The Environmental Management Systems as a mechanism to improve the performance of industrial organizations– a case of Cement Company and its Derivatives Chlef ECDE-

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Received: 11/05/2021 *Accepted: 30/05/2021* *Published 30/06/2021*

Abstract:

This study aimed to identify the impact of the implementation of the environmental management systems ISO 14000 on the performance of industrial organizations, we used the inductive approach to describe the variables of the study and the case study in the practical aspect The study found a range of results, including the main one: Environmental management contributes to improve the organizational performance by contributing improving environmental performance by contributing to improved environmental performance, waste management, energy efficiency and cost reduction.

Keywords: Environmental management, EMS, the organizational performance, Industriel companies, ECDE.

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1. INTRODUCTION

The increasing of environmental awareness around the world has prompted companies to act in various ways to improve their performance and to meet the requirements of sustainable development.

Industrial enterprises are one of the important parties in the environment in which they are active, through their economic and social role, and with the increase of serious environmental problems on human health and the environment in general and as one of the main causes of pollution of the environment due to industrial wastes resulting from its activity, To reflect the requirements and pillars of sustainable development at the level of its environment and commitment to environmental legislation as well as respond to the growing environmental awareness of various parties.

The integration of the environmental dimension into the general policy of industrial enterprises and the importance of environmental protection among its priorities is essential by adopting modern concepts with the requirements of sustainable development, including: Environmental Management Systems ISO 14000.

Environmental Management Systems are the ISO 14000 series of environmental regulations that will increase the efficiency of enterprises. They have become a competitive area for enterprises by achieving competitive advantages and economic returns and achieving continuous improvement, reduce Costs.

- Problematic of the study.

This research provides to answer the following question:

How do the environmental management systems contribute to improve the performance of Cement Company and its derivatives Chlef ECDE-?

- Objectives of the study

The main objectives of this study are:

- To highlight a briefly review about the key concepts associated with both environmental management systems and organizational performance;
- To recognize the extent to which the ECDE adopts and integrates environmental management systems into their activities.

-Hypotheses of the study:

This study is based on the following hypotheses:

H_1: The implementation of environmental management systems in the company (ECDE) contributes to improve the environmental investments and environmental performance in the company (ECDE).

H_2: The implementation of environmental management systems in the company (ECDE contribute to improve the market share of company.

H_3: The implementations of environmental management systems in the company (ECDE) contribute to improve the growth of sales.

- Methodology of study:

Considering the nature of the research questions, an inductive approach was used to address these questions, by using a descriptive and analytical research method. Descriptive research method is used to identify and obtain information on the characteristics of a particular problem or issue.

-previous studies:

We provide the most important previous studies, which dealt some parts of our study as follows:

- The study of (Steven Melnyk and Robert Sroufe , 2003: Assessing the Impact of Environmental Management Systems on Corporate and Environmental Performance), this study aimed to exam the impact of the implementation of EMS in the certificated and not-certificated company on their Corporate and Environmental Performance, the most important result in this study refers that companies having gone through EMS certification experience a greater impact on performance than do firms that have not certified their EMS.
- The study of (Mohamed Hamdoun and Mahmoud Zouaoui, 2017:

Impact of Environmental Management on Competitive Advantage of Tunisian Companies: The Mediator Role of Organizational Culture), this study aimed to exam the impact of Environmental Management on the competitive advantage and the organizational culture as a mediator variable , the most important result in this study refers that the Environmental Management has a positive impact on competitive advantage regarding costs and differentiation and it has a positive effect on organizational culture.

-- The study of (Gherib Taous and Mohamed Ali Decha, 2018:

The impact of the environmental commitment on the competitive performance of the economic institution - Case study of LafargeHolcim), this study aimed to exam the impact of the environmental commitment through the implementation of EMS on the competitive performance, the most important result in this study refers that the Environmental Management has a positive impact on competitive performance that the application of environmental management systems and environmental management would help the institution to improve its mental image and increase its competitiveness, while minimizing the negative impacts of their activities on the natural environment through the implementation and adoption of best practices.

2. Environmental management system

2.1 Definition of Environmental management system

Environmental management is defined as: "an extension of the concept of management in its general sense, especially its application in the area of production and environmental management. In implementation, it depends on traditional management methods: planning, organization, guidance and through mechanisms of different types and forms to achieve specific objectives". (Hamida, 2011)

It is also defined as: "a branch of the management of the company that is concerned with the requirements of environmental protection and seeks to ensure the continued environmental appropriateness of products and processes and the behavior of employees and stakeholders" (Habiba, 2017) Environmental management is the "set of methods for the management of a unit (company, department ...) taking in consideration the environmental impact of the enterprise activity and evaluating this effect and trying to reduce it". (Yokeu, 2011)

Environmental management "involves the concepts, knowledge, methods and tools of management used to deal with environmental problems in order to improve our life quality and pursue the goal of public welfare". (Hang, 2005)

Environmental management requires the integration of multiple stakeholders inside and outside the organization. Empirical research confirms that firms that build green teams among

their employees make better use of the teams' expert knowledge, which in turn improves environmental performance. (-Julia Hartmann, 2017)

As defined by the British Standardization Institute as: "regulatory actions, responsibilities, practices, processes and resources for the identification and application of environmental policy". (chen, 2004) Environmental management system can be define as:" technical and organizational activities aimed at reducing the environmental impact caused by a company's business operations'' (Zouaoui, 2017)

EM System should be built on the ―Plan, Do, Check, Act‖ model to make sure that environmental problems are thoroughly recognized, controlled, and supervised. Using this approach will help to ensure that performance of the Environmental Management System progresses over time and that goals for implementing an EMS is in the first place. (Omar Suliman Zaroog, 2016)

2.2 Benefits of EMS

By means of the environmental analysis it's possible to:

-Ecological Impacts Environmental: management systems get implemented to improve corporate environmental care by detecting and removing ecological weak spots, either as a self-imposed aim or influenced by stakeholders. According to surveys on the motivation of companies, this is stated to be the main reason for establishing EMS. Therefore, the ecological impact is central to the question of whether there might be a difference in the effectiveness of various EMS standards.

-Economic Impacts: the economic impacts can be determined from the comparison of implementation costs and financial benefits. EMAS and ISO 14001 participation is connected with considerable costs. We do not mean costs for implementing technical measures such as water treatment or waste gas cleaning. such costs may be regarded as consequential expenses of EMSs. EMS costs are those costs that are directly connected with the implementation of the management system, from the point of decision to participate up to the validation or certification.

-Corporate benefits: It is not surprising that according to the different studies the stated corporate benefits too are nearly the same for EMAS and ISO 14001. Amazingly, this applies even to external corporate political impacts. Owing to the different constructions of the systems, differences in this regard could have been expected. (Juergen Freimann, 2002)

The benefits of the implementation of environmental management are not limited to environmental performance. A strong environmental management improves perceived future financial performance, as measured by stock market performance. (Dangelico, 2015)

3. The organizational performance

3.1 Definition of the performance.

The organizational performance can define: ''the extent to which executes actions that produce the desired results, including innovation, market share, capturing market opportunities''.)Shih-Wei Chou(2014 ،

The organizational performance can define alos:" As the institution's ability to use its resources efficiently and produce outputs that are consistent with its objectives and relevant to its users"(Oluyemisi & Abayomi, 2018)

3.2 2Competitive performance indicators:

Select (Simon) several areas for evaluating competitive performance are as follows:
-**Market share**: The market share is one of the most important indicators to measure the effectiveness of the competitive advantage and profitability of any economic company. Therefore, its use is a measure of performance. It is a good measure that is evident on the horizontal axis of the matrix. It reflects the relative market share of each strategic activity area compared to the largest competitors in the market. At the same time about the strength of the company in that market or its target parts. (Timdjeghedine, 2013)
- **Profit**: It is one of the most important indicators that measure the competitive performance of the company and is usually calculated through the return on investment and is calculated by the percentage of profits to total investments.
- **Productivity**: It is one of the most accurate measures of the performance of companies and is a sign of the relationship between the inputs of the company and its outputs and reflect the optimal use of resources. (Nsour, 2009)
- **Cost control**: Reducing costs on the company is an important element in improving their profitability, and gives them the ability to highly competitive performance towards competitors, and the cost strategy is one of the strategies pursued by the company within the competitive environment in order to achieve competitive advantage, under which is directed All efforts towards a fundamental objective of reducing costs. (Taouess, 2018)

4.METHODS AND MATERIALS:

In this context, we will try to identify the reality of the environmental management systems in the company and to indicate the extent to which the environmental management systems implementation contributes to improving the performance of the company through environmental performance, rationalization of energy consumption and environmental investments.

4.1 Limits of study

Include place and time limits and conceptual limits:
-Place limits: considering the nature of the study, and the problem posed the selection of the company ECDE Chlef to conduct an exploratory study. The selected company is a good example to match its characteristics to the search requirements.
-Period of the study: This study was conducted in the period of data analysis 2010-2017
Conceptual limits: EMS, competitive performance

4.2 Data collection

After selecting the area of study, the collection of data necessary for the study was initiated using different methods: interviews with the environmental officer of the company, the environment coordinator, access to a set of internal environmental policy documents, monthly air emissions reports….

5. RESULTS AND DISCUSSION :

The analysis of the results is divided according to the hypotheses of the study.

5.1 The role of EMS in improving the company's investments in the environment and environmental performance

In order to improve the quality of the internal environment and preserve the environment, the company has made several investments in the field of the environment.

- Acquisition of various equipment and cleaning materials at a cost of 30 million dirhams
- The use of bag filters that make fine particles from the air stream.

These investments and the installation of these equipment have had a positive impact as:

- reduced dust emissions significantly lower than the established Algerian base of less than or equal to 30 mg / Nm3, and recovery of a large amount of raw materials reused in the production process (+ 15%), the economy in industrial water quantities achieved a gain of capacity 220 m^3/day,

rationalization of energy consumption (electricity, gas, water), enhancing the confidence of partners and stakeholders

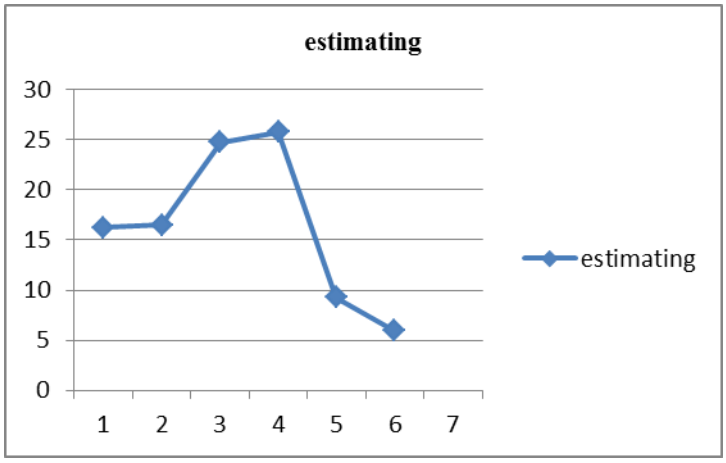
Table 1: Estimating dust emissions of the years (2013-2018)

Unit: (mg / m3)

	2013	2014	2015	2016	2017	2018
Estimating of dust (mg/m^3)	16.27	16.52	24.73	25.81	9.24	5.94

Source: Environment & Quality Office, 2018

Fig.1. Estimating dust emissions of the years (2013-2018)



Source: prepared by the researcher according to the results of "excel".

The Figure n2 shows that the amount of dust was rising from 2014 to 2016, then it has been declining significantly in recent years. This is due to the efficiency of the refineries used by the institution to reduce the amount of dust. This indicates that the application of environmental management systems has a role in improving a side Of environmental performance

- waste management in the company:

Cement industry is the most polluting industries for the environment (air, water, soil). Therefore, the company is committed to implementing law 01-19 of 12/12/2001 concerning the management and control of industrial waste. Used tires, oil, used batteries, conveyor belts, refineries of all types.

- How to treat waste in the Cement Corporation in Chlef?

Once collected and stored, the organization dispossesses them either by selling them in auctions, retrieving or burning them.

- In 2017 was agreed with a private national company to sell 300-400 tons of iron worth 175 million DA
- An agreement was reached with the Naftal Corporation to purify 5000 liters of oil.
- The allocation of two basins for the disposal of used oil capacity of each one 1100 liters.
- Customize storage space for more than 600 used batteries to prevent acid leaks into the soil
- 2500 filters have been disposed of by ENR.
- To allocate a closed space to store more than 360 used tires to avoid any accidents. In 2017, a company was found to recover such waste.
- Mineral waste, oil fuel and conveyor belts are recovered by ERO western recovery company
- Medical waste is disposed of by immediate burning.

- energy conservation

- Water consumption rationalization:

The following table shows total water consumption in m^3

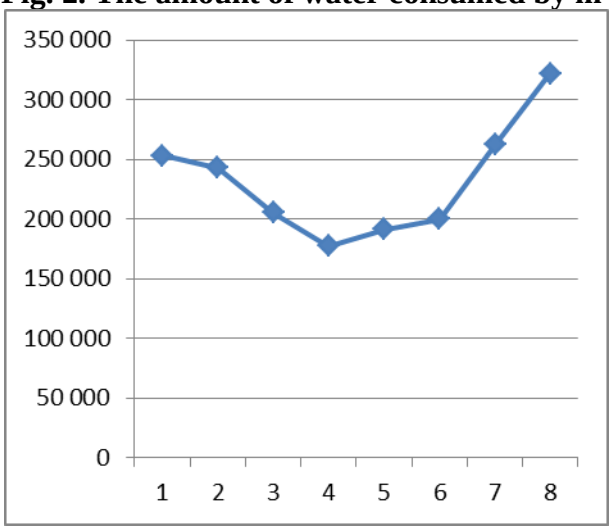
Table 2. The amount of water consumed by m^3

Year	The amount of water consumed by

	m^3
2010	253 057
2011	242 999
2012	205 185
2013	177 216
2014	191 619
2015	200 000
2016	262 056
2017	322 099

Source: Environment & Quality Office, 2018

Fig. 2. The amount of water consumed by m^3



Source: prepared by the researcher according to the results of "excel".

As shown above, the amount of water consumed decreased significantly from 2010 to 2013. This is due to the process of installing new bag filters from the raw cooking workshops, a significant positive impact on water consumption compared to previous years before 2010, The water consumed in 2009 is pass to 35000 m^3. In addition, from 2010, the company has replaced the waste water in cooling with ventilation systems. This has helped to reduce the volume of water consumption and rationalize the exploitation of this resource. This quantity will rise again from 2014 until 2017 because of the project of the second factory.

-Procedures of reduce water pollution:

In 2009, the Cement and Derivatives institution acquired equipment to measure the chemical oxygen demand (COD) and the biological BOD demand to determine the amount of organic pollutants present in the wastewater.

The organization has established a wastewater treatment system containing organic and chemical salts. This has allowed a clear reduction in organic load through the analysis conducted by the Foundation as well as the services of the National

Observatory for Environment and Sustainable Development (ONEDD), in accordance with Executive Decree No. 06/141.

- Rationalizing the exploitation of electricity and gas:

The activity of the cement and its derivatives company depends on the production of cement mainly on the electric energy and gas.

Therefore, with the adoption of the environmental management system and the attempt to comply with legal regulations and strive to preserve the environment and its resources, the institution has made major investments in this field, most notably the use of condensate batteries to recover lost energy (lost in the connection between the supply network and the institution) And in recent years you get privileges whenever the energy rate is low

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5.2 The role of EMS in improving the company's market Share:

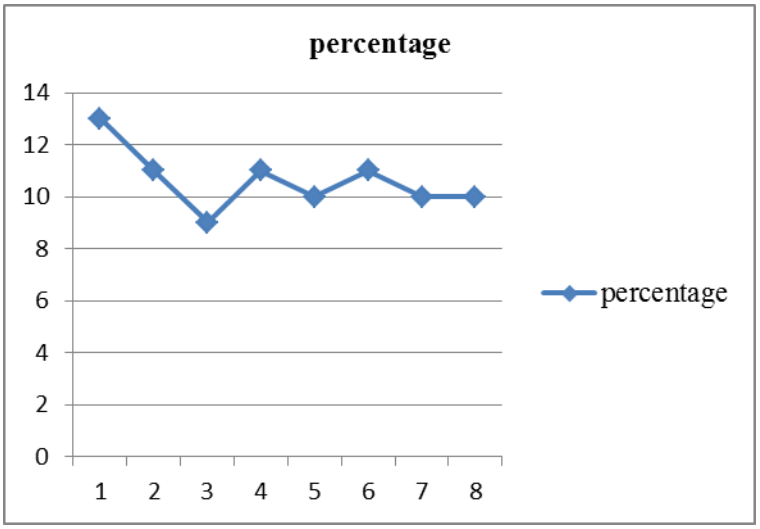
The following table represents the market share of the company

Table 3. The market share of the company

Year	Percentage %
2010	13
2011	11
2012	9
2013	11
2014	10
2015	11
2016	10
2017	10

Source: environment & quality office, 2018

Fig.3. the market share of the company %



Source: prepared by the researcher according to the results of "excel"

Figure 3 shows that the organization's market share ranges between 9% and 13%, this percentage was not affected by the company's adoption of the environmental management system.

5.3 The role of EMS in improving the company's sales :

The following table shows the evolution of the company sales.

Table 4. The evolution of sales (Ton)

Year	Sales (T)
2010	2 201 745
2011	2 111 419
2012	1 741 783
2013	2 054 966
2014	2 022 379
2015	2 170 721
2016	2 144 126
2017	2 122 929

Source: environment & quality office, 2018

The table (4) shows that the sales growth is declining slightly from 2013, even though the adoption of the EMS.

From previous tables we can we reached the following set of results:

- We can say that the company reached an acceptable level in the field of environmental conservation by reducing the pollution and waste resulting from its activity, especially with regard to the amount of dust emitted, which decreased significantly and very large and even achieved rates below the national allowed rate.
- The company adopted these systems in accordance with the requirements of sustainable development and the environmental legislations imposed on its activity.
- The implementation of environmental management systems facilitate the management of waste and recycling, as well as the treatment of liquid and gaseous waste through deals that are concluded with the concerned parties to treat effluents to reduce water pollution.

6. CONCLUSION

Through this paper, which aims to know how does the implementations of environmental management systems contribute to improve the organizational performance of the cement and its derivatives company, Therefore, it can said that:

- The company has made significant investments in the field of preserving the environment through its acquisition of various means that help in improving and minimizing the effects of its activity on the environment, also EMSs contribute to improving their environmental performance by controlling the amount of dust emitted by using the various modern and clean technologies which makes us negating the first hypothesis.
- The implementation of environmental systems do not contribute to improve the market share of the company. This makes us confirm the validity of the second hypothesis.
- The implementation of EMSs do not contribute to improve the growth of sales in the company. This makes us confirm the validity of the third hypothesis.

Through the findings we recommend the following:

- The company should continue to effectively implement the environmental management system which enables it to obtain ISO 14000 as soon as possible.
- To take voluntary initiatives in the field of environmental protection as well as comply with laws and legislation in order to strengthen their competitive position and enhance their reputation among stakeholders and lobbyists.
- Periodic and continuous follow-up of the various wastes produced by the enterprise's activity through all stages of production
- Work on improving environmental investments to obtain various technological devices that help control the emissions of dust and gas.

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