

# Means for Implementation of Environmental Accounting Jordanian Perspectives

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## Abstract

This study aimed at shedding light on the most important items to be offered as tools for the application of environmental accounting also it included legislation, incentives and accounting staff as well as acknowledging general framework and concepts of environmental accounting. The study found out that the availability of these elements will contribute to the application of environmental accounting. The study recommended educating accountants and financial managers and corporate departments of the concepts of environmental accounting, and its general framework, also urged to endorse binding legislation and accounting standards guidance for their application. In addition to establishing a system of incentives, various tax and governmental exemptions, so that to encourage companies to implement environmental accounting.

**Keywords:** Environmental accounting, Legislations, Incentives

## 1. Introduction

The environmental accounting concept can be considered one of the modern concepts that have entered to the attention of companies and in business sector, it indicates environmental cost account of any economical businesses of the country or on one region or on the whole world, this concept has been generated in accounting thought as a result of the perception of the business enterprises that its role must not be productive, and trying to gain profit only, but that there is a responsibility and social and environmental goals that should be borne by the industrial companies towards the society and the environment. Environmental cost means the degree of using natural resources such as fresh water and fertile land, forests and animals or contaminates or access to a certain extent by the loss and waste, or even destruction as a result of establishing various agricultural, industrial and services projects. It leads on the detailed, actual and practical levels to insert the cost of environmental resources used or consumed in the human activity to be added to other cost elements of the conventional economy to be taken into account when developing budgets for projects. It is not necessary to translate the cost into direct and specific financial figures, but it can be calculated in general or conceptual as they are placed in the account on the future because a lot of natural resources consumed in the human activity. Therefore, the effects and consequences of this shift will extend its influence to include the format and the accounting thought in theory, as well as the applicable aspects in which several attempts arisen aimed at identifying the activities associated with the environmental responsibility of the project, which must enter the circle of interest in accounting to be treated. In Jordan, legislations and by-laws are clear regarding this issue but there is some lack of clarity when implementing environmental accounting since it is until now not familiar for accountants and editors. For example, when dealing with an environmental issue, they implement financial accounting (conventional) not taking into their account to apply the environmental accounting.

## 2. Problem of the study

It is noted from the access to the annual financial statements issued by the Jordanian industrial cooperation companies their lacking of numbers or percentages or disclosures of accounting related to the environment, and under the continuous demands of the bodies and international governments to address the companies to its environmental commitments, it became necessary to show corporate environmental performance in the form of numbers and environmental accounting reports, whether it was voluntary or mandatory and legal, but the limits of realization of the concept of environmental accounting and its developments within the requirements of the laws and local regulations and the limited staff and accounting systems, slow down the application of environmental accounting. Furthermore, the most of the financial departments of the companies have the conviction of the importance of application of environmental accounting in manufacturing companies in general,

but it is apparent from the other hand, the non-application of the environmental accounting procedures of measurement, processing of accounting and reporting (Al-Khouli: 2004).

The problem of the study can be formulated in the following questions:

1. To what extent is the need to develop Jordanian legislations that bind the application of environmental accounting and reporting it?
2. Are there a need for a qualified and a specialized accounting staff for the application of environmental accounting?
3. Is there a need to provide incentives that would encourage industrial companies to implement environmental accounting?
4. Is there a need to define the general framework of environmental accounting and its system of accounting so as to help the Jordanian industrial cooperation companies to apply the environmental accounting?

### **3. Objectives of the study**

1. Recognizing the reality of the Jordanian legislations related to environment and forcing and encouraging it to apply the environmental accounting and reporting it by the Jordanian industrial cooperation companies.
2. Analyzing the situation of competencies, personnel and accounting systems in the Jordanian industrial cooperation companies and their needs in order to apply the environmental accounting.
3. Disclosure of required incentives to encourage Jordanian industrial cooperation companies to apply the environmental accounting.
4. Introduce the concept of environmental accounting and its general framework and explain it in order to assist in applying the environmental accounting.

### **4. Significant of the study**

This study was done to clarify the importance of the need to environmental accounting, as this field continues to suffer deficiencies in the Arab accounting communities and in Jordan in specific.

Identifying the views of financial and accountants opinions about what should be saved from the elements for the application of environmental accounting and therefore, that would lead to the effective application of environmental accounting and demonstrate financial lists and environmental reports, which lead to changes in consumer behavior for moving to deal with companies that show their efforts in reducing the negative environmental impacts resulting in increasing in profitability and competitiveness.

Shedding light on the role that legislations can perform in encouraging, urging, or binding companies to implement environmental accounting.

It is expected that this study will develop management comprehension to adopt implementing environmental accounting idea in their firms.

This study is a contribution to the achievement of social demand adopted by the bodies and governmental and private environmental organizations with respect to environmental matters and determines the cost of damages and ways of solving it.

### **5. Hypotheses of the study**

Ho1: The qualified personnel and accounting staff do not contribute in applying environmental accounting.

Ho2: The encouraging incentives do not contribute in applying environmental accounting.

Ho3: The provisions of legislations do not contribute in applying environmental accounting.

Ho4: Framework and general concepts of environmental accounting do not contribute in their application.

### **6. Methodology of the study**

Secondary data for the study were obtained through reference, research, and Arab and foreign universities research papers. For the initial data, they were collected through a questionnaire study, which is designed depending on the nature of the elements of the problem which is available in the literatures and previous references and studies. The statistical descriptive style analysis technique also the content analysis has been used to achieve the objectives of the study. The survey questionnaire contain two parts, first part included demographic characteristics, the second respondents to be quizzed statements relating to the study, each set of

statements formed a field paragraph, which covers the domain hypothesis of the hypotheses of the study. Five-Likert scale has been used as a measure of reflect the views of respondents regarding the paragraphs contained in the questionnaire, which was allocated weight (5) for the situation strongly agree, and (4) for agree, and (3) for the situation is neutral and (2) for disagree, and (1) for Strongly Disagree. the questionnaire has introduced to a group of professionals and professors for the purpose of arbitration, where they can modify it based on their observations and a previous test was conducted on it, and the amount of Cronbach's alpha were reached (0.791), which is indicated on the consistency and steadfastness (Sekaran, 2003)). And test (T), arithmetic mean, standard deviation and percentages were used in the quarterly analysis of the responses to the questionnaire.

### *6.1 The Study Population*

A comprehensive containing method for the study population consists of the Jordanian industrial cooperation companies of the sum of (89) companies, where the questionnaire study was distributed on the financial managers and accountants in all companies, three questionnaires to each company, bringing the total number of questionnaires distributed; (267) questionnaire was collected, including (245) questionnaire valid for analysis, and thus the percentage of the collected questionnaires were (91%).

## **7. Previous Studies and Conceptual Framework**

### *7.1 Previous Studies*

(Veronica ,et.al:2010) study finds that the degree of development of environmental accounting practices in Portuguese local entities is low. Organizational size and the degree of development of environmental management practices are positively and statistically related to the level of development of environmental accounting practices. However, the findings suggest that the existence of compulsory environmental accounting standards is not positively associated with the development of environmental accounting practices by Portuguese local entities.

A study of (Johnson, 2009) stresses on the term green accounting which has been around since the 1980s, and is known as a management tool used for a variety of purposes, such as improving environmental performance, controlling costs, investing in “cleaner” technologies, developing “greener” processes and products, and forming decisions related to their business activities.

(Bartolomeo: 1997) study aimed at identifying the method used in dealing with the environmental issues in some Italian companies in terms of accounting, it was found also that there is an obvious weakness in the Italian companies in dealing with the environmental accounting, as they contain only some aspects of the disclosure of environmental impact caused by industrial facilities to the surrounding environment.

A study of (Joshi, et: al: 2002) also tested how the accounting systems determine the costs associated with the environmental laws separately, and assessed the link between the apperant costs resulting from the commitment to the environmental laws, which means that the law can define its classifications in the accounting systems as an environmental costs and non-apperant environmental costs, which are inserted within other accounts. The study confirmed that the magnitude of the non-apperant costs is reflected on the costs systems' design, which lead to take incorrect decisions for the non-apperant cost management which lead to improper identification for costs deviations and inaccurate pricing for products or choosing incorrect mix or make decisions to close a factory or a specific production line or incorrect investment decisions.

(O' Donovan 2002) study also aimed at improving the usage and application of the legal characteristics theory through possible links between the three elements: event or environmental technology, which is expected to result from it a legal threat to the facility, choosing between the legal characteristics theory and disclosure, which entails each of them in the annual reports, and the aim of choosing this method may be the formation or maintenance or repair the legal position of the company. The results showed that the importance of the event or the environmental issue has a substantial effect on the decisions of disclosure, companies only disclose the significant environmental events and of medium importance, and therefore the less important events which do not pose a threat to the legal position of the company's business will not affect usually choosing the legal characteristics theory and do not affect the volume of disclosure in annual reports.

(Roussey, 1992) study aimed at analyzing the laws and legislations relating to environmental pollution control in the USA, and the extent of industrial facilities commitment to these laws and legislation, where and the assessment of the costs of cleaning disposal sites and industrial waste, in addition to question about commitments resulting from environmental fines and the importance of reviewing and preparing reports related to possible obligations resulting from abiding by environmental laws and legislations.

(Robbins, 1991) study pointed out the environmental issues and problems become within industrial companies strategies in the European countries and in the USA, where the disclosure of the environmental information was expanded, whether such disclosure relating to judicial claims expected from environmental damage and their expected financial impact, or the expected environmental events and its impact on the financial position and future business outcomes. The study also concluded that the outside reviewer must be familiar with environmental aspects which affect in the obligations and assets values, and should define the financial lists for environmental obligations. He is also obliged to define companies' commitment of laws and legislations related to the disposal of industrial waste and others which may be a reason for environmental pollution.

## 7.2 Conceptual Framework

### 7.2.1 The General Framework of Environmental Accounting

The recent presentation of the financial philosophical thought and its environmental impact will start from the operational definition of the environment as a natural one in addition to the cultural, economical and social fields (Shawqi, 1992). The accounting term is defined in an environmental point of view as: "a science looking on how the environmental aspects affect on the conventional accounting system and as it is an effective tool to measure and evaluate the environmental aspects of facilities (Sefcik & Soderstrom 1997). This definition is focused on the separation between the environmental accounting and the conventional accounting system and the environmental accounting affect on the conventional accounting systems which help to assess the facilities. It also includes the process of selecting variables, standards and procedures for measuring the social performance of the organization and the disclosure of the results to the involved parties in the community, whether such parties were within or outside the facility (Shaheer: 1998).

Public attention in environmental issues was greatly and rapidly growing through the high costs which borne by industrial facilities in order to maintain environment, where a study conducted in the USA shows (Heller et al, 1995) increasing in the environmental costs in the American companies for oil refining to reach the average of 22% of the gross operating costs after it was 3% during the first five years of the nineties. Therefore and as a result of inevitable high costs of environmental costs and financial obligations which must be borne by the companies that especially cause the environmental pollution. The disclosure of environmental costs including the costs of compliance with the environmental laws and expected financial obligations become a necessary matter. As a result of that, there was an allocation of facilities for single reports or parts of annual reports for the purpose of environmental performance disclosure. In order to increase the confidence in such reports, they must be audited by neutral and independent auditors, which would increase the burden on the auditors (Watson and Mackay, 2003).

There is also difficulty in determining the needed information to develop appropriate environmental standards (Stuart, 2004). The aspects of deficiencies in the conceptual framework of accounting has been represented in the disability of providing definite answers to a number of problems facing the accountant, because of the lack of the presence of specific guidance that can be relied on in the developing issues, such as; environmental pollution costs measurement caused by economic units through practicing their activities that may harm the environment. This requires the identification of activities that will be measured. It can be seen that the environmental cost used for treating the environmental pollution based on the value of the lost benefit as a result of diseases caused by this pollution and lack of individual productivity and inadequate living, and the decimated plants (Johnson: 1993). The physical accounting approach has been appeared to assist in determining accounting measurement for environmental activities. The physical accounting structure depends on organizing a set of accounts in accordance with what has been referred to in environment accounts evidence and in the natural resources, that shows changes in the available balances of natural resources and the amounts used during the period (Institute Francais 1995, pp.56).

### 7.2.2 Accounting Standards

There are some deficiencies in the conventional accounting regarding the activities and management decisions related to environmental costs in terms of inadequate attention to needed environmental costs information for decision-making (EMARIC, 2007). And the issuance of many standards and accounting releases related to the subject of environment such as; financial accounting standard no. (5) and its interpretation no. (14) which was issued by the Financial Accounting Standard Bureau in the USA (FASB), and International Accounting Standards (37, 10, 620, 400, 310, 250). Therefore, these above issuances have a role in directing the attention towards managing the environmental data in accounting way. The British Association of Chartered Certified Accountants (BACCA) issued a number of guidance rules about environmental issues, as part of a research report for environmental reporting preparing the costs of environmental performance and environmental

obligations, in cooperation with the Canadian Institute of Chartered Accountants (CICA) (Richard, et.al: 1997). The methods were varied in which can be relied on for the purposes of environmental accounting and determine its cost, the Actual Cost concept and the Defensive Cost and the Opportunity cost and shadow price considered as the most important concepts that can be relied upon in assessing the cost of natural resources and environmental resources (Bartelmus.1993 ). Accordingly, it is clear that it is essential for the authorities to adopt accounting standards and guidelines to be followed when applying the environmental accounting, especially in the light of the application of international standards to environment ISO (14001) which include reviewing environmental management systems in industrial companies.

### 7.2.3 Legislations

The commitment and environmental orientation need adequate legislations organizing businesses. There is also a difference in the degree of abiding each country on its local legislations related to disclosure and environmental accounting measurement. Where as the failure of legislations to respond to the needs of society and its development, and that the law has many complexities or significant gaps allow its infringement and the failure to provide appropriate financial and criminal proofs in the law that reduce the obligation of applying the law (Parsley, 2004). Each country should set necessary laws in order to oblige the economical institutions to disclose of its data and information related to pollution caused by their activities, and disclose the costs incurred in reducing environmental pollution, through the development of the published financial statements (Hayali: 1998). The Jordanian legislations confirmed on the necessity to protect the environment especially in the enforced Environmental Protection Act, and did not confirm that the companies should disclose the statement of its commitment to environmental protection in a report includes the value of expenditures on environmental protection, (Environmental Protection Act: 2006).

### 7.2.4 Disclosure Reports on the Environmental Performance

The legal requirements in some countries oblige facilities to report on their environmental performance, and it is varying in form and in content of the environmental performance, as follows (Wallage: 2000)

- Preparing special reports on environmental performance: where there's a legal requirement for facilities in some countries to prepare a separate annual reports for financial reports, the facility should disclose through it on its environmental performance including its commitment to the requirements of environmental laws and regulations, for example as in Netherlands and Denmark.
- Preparing separate paragraphs on environmental performance: The legal requirements in some countries oblige facilities to disclose their environmental performance through a paragraph or several paragraphs separately in notes and explanations attached in the annual reports, for example as in Sweden and Norway.
- Preparing separate paragraphs on some aspects of environmental performance: In this case the process of disclosure will be done through the observations and explanations of financial statements about certain aspects of the environmental performance of the facility, as required under legal requirements, for example, the facilities in Australia, Canada and the United States of America should disclose some of the environmental activity impacts and the effects of environmental risks on the activity, and financial risks related to them.

### 7.2.5 Incentives

Tax incentives suppose to contribute effectively in combating the environmental pollution through exemption or tax reduction for the activities that work in the field of pollution control, and grant tax incentives for equipment designed for pollution control, in addition to grant tax incentives for fixed assets that is friendly to environment and reduce the costs of reducing pollution from the tax base (Metwally, 2001). The company should show in its accounting and financial reports a record of the processes and activities related to environment within environmental accounting system so that it can take advantage of these incentives. The incentives and tax exemptions may have the greatest impact on the adoption of industries and economic activities environmentally-friendly, because the imposition of taxes and duties may face evasion and fraud, while motivation and exemption may bring automatic response and adoption of technologies and environmentally-friendly techniques, taking into consideration that the exemption and motivation may be exempted permanently from taxes and duties that impose on the various economical activities and that the distinction between economic activities polluting the environment and these which are friendly, or exempt them temporarily, which is for a limited period. All this for motivating companies and compensating it for the acquisition of technologies, which are expensive and environmentally-friendly, in addition to helping it indirectly in the production of goods that are more competitive compared with the goods that use technologies of polluting the environment, or tax incentives as to exempt



imported equipment and supplies which is environmentally-friendly from paying taxes and customs duties (Khoury and Naesa: 2007)

#### 7.2.6 Personnel

Because of the unconventional nature of environmental accounting and the inclusion of items on tangible or intangible elements and the difficulty to estimate its costs and make accounting statements that will be difficult to audit, the conventional financial accountant become unable to implement accounting procedures and environmental auditing, therefore the need to hire qualified accountants has arisen with special and distinguished specifications and qualifications to be able to implement environmental accounting measurements. The accountants should distribute the environmental costs more fairly on polluting activities (Ranganathan & Ditz, 1996, p.38), the environmental reviewing should be done by a skillful team of expertise from internal and external financial auditors, engineers, technicians, economists, legal and administrators (Taylor et al., 2001). The accountant's failure to study, inventory and measure the components of environmental performance costs or incorrect accounting measurements for these costs would lead to negative impacts on the quality of environmental performance, and this lead to legal and social consequences represented in fines and deprivation of investment incentives granted by the country for facilities that are committed to environmental performance quality, and declining competitiveness and market performance of the organization with arise in production as a result of irrational use of inputs and the use of inputs and the unsafe methods of production, and polluting the environment, in addition to taking irrational decisions in products pricing (1996 - Epstein). The accounting profession staff should necessarily set and formalize accounting rules to clarify, adjust and determine the requirements for measurement, presentation and disclose the environmental costs in the financial statements to disclose fairly about the financial position of the facility and the actual results of its work, including environmental costs incurred by the facility (2001 Jasch). The accounting staff distinguished by its commitment to ethics and professional conduct rules that may help in the commitment of accountants in the effective implementation of environmental accounting.

#### 7.2.7 Benefits of applying the environmental accounting

It is not possible to consider the high cost of applying the environmental accounting without taking into account the benefits that can be achieved when applying it (Sonara: 2003). It can reveal that the attention concerning measuring the environmental performance costs will help in improving this performance, which in return affects in enhancing economic performance of the organization (1997, RUSSO), also enhance the reputation of the establishment's value, and thus improve its competitiveness (Toms 2002). This shows the necessity of measuring the environmental performance costs and analysis it objectively, so that it can lead to the rationalization of administrative decisions, so the mere inventory and measure the environmental performance costs considered useless unless it results in better decision-making (Ranayamatian & Dirz: 1996). The natural resources and environment account systems aimed at assisting the competent authorities of the country in preparing the plan for long-term for natural resource that is explored in their future development (Alfsen, 1993). This will lead to a number of accounting reports that show balances and statistical data for the natural resources of the country in certain history, also show the organizations and international bodies, which enable the planning authority to allocate these resources among the different uses in order to achieve the largest possible return of those resources, as mentioned in the preparation of various reports of environmental indicators in the country which achieve the control over the elements of various environmental pollution and decision-making concerning the reductions of pollution as possible (Haan, 1993). The most important goals sought by the studies and research that is done through the United Nations of Environment Programme (UNEP) in the field of environmental accounting is an attempt to link actual, environmental and monetary accounting of the natural resources, and environmental impacts (Bartelmus, 1992). The provision of actual and financial accounting data for the operations and environmental activities can make the organs of the country to determine the funds needed to achieve optimal management of the environment and the expression of negative and positive impact of the environment in the form of money.

### 8. Statistical analysis

The demographical characteristics are described for the respondents and analyze their opinions and responses on the survey questionnaire, and the arithmetic means and standard deviations were extracted from their responses for each field of the questionnaire and the results of hypothesis testing results were as follows:

Table (1) shows that 89.7% of the respondents are male, which means the lack of female practicing in the profession of accounting and financial affairs of the companies, this may be due to their desire to choose jobs with less responsibility. And 42.8% of respondents aged between 25-35 years old, and 35.1% of them have an

experience of 10-14 years, and their distribution on different job positions were almost equal. In addition to 82.04% of them are allocated within the accounting specialization, which means they're acquaintance of the subject of study. Overall, the table information indicates that they are qualified to answer the questionnaire and can be trusted in their abilities and information

Table (2) shows that the availability of required acknowledgment play an important role in the application of environmental accounting, and must provide a qualified accountants acquainted with studies and environmental accounting research, and get the latest developments in environmental accounting and its application, in addition to provide a device that collects information and environmental data and analyze it, so that the accountants can apply the environmental accounting. They also think that they can consult experts and specialists in the field of environment to implement their businesses. The arithmetic means of their answers about the role of qualifications and accounting personnel to apply high environmental accounting, the arithmetic mean of the total phrases of this field reached (4.10), which means that they are all approved in their opinions, and this is confirmed by the low standard deviation of their responses.

Table (3) shows that the respondents believe that in order to encourage companies to apply environmental accounting, we should provide the required incentives for the application of environmental accounting such as tax exemption on environmentally-friendly assets, and the assets which reduce or prevent environmental damage, distinguished tax treatment and reduction in taxes, in addition to show the importance and the priority of companies that apply environmental accounting at the assignment of governmental bids implementation of projects. The arithmetic means of the respondents' answers in this field are high reached (4.19), which means that they are all agree in their opinions, and this is confirmed by the low standard deviation of their responses.

Table (4) shows that the respondents believe that legislations play an important role in the application of environmental accounting, through issuing instructions that show the appropriate environmental disclosure and the presence of environmental laws include financial and accounting dimensions, in addition to issue instructions to verify the compatibility of the company with the environmental regulations and laws and issue legislations that oblige companies to implement environmental accounting measurement, furthermore amend the Jordanian Securities Commission's instructions to include a separate disclosure of environmental expenditures and pass legislation to fine companies which do not disclose their environmental activities, the respondents see also that they should issue instructions to ensure cooperation between the Association of Chartered Certified Accountants and governmental bodies in the field of environmental accounting. The arithmetic means for the answers were high, in which it reached as a whole (4.15), which means that the respondents agree in their responses that related to legislations role in the application of environmental accounting.

It is noted from table (5) which related to the definition of the general framework of environmental accounting and its role in the application, that the respondents see that they should be introduced with the dimensions, framework and social accounting concepts, so that they can apply it, they explain that it should provide a guide on the implementation and practice of environmental accounting and must provide a special databases concerning the environmental accounting and develop of conventional cost systems to include environmental accounting and find a suitable subsidiary information systems suit with environmental accounting and there is a need for criteria to determine the environmental accounting procedures, since providing with these elements will help them to know how and what are the ways of applying environmental accounting. They also reported that awareness of the Association of Accounting Auditors with the importance and benefits of environmental accounting will help them in the application as well. The arithmetic means of the respondents' answers to all paragraphs of this field were high, which reached (4) as a whole. This means that there is considerable agreement among them on the need for the definition of environmental accounting, and dimensions, regulations and evidences so they can apply it

### **Hypothesis Testing**

(T) test was used to test hypotheses of the study, and table (6) illustrates the test results for all the hypotheses of it, the decision rule has been adopted to accept the alternative hypothesis and reject the null hypothesis if the calculated (T) value was greater than the indexed (T), and accept the null hypothesis and reject the alternative hypothesis if the calculated (T) value was less than the indexed (T) value ( $v$ ) at the level of significance (0.05).

The results of (T) test showed that the calculated (T) values were greater than the indexed values for all the hypotheses, as the calculated (T) value was (36.310) of the hypothesis of competencies and accounting staff, and the incentives hypothesis reached (22.234), and for the hypothesis related to legislations it reached (15.603). While the hypothesis of the framework and the general concepts of environmental accounting, the calculated (T) value for it reached (31.750). In accordance with the decision rule, the null hypotheses were rejected and the

alternative hypotheses were accepted, which means in order to apply the environmental accounting in Jordan, it must be provided with competencies and accounting staff, incentives, appropriate legislations and the awareness of the framework and the general concepts of environmental accounting.

## 9. Results

Providing tax incentives and duties exemptions will encourage companies to commit with the application of environmental accounting.

There is a need for staff and qualified accounting personnel and effective accounting systems for the application of environmental accounting.

The availability of relevant legislations relating to environmental activities for companies to apply environmental accounting those legislations binding to be applied with the need of finding sanctions provisions in case of non-application.

There is a need for awareness of the framework and the general concepts of environmental accounting and its applicable methods, and accounting systems.

The need for evidence and criteria to guide accountants about the practice of environmental accounting.

## 10. Recommendations

- 1). To raise awareness of accountants and financial directors and companies departments on the concept of environmental accounting concept and its general framework in order to achieve the desired benefits of its application.
- 2). Urging the stakeholders to develop and issuing needed legislations for the application of environmental accounting that take the nature of obligatory as possible.
- 3). Issuing accounting standards guidance especially for environmental accounting.
- 4). Establishing a system of incentives and various governmental tax exemptions to encourage companies to implement environmental accounting.
- 5). General awareness in order to implement environment in according to related Jordanian legislation
- 6). Jordanian Accounting Auditors Association and the relevant authorities to hold training sessions on topics of environmental accounting and publicity.

## 11. Upcoming Proposed Studies

Application of environmental accounting typically used in conjunction with activity based costing and total quality management.

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Table 1. The Demographic Characteristics of Respondents

<i>Variable</i>	<i>Variable Categories</i>	<i>Frequency</i>	<i>%</i>
<i>Gender</i>	<i>Male</i>	220	89.7
	<i>Female</i>	25	10.3
<i>Age</i>	<i>Less than 25</i>	40	16.31
	<i>25-35</i>	105	42.8
	<i>36-45</i>	59	24.08
	<i>46-55</i>	41	16.7
<i>Experience</i>	<i>Less than 5</i>	56	22.8
	<i>5-9</i>	50	20.4
	<i>10-14</i>	86	35.1
	<i>15-19</i>	16	6.5
	<i>20-24</i>	37	15.1
<i>Job Title</i>	<i>Financial Director</i>	85	34.6
	<i>Head of Department</i>	76	31.03
	<i>Accounts Clerk</i>	84	34.21
<i>Qualifications</i>	<i>Intermediate Diploma</i>	31	12.6
	<i>Bachelor's Degree</i>	181	73.8
	<i>Higher Diploma</i>	20	8.1
	<i>Master's Degree</i>	13	5.3
<i>Specialization</i>	<i>Accounting</i>	201	82.04
	<i>Administrative Science</i>	12	4.8
	<i>Financial and Banking Sciences</i>	27	11.02
	<i>Others</i>	5	2.04

Table 2. The analysis of respondents' opinions about the role of the availability of qualifications and accounting staff for the application of environmental accounting

<b>Phrase</b>	<b>Mean</b>	<b>S D</b>
The acknowledgment of the accountant of the importance of his contribution in providing information and environmental accounting data distinguished by accuracy, objectivity and analysis.	3.90	0.82
Providing qualified accountants with extensive experience in environmental accounting.	4.12	0.87
Acknowledge the accountant of different studies and environmental accounting research.	3.81	0.99
Providing advices and guidance to the accountant as consultations provided by environmental experts to assist in the application of environmental accounting.	4.00	0.92
Providing a device that collects information and environmental data and analyze it, for the accountant to transfer it into accounting figures.	4.21	0.90
Accounting vocational organizations should set programs in order to enhance the accountants' skills in the field of environmental accounting.	4.33	0.87
Consulting experts to help in overcoming the difficulties that may face accountants in the early stages of the application of environmental accounting.	3.85	0.85
Involve the accountants in training courses in the environmental accounting.	4.54	0.75
Acknowledge the accountant on the latest developments in environmental accounting and its application.	3.91	
Increasing the number of employees in the financial sections to apply the environmental accounting.	4.40	0.79
<b>Total Field</b>	4.10	0.56

Table 3. The analysis of the respondents' opinions about the role of the availability of incentives for the application of environmental accounting

Phrase	Mean	SD
Imported assets customs exemptions to combat environmental pollution as filters.	4.21	0.85
Distinguished tax treatment for companies that are in the process of environmental accounting disclosure such as exemption or tax reduction.	4.34	0.81
Financial support or low cost finance for companies to reduce their cost of production, leading to increase the size of the company's activity.	4.53	0.75
Granting the company that uses technology that reduces the environmental damage a priority in the execution of governmental tenders.	4.01	0.94
Customs exemptions when importing environmentally-friendly production technologies.	4.22	0.88
Customs exemption on production machinery that reduce environmental pollution.	3.97	1.01
Reducing fees for government transactions for companies that utilize means of protection to reduce the environmental damage.	4.11	0.94
<b>Total Field</b>	<b>4.19</b>	<b>0.55</b>

Table 4. The analysis of the respondents' opinions about the role of legislations for the application of environmental accounting

Phrase	Mean	SD
Issuing legislative instructions that indicate the appropriate disclosure manner to solve the problems of variation in disclosure, such as disparities between the descriptive or quantitative disclosure.	4.02	0.72
The necessity of the existence of environmental laws and regulations, including financial and accounting dimensions such as disclosure and environmental reports.	4.35	.68
Issuing instructions to verify the extent to which the company carries out all needed activities to comply with environmental laws and regulations.	3.98	0.80
Issuing legislations to oblige the negative external impacts to the company for the accounting measurement	4.50	0.64
Amending the Financial Securities Commission's instructions to include the disclosure of environmental expenditures separately in the financial statements.	3.87	0.91
Assigning monitoring authority to verify the disclosure of environmental accounting information.	4.01	0.75
Issuing instructions to ensure cooperation between the Association of Chartered Certified Accountants and the governmental agencies in the field of environmental accounting.	3.99	0.82
Developing a legislation that imposes fines and additional fees on companies that are not disclosing their environmental costs.	4.55	0.61
Issuing instructions that emphasize the need to demonstrate what the costs borne by the company's of anti-pollution control costs resulting from the exercise of polluting production activities.	4.13	0.67
<b>Total Field</b>	<b>4.15</b>	<b>0.59</b>

Table 5. The analysis of the respondents' opinions about the role of the definition of the general framework of environmental accounting for its application

Phrase	Mean	SD
Providing a guide on the implementation and practice of environmental accounting.	4.40	0.65
The company provides databases for the application of environmental accounting.	3.90	0.75
Clarifying the environmental impact achieved in the accounting policies as in capitalizing environmental expenditures and accepted tax expenditures.	4.01	0.64
Clarifying the expenses of pollution control and dealing with its adverse effects	3.77	0.84
Clarifying the revenues generated from the process of recycling waste.	3.82	0.77
Reflecting the costs of pollution control on the total costs.	3.85	0.76
Taking into account the impact of environmental costs on the formula of profit.	3.74	0.80
Providing an environmental accounting system for the issuance of reports related to the cost of the environmental legal responsibilities and environmental costs.	4.45	0.62
Development of conventional costs systems to include environmental accounting.	4.02	0.63
Finding subsidiary information systems that suit with environmental accounting.	3.97	0.74
Aware the Association of Accounting Auditors with the importance and benefits of environmental accounting.	3.69	0.91
The need for criteria to determine the environmental accounting procedures.	4.35	0.65
<b>Total Field</b>	<b>4.00</b>	<b>0.49</b>

Table 6. The results of the null hypotheses study test

The hypothesis	Arithmetic Mean	Calculated T	The result of null hypothesis test
Competencies and accounting staff	4.10	36.310	Rejection
Incentives	4.19	22.234	Rejection
Legislations	4.15	15.603	Rejection
Framework and the general concepts of environmental accounting	4.00	31.750	Rejection