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The Study on Environmental Management Accounting: ISO 14000 in Determining the Preventive Environmental Costs

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Abstract

The objective of this study is to examine the problem of lack of awareness by organizations of the importance of environmental management accounting and its role in determining environmental costs, improving environmental performance and the lack of interest in the environmental management system which is considered environmental management accounting one of its tools, in the words Others, the actual impact of the EMS is somewhat low. Defining the concept of environmental management accounting in general, and environmental costs represented by the costs of environmental protection the costs of treatment emissions treatment and wastewater treatment using the environmental management accounting methodology. The need for environmental management accounting emerged due to the failure of traditional administrative-accounting in accounting. On environmental costs, which are allocated to calculating indirect industrial expenses instead of allocating them directly to the operations, products or activities that generated those costs one of the difficulties facing the application of environmental management accounting is the lack of a unified definition of environmental costs, each company classifies environmental costs according to their circumstances.

Keywords: Environmental, Management, Accounting and Costs.

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Introduction

It has become a well-known fact that the modern industry has contributed to the pollution of many rivers, lakes, air, and soil in many countries of the world and thus eliminated many natural resources. Calls for attention to environmental issues have increased, especially in the last two decades of the twentieth century, and the pressures demanding companies. By assuming responsibility to the community, these pressures were in two directions: The first - internal to adopt cleaner production technology for the purpose of reducing waste and waste costs, and improving the company's image locally and globally and classifying it as a "green facility". As for the second trend of pressure, it was external through increasing the environmental audit process, the interests of investors and financial analysts, environmental organizations and the public in general. This led organizations and companies to think seriously about improving their environmental and economic performance. In response to these pressures, many establishments adopted tools, methods, and techniques in a way that enables them to determine their environmental costs more accurately and these technologies are known as (Environmental Management Accounting) that will be the focus of this research. The material flow cost accounting can provide information on the cost of waste that is often "ignored" in the traditional production control system. If the cost of waste is unknown, the company will be unable to use the optimal measures to reduce it, and therefore the cost of material flow cost can be Provide this necessary information and improve decision making. Many of the problems that the company had previously ignored were diagnosed through the experimental implementation of costing material flow.

Literature review

Laurinkevičiūtė and Stasiškienė (2006) environmental management accounting to achieve benefits Financial and environmental. Better than its environmental performance, as the failure is in Improving environmental performance will show growth goals. The company separated the hidden environmental costs and benefits. It was difficult to determine before using management accounting. Environmental, and stress on the inclusion of those costs that have not been Inventory by the accounting system. Environmental management accounting can be used at different levels, starting "from the organization as a whole down" to Single product. Through the application of environmental management accounting, the company was able to improve demand forecasting and storage control. The company was able to save (41,400) dollars annually and over the next fifteen years. Reducing the carbon dioxide emission by one (90) tons annually, "and over fifteen years The obstacle facing the rapid spread of accounting Environmental management that in most cases management sees The costs are greater than expected benefits. Laurinkevičiūtė and Stasiškienė, (2011) conducted the study in environmental and the feasibility of their integration in information systems in a textile company. This study is one of the applied studies carried out in the (Lithuanian) Textile Industry Company. Organizing, managing, and performing regular control over the flow of environmental management accounting information, as environmental management accounting must be integrated into company information systems. The environment has been identified as the number of costs Environmental (19.411) million LTT per year instead of (1.741) million LTT using accounting traditional cost. Environmental management accounting is very beneficial "for textile industry companies because, through better diagnosis, evaluation and allocation of environmental costs, it works to identify the main environmental problems that affect the economic situation of the company, and it also gives the impetus to search for more efficient use of resources, and more effective control To pollute, and increase competitiveness. A comparative analysis of environmental management

methodologies leads to the conclusion that environmental management accounting is most appropriate for the textile (Lithunan) companies, as it consumes "less, inexpensive and effective" time. To integrate the quantitative and monetary flow of materials, a reference environmental complement model must be applied.

Katsuhik Kokubu and Michiyasu Nakajima (2004) This study includes an analysis of the material flow cost accounting applications, with some characteristics of this method being explained in light of the Japanese perspective. It included an explanation "of the basic idea of costing material flow cost and the advantages of this method for Japanese companies compared to other Japanese control tools such as (Total Quality Management, Kazin).

Bennett and James (1998) This study is one of the applied studies conducted by the researchers at Xerox Company Ltd. to manufacture the reproduction devices that are rented instead of "selling them", and this means that the machines are returned to the company at the end of the period of their rental period, and the researchers used the life cycle cost method. Previously, "the machines were shipped in different packages Types, which are seldom re-used again by the customer, the customer must dispose of the original packaging and be provided with a new package to return the machine at the end of the lease period, noting that these packages cannot be used to recharge other machines, and this means that the company must Come out The charges for disposal of the packages, as well as the original costs for these packages, were not included. A new method was created in which standard cases (Carcasses) are used, and two types of packages are displayed to suit all types of products the company sells, noting that these packages are used for both new machines and returned machines. A series of costs analysis showed the low cost of the new system compared to the system Previously, the supply chain became more apparent, "and the result of the new system was not only cost savings but also reduced packaging, and improved customer relationships with the company (Ahmed, et al. 2019; Prabhu, et al. 2019).

The current study considered the life cycle cost (one of the techniques of environmental management) and the life cycle cost that represents one of the environmental management accounting techniques, that is, it linked between environmental management and environmental management accounting, and this was not done in previous studies. The importance of the life cycle cost is evident as it is used to provide a comprehensive perspective of the product during its life. Useful areas of previous studies: It can be said that the areas from which the current study benefited are summarized as follows:

1- Knowing the achievements made by developed countries in the field of environmental management accounting in the field of reduction, Costs, reducing waste, improving environmental and economic performance.

2-Knowing the sources, references, researches and electronic sites that the researcher did not see before.

Statement of the Problem

The problem of this study is to examine the problem of lack of awareness by organizations of the importance of environmental management accounting and its role in determining environmental costs, improving environmental performance and the lack of interest in the environmental management system (which is considered environmental management accounting) one of its tools, in the words Others, the actual impact of the EMS is somewhat low.

Research importance

The importance of the research is despite the interest in environmental issues, pollution, and the environmental performance of economic units and the increase in research and studies on the subject, there is a noticeable lack of Arab resources on the subject of environmental management accounting, as Arab libraries are almost devoid of resources related to the topic. Hence the importance of research in providing a reference in the Arabic language that can be used and referred to in practical application formulas. Defining the importance of environmental management accounting and its role in evaluating the environmental performance of industrial projects. Explaining the importance of adopting Life Cycle Costing technology as a tool to determine the environmental impact of products in industrial organizations.

Objectives of the Study:

Defining the concept of environmental management accounting in general, and defining the environmental costs represented by the costs of environmental protection, the costs of treatment (emissions treatment, wastewater treatment, etc.) using the environmental management accounting methodology. Evaluating the environmental impact of the products by tracking their life cycle.

Research Methodology

This study came to discuss the problem of lack of awareness by organizations of the importance of environmental management accounting and its role in determining environmental costs and improving environmental performance. In the pursuit of its goal, the research attempted to prove the two hypotheses involved in assessing the environmental impact of products by tracking their life cycle, which helps management in making decisions related to improving environmental and economic performance better, in addition to that, the use of environmental management accounting methodology leads to more environmental costing Transparency. The researcher tries to communicate and address problems or recommend this problem to beneficiaries through. Methods of data collection, with the aim of obtaining the information and data necessary to complete the study, depend on the sources and methods were prepared depending on the foreign sources available in the Kurdistan regional libraries, along with a very limited number of Arab sources and the use of the international information network (Internet) to get some sources Related to the subject of research and personal correspondence of some professors specialized in the subject of research to obtain some resources that are not available in the Kurdistan regional libraries, or that are difficult to obtain from the International Information Network.

The industry is still a major source of pollution, as factory chimneys release toxins into the atmosphere and waste and chemical materials offered by laboratories contribute to water pollution and damage to aquatic organisms, as well as harmful materials that leak into the soil causing pollution, in addition to the noise caused by the sounds of machines and equipment. The oil industry is considered one of the most polluting sources of soil, due to the large number and variety of harmful substances that are produced during the production process, and this is what the research model shows. The refining process is complicated, due to the fact that the oil itself is a complex mixture of a large number of chemical compounds. The problem of environmental pollution has become one of the problems that the modern man is unable to find, and he has not found any radical solution through which his causes can be controlled or reduced, and governments have spent huge sums to tackle this problem. In 1995, the American oil industry spent $ 9.6 billion on the environment, and this amount is $ 2

billion more than the annual budget of the US Environmental Protection Agency (Petroleum Technology Quarterly, 2005). Since 1995, maintenance costs and expenses have increased Administrative compliance related to environmental controls (one and a half billion dollars over the following years). In light of this importance for environmental costs, those involved in technicians and administrators began making efforts to find techniques, methods, and tools to improve the environmental performance of organizations by reducing pollution and its harmful effects and thus reaching a pollution-free environment. Among the administrative techniques that have been used to reduce environmental costs, is to improve the environmental and economic performance of the organization and thus enhance environmental efficiency (environmental management accounting). And it achieves the search result of this model.

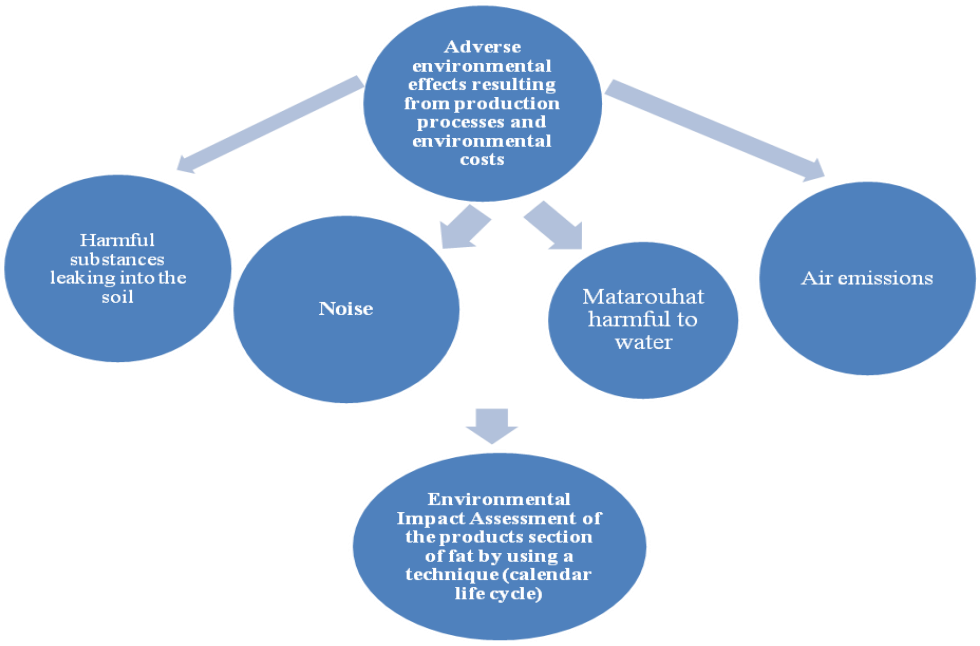


Figure (1) Model Study

ISO 14000

ISO 14000 standards represent a set of procedures and activities to guide the organization regarding how to manage environmental concepts. By applying these standards, the organization's management will be able to plan, implement, and monitor the extent of its environmental performance improvement. As the ISO 14000 standard requires an assessment of environmental aspects during the planning phase of an environmental management system, according to this standard, the environmental aspects represent elements of the organization's activities, products, and services that can interact with the environment (ISO, 2006). Therefore, companies must:

A - Diagnosing the aspects that impact on the environment.

B - Determine the level of importance for each environmental aspect.

ISO 14001 represents a set of requirements concerned with the formation of an environmental management system that can be applied in all types and sizes of organizations and adapts to various different conditions (Al-Azzawi and Al-Naqar, 2007). It focuses on the concept of continuous improvement, as it is a system that helps the organization in environmental improvement by analyzing and documenting environmental problems to prevent their recurrence (Stapleton et al., 2001; Nambirajan, and Prabhu 2010). The specification structure is an ideal structure for practical application, with steps that help the

organization achieve the best environmental performance. It is also considered as a compass that helps guide the boat to the future of sustainable development (Elcock, 2007; Madan Mohan and Prabhu, 2013; Basariya and Ahmed 2019). The application of the elements of environmental management mentioned in the ISO 14000 specification of companies is aimed at (Musafir Abdul, 1999).

A- Implementing and installing an environmental management system for the company and improving it

B- The company makes sure that its performance is in accordance with its stated environmental policy.

C - Proof to others that its performance is identical.

D - Obtaining registration or certification by a third party.

E - Self-declaration and declaration in conformity with the specifications.

ISO 14001 requires the implementation of an environmental management system that complies with internationally defined standards, as specified, The aforementioned specification is the essential elements of an environmental management system, as shown in Figure (2) (Hamdi Saleh, Nadia, 2003).

1- A - Environmental policy development.
2- B - Defining the environmental aspects and effects generated by-products, activities, and services.
3- C - Planning environmental goals and measurable goals.
4- D - Implementing and running programs to meet goals and objectives.
5- E - Verification and Corrective Action.
6- And - management review.
7- G - continuous development

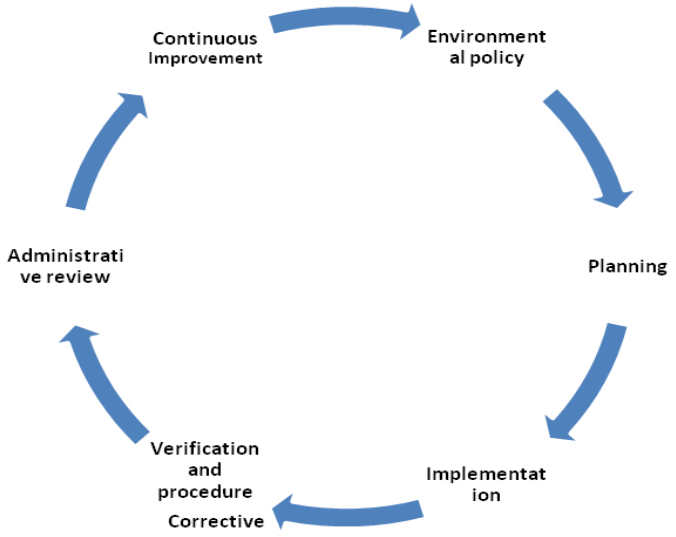


Figure No. (2) Elements of successful environmental management in economic units according to the standard ISO 14000

The company's commitment and management to achieve the goals of the environmental management system, and the sustainability of this system are among the most important requirements, and this commitment must be documented in the form of environmental policy. The environmental policy represents the engine for implementing the environmental management system in the facility and improving it and improving its environmental performance.

A - To be appropriate to the nature and size of the environmental impacts of its activities, products, or services.
B - Commitment to continuous improvement and reduce pollution.
C - Developing methods for evaluating environmental performance.
D - That this policy is clear and generalized to all employees, that is, documented and implemented by all.
Determine the environmental aspects and effects generated by-products, activities, and services: those aspects that you can control are defined in order to determine the aspects that have tangible effects on the environment while noting the following consideration:
A - emissions to air.
B - discharge to water.
C - waste management.
D - land pollution.
E - Using raw materials and natural resources.

Planning or setting environmental goals and targets is crucial to success. The goals must be reasonable (logical) and achievable, based on practical considerations and not chosen arbitrarily. Procedures must also be established on the continuous review of environmental aspects, the effects of products, activities, and services, and based on those aspects and environmental impacts, goals, and objectives that are compatible with the environmental policy must be established, after which programs must be put in place to implement those activities (previous source). Planning includes the following: Preparing a work team - developing policy - setting performance goals and targets - identifying important environmental aspects - developing cleaner production innovations in the fields (environmental, economic, and technical evaluation of projects) - developing material and energy budgets - applying environmental management accounting. Distribution of responsibilities: roles, responsibilities, and duties are defined, generalized and documented. It is necessary to assign sufficient responsibilities and powers to ensure the development and implementation of an effective environmental management system. Training of employees: The establishment or company determines the training needs, it needs to train all workers whose work creates important environmental impacts. Among the types of training that a company or facility can provide (Musafir Abdul, et al. 1999):

- Raise awareness of the strategic importance of environmental management.
- Raising public environmental awareness.
- Skills development.

The Environmental Management System must include appropriate monitoring and review to ensure that the system performs its function in an effective manner, with timely diagnosis and implementation of corrective measures. Should do Internal audit of the environmental management system routinely to ensure the diagnosis of non-conformities with the system. Elements of examination and corrective action help ensure continuous improvement by identifying the root causes of non-conformity.

The administration should carry out a continuous review process that ensures the participation of senior management in evaluating the environmental management system, and making adjustments if necessary. The ongoing management review of the environmental management system helps to ensure adequate continuity, adequacy, and effectiveness of programs, As for many companies, conforming to ISO 14000 may become a contractual requirement for customers in both America and Europe. As ISO 14000 is a continuation of ISO

9000 (product quality standards), it is expected that ISO 14001 will eventually become a requirement to reach ISO 9001 recertification, so many companies set goals to establish environmental management systems that are in compliance with ISO 14001 guidelines to maintain Its competitive position in the global market (UN-DSD, 1999).

Introduction to environmental management accounting

Environmental issues are ranked first among the concerns of states, governments, and individuals for their implications for human health and safety, and the degree of environmental cleanliness or pollution has become one of the standards of human development adopted by the United Nations to measure human well-being in a country. In light of these developments, traditional administrative-accounting has failed to account adequately for environmental costs, as it tends to allocate many environmental costs to the account of indirect industrial expenses instead of allocating them directly to the processes, products, or activities that generated these costs. The survey, conducted by management accountants in the United States, indicated many examples of environmental costs that were allocated to the calculation of indirect industrial expenses, including waste treatment within the site, and away from the site, Elimination costs, environmental fines, and penalties, compliance with environmental controls (White and Savage, 1995; Dixit et al. 2019). The same research also indicated that energy and water costs are often allocated to the calculation of indirect industrial expenses, as well as hidden environmental costs and those that are allocated inappropriately, some environmental costs are not often included in the traditional administrative-accounting records (UN, 2001). There are also some environmental costs that are not included at all in the accounting records of traditional management. There are two types of these costs, which are tangible costs, which are costs that are difficult to predict or estimate, and future costs. Examples include low-touch costs (costs incurred by a company with a weak environmental image in the eyes of customers that are expressed by its lower market share). Examples of future costs include a potential future environmental commitment. Environmental management accounting came to cover this deficiency in traditional management accounting.

Reasons for interest in environmental issues

Why should organizations (or accountants) be concerned with environmental issues? Many internal and external stakeholders are showing an increasing interest in the environmental performance of organizations and in particular private sector companies (ICA of England and Wales, 2004) and that internal stakeholders are workers who are affected by pollution in the work environment. As for external stakeholders, they are societies that are affected by local pollution, active environmental groups, government regulators, shareholders, investors, customers, and others. The types and degree of intensification of environmental pressures can vary greatly from country to country and between business sectors. However, environmental pressure forces many organizations to search for new, innovative and efficient methods, The domain function of managing and minimizing environmental impacts, and prominent examples of environmental pressure at the global level include:

1- Supply chain pressures, for example, large companies may require their suppliers to keep pace with the environmental management system (ISO standard) (ISO, 1996).

2- Pressure from various stakeholders of companies to publicly disclose and report their environmental performance in accounts Annual financial and reports (ICA of England and Wales, 1996) or that the company voluntarily submit environmental performance reports through the Guidelines on Economic, Environmental & Social Performance and Amsterdam.

3- Financial pressures through global growth to fund investment projects with social responsibility, systems Investment classification such as (Dow Jones) and investment policy disclosure requirements (IFAC, 2005).
4- The pressures of controls such as those of the European Union that restrict the use of certain hazardous substances in electrical and electronic equipment sold in the European Union (Lea, 2004).
5- Environmental tax pressures the government may impose various environmental taxes such as carbon taxes Energy use taxes and other emission fees (IFAC, 2005).

In the past, internal costs associated with environmental performance have been relatively low. There were few environmental controls or other pressure forcing organizations to better manage in order to reduce their environmental impacts. However, that has now changed. The costs related to the environment are increasing in many countries in response to the growing pressures of various types. In countries whose regulations impose severe environmental controls, the new regulations have led to the introduction of a wide variety of additional costs related to the environment. The organizations realized that the environmental costs started to rise, including the costs of obtaining pollution control equipment, pollution control, and emission fees. Pollution control regulations have resulted in increased costs for commitment to site repairs and insurance costs related to compliance. Pressure from stakeholders such as civil societies, active environmental groups and organization partners such as (clients, investors, and funders) has also been added to the cost of the environment, as organizations need to start voluntary programs to respond to the interests of these groups (IFAC, 2005). And, on the other side of interest in the accounting department in the process of decision-Recombination, it describes the environmental management accounting as "the process of identifying, compiling and analyzing information on environmental performance to help the organization in the decision." The following figure shows the role of environmental accounting and management in the process of decision-making (Bennett, et al. 2001).

Environmental management accounting in the process of decision-making

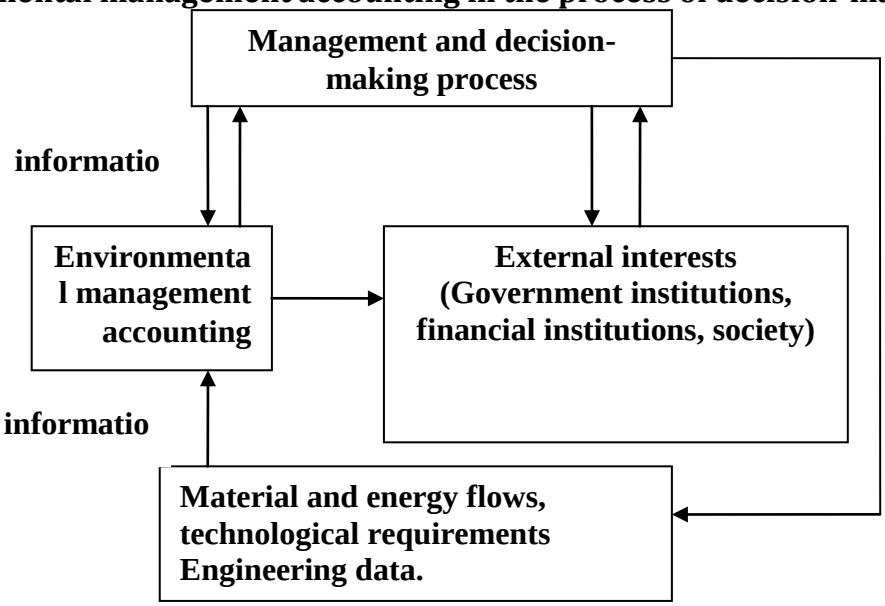


Figure No. (3) Environmental management accounting in the process of decision-making

The relationship between the accounting and management of environmental and ISO 14000. Environmental management accounting is the link between the Environmental Management System (ISO 14000) and the economic activities of the organization, as shown in Figure No. (4), illustrates the relationship between environmental management accounting and ISO 14000. There are a number of benefits that companies that implement environmental management accounting can derive. These benefits can be summarized as follows:

Reducing the environmental impact, by focusing on specific environmental aspects such as cleaner production, supply chain environmental management, clean product design, green procurement, and environmental management systems.

Reducing the costs of environmental protection.

• Achieve market profit for "green products" and, in general, achieve a market advantage.

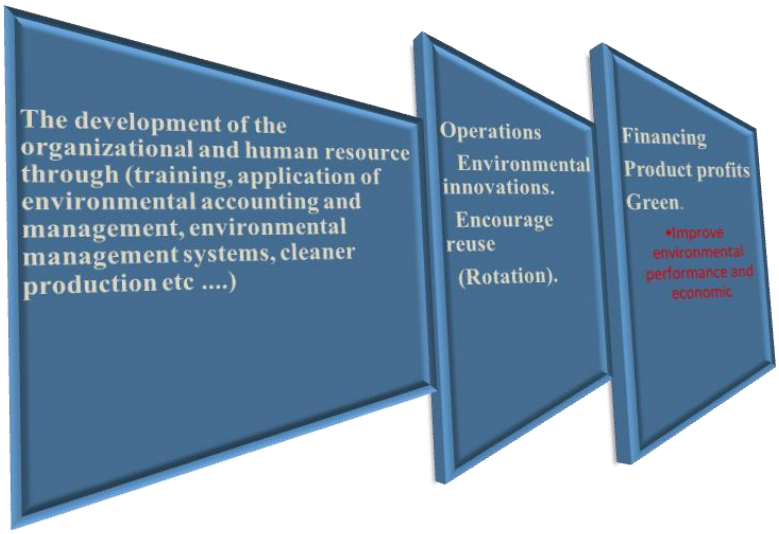
• Supporting the company's long-term activities.

These benefits focus on the continuous improvement of operations and activities, which ultimately leads to improving environmental and economic performance by enhancing the company's efficiency in light of lowering environmental costs, reducing waste, which leads in

Figure No. (4) The relationship between Environmental Management Accounting and ISO 14000

The end is to improve the environmental and economic performance by enhancing the efficiency of the company in the light of reducing costs, reducing waste, locating waste, and this means that there is a common denominator that is sought by both environmental management accounting and the ISO 14000 family, which is improving environmental and economic performance. As one of the environmental management techniques that seeks to identify, estimate and allocate environmental costs, thus it helps the company's management to solve existing environmental problems, diagnose new opportunities for the purpose of achieving cost savings, and improve environmental performance, which leads to an increase in the benefits that can be allocated The company through the application of environmental management systems. When the company establishes a review of its objectives, it will take into account the legal requirements, financial and operational requirements, environmental aspects, technological options, and the views of the relevant parties. In addition, by using environmental management accounting, environmental costs will be calculated and tracked

starting from the source in which they were formed within the production process. In this way, environmental costs can be linked to certain environmental aspects with the possibility of providing a quantized basis for determining priorities, goals, and goals within the environmental management system, therefore, Using environmental management accounting will assist managers in implementing the environmental management system effectively. Moreover, the adoption of environmental management accounting will lead to the adoption of methods such as (investing in cleaner production technology, waste reduction campaigns, use of air pollution control systems, encouraging waste recycling, environmental management systems) and all of this can lead to improvements in environmental performance The economic, as shown in the following figure (Zaneta and Staniskis, 2005).



Figure(5) shows the improvement of environmental performance in the industry and economic

It is evident from Figure No. (5) That there are several areas for developing environmental performance, including those related to human and organizational resources, including those related to operations, and others related to financing. The areas of human and organizational resource development include (staff training, application of environmental management accounting, environmental management systems, cleaner production, etc.), and there is no doubt that each of these aspects will have a return. Responding to the organization, the training of the staff will contribute to increasing his skills, and gain additional experiences leading to improving his performance, and the adoption of environmental management accounting will return many benefits to the company, including but not limited to (rationalizing the use of materials and energy, reducing damage, diagnosing wastes, etc.). Likewise, the adoption of environmental management systems and the use of cleaner production technology will improve the economic and environmental performance of the organization. The same applies to operations and financing, as both contain methods that ultimately lead to improved performance. In light of the above, the researcher concludes that environmental management accounting represents a tool for controlling the consumption of materials and energy, through the techniques that use them, so accounting for the flow of materials that are interested in following up the flow of materials step by step starting from obtaining them, and then following them through the production stages that train them and determining the amount Wastage, waste, and places of waste, and thus can be controlled and deal with its causes. As for the life cycle cost, it is concerned with following up on the products during their life cycle, starting from obtaining the raw materials through

production, distribution, and final disposal of the product. The product life cycle on the environment to try to reduce or avoid these impacts. Likewise, analysis of inputs - outputs can also contribute to determining waste in order to reduce or prevent it, if possible. As long as environmental management accounting is a control tool, it must have standards that enable it to play this role, and we believe that global standards similar to ISO 14000 standards can be established that define the frameworks and procedures for each of the techniques.

Global experiences related to the application of environmental management accounting

Government agencies have made great efforts to develop and promote the use of environmental management accounting. With regard to this development and promotion, governmental organizations such as the United Nations, environmental protection agencies, and the European Commission have implemented various projects. In addition to research carried out by research institutes in the field of environmental management accounting. Below we show the experiences of some countries in the field of environmental management accounting.

First: The United States

In the United States, the Environmental Protection Agency has carried out an environmental accounting project since 1992. This represents an early attempt towards environmental management accounting and its mission was to "encourage and motivate" the organization to understand the full extent of its environmental costs and the integration of those costs into decision-making. In the early stages of the Environmental Protection Agency's environmental accounting project, great efforts were focused towards developing the (total cost estimate) method, as a way to evaluate investment in environmental projects, and there were many results related to the basic concept of the total cost estimation method, in particular, the classification of environmental costs that are considered as a basis for estimating the total cost used to classify costs for environmental management accounting purposes in many countries. In addition to the study cases of major companies such as:

Green Accounting at AT&T

- Accounting the total cost in Ontario Hydro
- The Environmental Protection Agency organizes case studies related to environmental management accounting for medium and small companies such as (environmental accounting) in the printing industry.

Second: Europe

In Europe, a large-scale (survey project) was implemented by the European Commission (EC) in the late 1990s and beyond, and research and development trends in environmental management accounting were encouraged. This survey was referred to as (Environmental Management Accounting as a tool for environmental management), and that survey was organized during the period (1996 - 1998), and the survey was organized on (84) companies in Europe and the United States, as well as study cases on accounting Environmental management that was implemented in (15) companies in Germany, Italy, the Netherlands, England and Ireland with the adoption of a framework for environmental management accounting. When the survey project was implemented, it was used. The term "Eco-Management Accounting" which was later changed to "Environmental Management Accounting" and became known by this name. The Environmental Management Accounting Project has ended. As an environmental management tool (with the end of the survey, after that the European Environmental Management Accounting Network (EMAN-EU) was created

through European financial support for the purpose of maintaining a research network on environmental management accounting.

In Germany, the Federal Ministry of Environment and the Federal Environment Agency published a brochure entitled "Environmental Cost Accounting". Moreover, the German Federal Ministry of Environment, the Federal Environment Agency is now cooperating with the German Institute for Standardization, the Institute for Environmental Economics Research, and the Institute of Management and Environment to plan the printing of manuals and pamphlets Related to environmental cost management. For Germany and Austria, the aforementioned institutes, as well as the Wuppertal Institute, have organized research related to environmental accounting, noting that the cost accounting of the material flow developed from the Institute of Management and the Environment was considered the main paragraph for the purposes of the survey project. In / 2001 the company (Ciba) The specialist in chemicals in Germany is a case study to assess the possible improvements to its internal information systems The methodology used was (material flow cost accounting) that focused on accurate tracking of material flows through the entire facility, as well as on identifying all quantities and important costs Under this methodology, Ciba company first "planned both" the quantitative flow of materials including (waste) within the main plant, as well as the flow of information related to the materials (for example, migration plans) in the enterprise resource planning system Then the planners were compared to detect the mismatch between the actual quantity and the information contained in the enterprise resource planning system. Then the quantitative data on material amounts and costs were extracted from the enterprise resource planning system and other information systems such as (computer systems, warehouse systems) and distributed to Physical flows of materials the included, the output of commodity, the output of non-commoditized. The project (cost-flow-cost-accounting) at Ciba revealed that there are differences in materials that are estimated at (2) million dollars. These differences are due not only to actual losses in the materials but also "due to the recording of inaccurate data in the ERP system. In response, the company submitted a number of measures for technical and organizational improvements. For example, updating the wording of the standard components of the product, that is, modifying the technical equation For production, which led to annual cost savings estimated at ($ 100,000), as well it was possible to increase production capacity by up to 30%.

Third: Asia and the Pacific

In Asia and the Pacific, Japan and Australia paved the way for environmental accounting. With regard to agency contributions, Governmental organizations regarding environmental management accounting in countries other than Japan, Korea has received support from the World Bank, and the Ministry of Environment of Korea has published a report related to environmental accounting systems, and the report included many study cases of Korean companies. In China, a project to introduce accounting was launched. Environmental in Japanese-Chinese joint projects as part of the "3E" project (Energy, Environment, Economy, Economy, and Economy), which is a joint cooperation between Keio University and Tsinghua University. In the Philippines, development has been made in the Education for Environmental Management Accounting program, as well as efforts to use methods developed by the US Environmental Protection Agency. Based on "these developments in environmental accounting in Asia and the Pacific, the Environmental Management Accounting Network - Asia and the Pacific (EMAN-AP) was formed in 2001. In Japan, there was a wide promotion of a system that collects environmental costs for the activities of the company as a whole through the efforts of the Ministry of Environment, with emphasis to develop a method

for environmental administrative-accounting that is useful for the purposes of making an administrative decision, and in light of this, the determination was made to start the following three areas:

A - Environmental conscious investment evaluation.
B - Environmentally conscious cost management.
C - Environmental conscious performance evaluation.

An environmentally conscious investment assessment "is a method for making a decision that takes into account the environmental implications of the organization's investments. As previously indicated," long-time research was undertaken by the US Environmental Protection Agency in the form of an environmental accounting project. Using this method developed by the United States, a working group was formed in Japan in the year 2000 to review methods of environmentally conscious investment decisions "that can be applied to Japanese companies."

Conclusions

This topic was devoted to clarifying the most important conclusions reached by the study, which can be summarized as the fact that environmental management accounting is a relatively recent tool in environmental management. The first researches in this field of knowledge began in 1992 when the American Environmental Protection Agency started a project (environmental accounting) As for Iraq and the Kurdistan Region and the Arab countries, studies in this regard are very limited, as it was possible to obtain one Iraqi study. As for Arab studies, they are almost non-existent. The need for environmental management accounting emerged due to the failure of traditional administrative-accounting in accounting. On environmental costs, which are allocated to calculating indirect industrial expenses instead of allocating them directly to the operations, products or activities that generated those costs One of the difficulties facing the application of environmental management accounting is the lack of a unified definition of environmental costs, each company classifies environmental costs according to their circumstances and its purposes, and this means that what is considered an environmental cost for a company is not considered an environmental cost for another company. Environmental management accounting was applied in several countries, and the focus was in different directions, some of which focused on (material flow accounting) such as Japan and Germany. In the United States, the focus was on the green supply chain. Whatever the technology used, the application of environmental management accounting by several companies in different countries and different sectors has achieved significant gains for these companies through the savings that they have achieved as a result of adopting environmental management accounting.

In the light of the results of the research, the researcher recommends that it is necessary to work on disseminating research and preparing studies in the field of environmental management accounting, as it is a modern technology that brings benefits and benefits to the companies that adopt it and the definition of life-cycle cost technology as one of the important techniques for environmental management accounting through which the product can be tracked during a cycle His life starting from obtaining raw materials, through production processes, and even getting rid of the product, i.e. the costs (from cradle to grave), while identifying the harmful environmental effects that accompany the product during each stage of his life, and determining the costs that he incurs A at each stage, and this company will be able to identify paragraphs high costs to reach a reduced possibility, and to identify the reasons for this increase, is the weakness of the operational efficiency of the units

productivity? Or is it due to the unskilled labor that caused so much damage? Or not to apply the conditions for handling materials, which leads to an increase in waste in materials and others so that it can address these reasons to reach waste reduction, reduce costs and then improve the image of the organization.

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