
- **Financial pressures:** The international growth of socially responsible investment funds and investment measurement systems has applied financial pressure on companies.
- **Legislative and regulatory pressures:** Companies face legal and regulatory oversight regarding their environmental practices.
- **Environmental tax pressures:** Governments impose environmental taxes, such as energy usage taxes, landfill fees, and emissions charges for pollutants and other harmful emissions.

There are several other reasons that emphasize the need to focus on studying environmental costs, the most important of which are (Aziz Mohamed Aziz, 2024, p. 13):

- Environmental costs are considered high-value costs, in addition to their

rapid growth and increasing expense.

- Environmental and pollution-related costs can be added to indirect industrial costs, requiring accountants managing costs in industrial institutions to distribute these costs more fairly across the activities causing this pollution.
- Due to society's growing awareness of the negative effects of pollution on the environment, there has been an increase in legal and social demands to account for and disclose environmental costs.
- Environmental reports resulting from the disclosure of environmental costs serve as an important tool that provides management with information to help determine inputs and outputs, facilitating continuous production improvement through necessary adjustments in the value chain by applying a target cost system.

In summary, the importance of environmental cost accounting can be viewed from its impact on the institution itself, the environment, and society as a whole:

Importance of Environmental Accounting for the Institution

- It aids in preparing feasibility studies and capital budgets.
- It helps reduce costs and improve environmental quality.
- It facilitates the integration of environmental costs into the overall costs of the institution, which assists in appropriately pricing products.
- It enhances control over environmental activities, enabling the identification of cost reduction strategies.
- Measuring and reporting environmental costs contribute to more informed decision-making based on factual data.
- There is an increasing demand from international, regional, and local bodies for information about environmental activities.
- By understanding the full environmental costs of their operations, institutions can better assess risks when making investment decisions.
- It assists in more appropriate measurement and evaluation of performance.
- It helps in making decisions regarding the optimal allocation of available resources within the institution.
- It aids in managing environmental issues and integrating them into broader strategic challenges.
- Considering the impact on the surrounding environment is essential when making decisions and choosing between alternatives.
- Measuring and analyzing environmental costs help management incorporate these costs into decision-making variables.
- Studying and analyzing environmental costs help reduce liabilities that may arise from environmental damage.
- It contributes to improving the quality of accounting information.

The Importance of Environmental Accounting for the Environment and Society

Environmental accounting emerged as a result of the growing concern of economic units for environmental protection, which is achieved through:

- Preserving environmental resources from depletion and degradation and preventing their overuse.

- The continuous development of environmentally friendly products.
- Environmental accounting information helps identify pollution elements for each activity, whether it involves water, air pollution, or solid particle contamination.
- Environmental accounting information aids in designing products and operating processes in a way that ensures waste reduction.

The importance of environmental cost accounting stems from its intersection with various accounting fields, such as accounting standards, financial and managerial accounting, taxation, and government accounting. Furthermore, financial statements prepared under traditional accounting standards may be misleading or insufficient for users, as they do not account for environmental costs resulting from the institution's activities' impact on the environment.

IV. The Role of Environmental Accounting in ECDE Cement Company in Chlef in Rationalizing Decisions and Preserving the Environment

1. Introduction to ECDE Cement Company in Chlef and Its Activities

In 1989, ECDE Cement and Derivatives became an independent, public industrial and commercial enterprise (E.P.I.C). Its primary activity is the production and manufacturing of cement, particularly the EPA-350 type. The company's main goal is to operate and manage industrial facilities related to the production of ordinary and special cement, hydraulic lime, and Portland cement derivatives labeled as CPJ-45, aiming to produce the best products at the national level.

In 1998, the company transitioned into an economic entity (E.P.E) with an independent capital of 80,000,000 DZD, distributed as follows:

- 40% from the Chemistry, Petroleum, and Pharmaceuticals Contribution Fund.
- 30% from the Mining, Hydrocarbons, and Water Contribution Fund.
- 30% from the Construction Contribution Fund.

Activities of ECDE Cement and Derivatives Company

The main activity of ECDE Cement and Derivatives in Chlef is the production and distribution of cement, which is its final product. Additionally, it sells clinker, a semi-finished product.

The company produces both clinker and cement, with an annual production capacity of 2 million tons of clinker and 2.2 million tons of cement. The company operates two production lines equipped with two kilns. The products are delivered by trucks for cement and by tanker trailers for bulk cement.

Raw Materials Used:

Like other industries, cement production relies on certain raw materials that contribute to its manufacturing process. These materials include:

- **Limestone (Le Calcaire):** The limestone reserve is estimated at 173,000,000 tons, and the limestone quarry is located 3 km south of the factory. It is extracted via a long conveyor belt.
- **Clay (L'argile):** Located at Djebel El-Maaz in Oulad Abd El Kader, 6 km from the factory, the clay reserve is estimated at 32,000,000 tons, sufficient for 90 years of exploitation. The clay is transported by conveyors

to the limestone quarry, mixed, and then transferred to the factory in equal quantities.

- **Gypsum (Le Gupe):** The gypsum quarry is located approximately 35 km from the factory, near Bouzghaia on the road to Tenes. The gypsum reserve is estimated at 6,000,000 tons, sufficient for 80 years of exploitation. The material is transported by trucks and extracted from the mine using explosives.
- **Sand (Le Sable):** The sand quarry is located in Sidi Amer in Chlef, 10 km from the factory, and sand is transported by trucks. There is another sand source in Sidi Della, about 30 km from the factory.

Using these raw materials, the company produces ordinary and special cement, gravel, hydraulic lime, cement derivatives, and clinker. The production process of cement begins with the extraction of raw materials from the quarries, followed by a series of production stages, leading to the final stage, which is distribution, as shown in the following diagram:

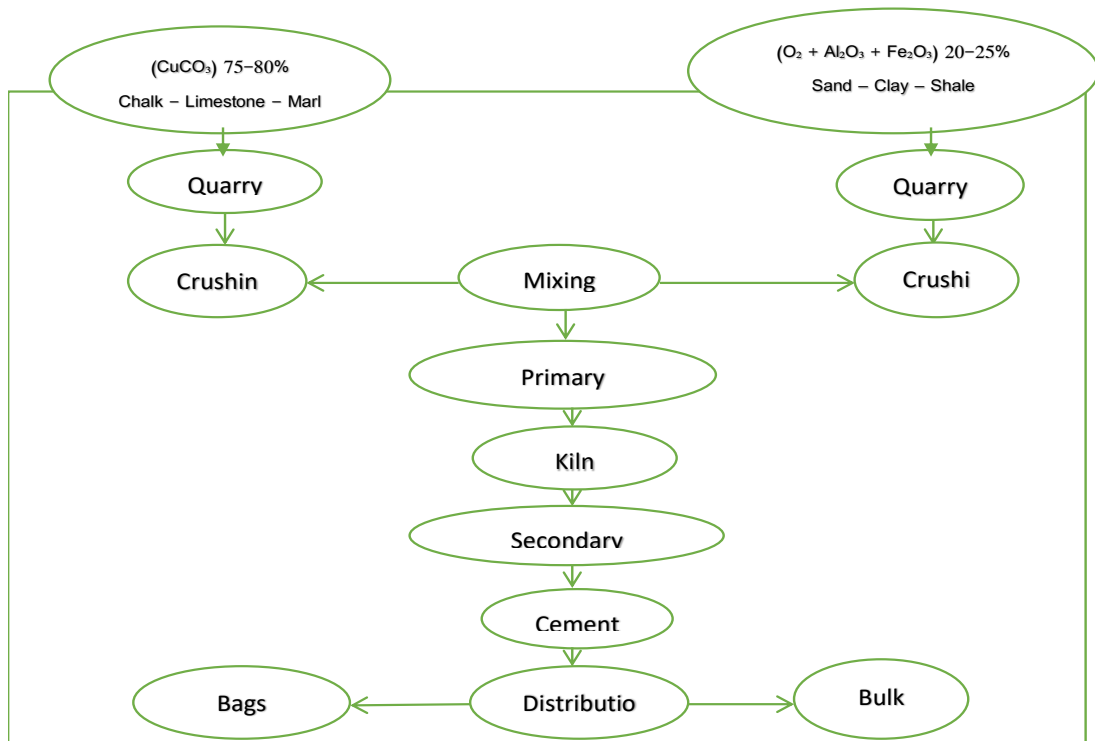


Figure 01: Stages of Cement Production

Source: Prepared by the researchers based on documents from the ECDE Cement and Derivatives Company in Chlef

Environmental Costs of the Cement and Derivatives Company in Chlef

The measures taken by the company to reduce environmental pollution and rationalize energy consumption have translated into a set of costs included in

environmental costs. In this section, we will clarify the costs associated with a range of measures and investments.

Costs of Reducing Environmental Pollution During the Production Process:

A series of costs have been incurred to mitigate air pollution caused by the company's production activities, including:

- An allocation of **697,633,190.00 DZD** for the replacement of gravel filters with sleeve filters across all units within the company. This project was adopted in 2006 and is still ongoing, providing the company with both financial benefits, such as increased production, and moral benefits, such as reduced air pollution.
- The company purchased a truck to remove solid waste from areas where its presence poses a risk, costing **2,517,696.29 DZD** in 2006 and an additional **5,557,663.10 DZD** in 2017.
- In 2018, the company purchased cleaning equipment at a total cost of **485,100.00 DZD**.
- An expenditure of **297,637,190.50 DZD** was made to replace electric filters with fabric filters that allow gas to pass through without dust.

Costs for Environmental Conservation

The Cement Company undertakes several operations aimed at preserving the environment and contributing to the creation of a healthier environment. Among these efforts is the planting of trees and grasses in the vacant areas belonging to the company. This process has been carried out over several years since the establishment of the company. In 2019, the company acquired a variety of grasses, plants, and trees from the "ZACCAR" nursery at a cost of **3,635,450.00 DZD**.

The Cement Company regularly paves roads and pathways to reduce dust generated by the passage of trucks and vehicles, which often pollutes the air. It initiated several road paving projects, with the first project costing **15,641,038.10 DZD** (detailed in Appendix 05). The second project had a cost of **6,955,879.30 DZD** (detailed in Appendix 06), and both projects commenced in 2022. In the same year, work also began on the road leading to the quarries in Bouzghaia, costing **33,062,988.00 DZD**.

A. The environmental costs of the Cement Company will be detailed in the following table:

Table 01: Environmental Costs of the Cement and Derivatives Company in Chlef

Action Taken	Cost (DZD)
Acquisition of Sleeve Filters	697633190.00
Purchase of Truck in 2006	2517696.29
Purchase of Truck in 2017	5557663.10
Purchase of Cleaning Equipment in 2017	485100.00
Acquisition of Fabric Filters Instead of Electric Filters	297637190.5

Action Taken	Cost (DZD)
Acquisition of a Variety of Grasses, Plants, and Trees	3635450.00
Road Paving (First Project)	15641038.10
Road Paving (Second Project)	6955879.30
Road Paving in Bouzghaia	33062988.00

❖ **Source:** Prepared by the researchers based on data provided by the ECDE Cement and Derivatives Company in Chlef.

The Role of Environmental Cost Management in Rationalizing Financial Decisions of the Cement and Derivatives Company in Chlef

After calculating some financial performance indicators for the ECDE Cement and Derivatives Company in Chlef during the years 2017-2018, we will attempt to compare the results for each year to clarify the importance of some measures taken by the company to manage its environmental costs in rationalizing the financial decisions of the institution during these two years.

Table 02: Working Capital Indicators for the Years 2017-2018

Working Capital Indicators	Relationship	Result	
		2017	2018
Net Working Capital	Permanent Funds - Fixed Assets	9329831	10494909
Private Working Capital	Private Funds - Fixed Assets	2059847	1926559
Total Working Capital	Total Current Assets	15805294	17389691
Foreign Working Capital	Total Liabilities - Private Funds	13745447	15463132

Source: Prepared by the researchers based on the financial statements for the years 2017-2018 of the ECDE Cement and Derivatives Company in Chlef.

- The table shows that the net working capital is positive in both years, indicating that the Cement and Derivatives Company in Chlef financed all of its fixed assets and part of its current assets through its permanent funds. This reflects the company's ability to meet its short-term obligations using its permanent funds.
- We also observe that the private working capital is positive, indicating that private funds financed fixed assets and part of the current assets.
- The total working capital shows an increase in value in the second year compared to the first year. This indicates the amount of funding the company received for its current assets, suggesting that the company can recover its funds in a short period and that it is on a growth trajectory.
- Additionally, there is an increase in foreign working capital, which indicates the company's commitment to its obligations to others and shows the proportion of external funding that the Cement and Derivatives Company used to finance its assets. This determines the extent of the company's reliance on external parties.

Comment: Since the working capital of the institution is positive, this indicates that the company is financially balanced in the long term. According to this

indicator, the company has managed to finance its long-term needs using its long-term resources and has achieved a financial surplus that can be used to cover remaining financial needs. This demonstrates that the financial decisions made by the Cement Company were sound and accurate.

Table 03: Working Capital Requirements of the Cement and Derivatives Company in Chlef for the Years 2017-2018

	Relationship	Result	
		2017	2018
Working Capital Requirements	Working Capital Requirements for Operations + Working Capital Requirements Outside Operations	536367	159352

Source: Prepared by the researchers based on the financial statements for the years 2017-2018 of the ECDE Cement and Derivatives Company in Chlef.

The positive working capital requirement indicates that the needs of the operating cycle exceed the available resources. Therefore, the company requires additional capital and must seek resources outside of its operating cycle. Given that the working capital is positive, the company can cover its needs using its long-term resources. This suggests that the company has thus far made successful financial decisions.

Table 04: Cash Position of the Cement and Derivatives Company in Chlef for the Years 2017-2018

	Relationship	Result	
		2017	2018
Cash	Assets Cash - Liabilities Cash	8793464	10335557

Source: Prepared by the researchers based on the financial statements for the years 2017-2018 of the ECDE Cement and Derivatives Company in Chlef.

The company's cash position is positive in both years, indicating that permanent resources exceed fixed assets. This results in a surplus in working capital compared to the working capital requirements, reflected in the form of liquidity, which constitutes positive cash. This means the company can finance part of its current assets, which may exceed its current liabilities. This is an indicator of sound financial decision-making at the ECDE Cement and Derivatives Company in Chlef.

Comment on the Results

We conducted a study on the environmental cost management measures implemented by the ECDE Cement and Derivatives Company and the costs associated with these measures. We observed that the financial performance is good across most financial equilibrium indicators used in the applied study during the years 2017 and 2018. The company had initiated the management of its environmental costs prior to these years, and it continued to do so during this

period. This integration of environmental cost management has become a part of improving financial performance and rationalizing financial decisions at the ECDE Cement and Derivatives Company in Chlef.

V. Conclusion

Environmental accounting is a tool for measuring both physical and financial aspects, aiming to provide actual and future information for decision-makers and environmental policy makers to reduce environmental pollution. Through this study, we reached several key results, including:

Results

- Highlighting the importance of measurement, recording, and accounting disclosure regarding environmental pollution issues caused by industrial institutions.
- Environmental accounting plays a crucial role in supporting the competitiveness of industrial institutions by enhancing the efficiency and effectiveness of their operational processes.
- There is a necessity to disclose the environmental performance of industrial institutions to mitigate pollution, aiming to enhance their competitiveness in the modern manufacturing environment.
- The ECDE Cement and Derivatives Company in Chlef has implemented several important measures to manage its environmental costs and reduce pollution in the environment.
- The company's assumption of additional environmental costs has led to improved financial decisions and, consequently, enhanced financial performance, as evidenced by its positive financial indicators.

Recommendations

In light of the previous results, we recommend the following:

- There should be an increased focus on environmental issues among interested parties through government bodies, ministries, and non-governmental organizations raising public awareness about environmental concerns and their impacts related to industrial facilities, to support their competitiveness in the modern manufacturing environment.
- Environmental performance should be regarded as a critical component in evaluating the overall performance of institutions, as the quality of environmental performance significantly influences other performance aspects.
- Accountants should emphasize the importance of measuring and disclosing environmental performance and its impact on financial data.
- Government authorities (Ministry of Environment) should ensure compliance with environmental laws and regulations, swiftly penalizing violating institutions.

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