

GREEN ACCOUNTING

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ABSTRACT

Pressures on the earth's natural resources intensifies with the of economic growth in government. Surely the economy continues to grow, but the environment does not grow because the economy is dependent on that. Although production and trade and investments show a positive growth the environmental resources are declining Soils are eroded, temperature increases and greenhouse gas emissions the global economy with its continuous growth destroys environment as its host . In today's world economic the planning and development purposes is necessary and unavoidable. Planning should be done in a way that in order to achieve the profitable aims and do not damage the environment .Many environmental costs can be reduced significantly or even remove them by using better business decisions, in environmentally sound technologies (green industry) and redesigning processes and products (Reengineering). It has been proven attention to improved processes and products comply with the environmental requirements, provide competitive advantages for our products among customers . Environmental accounting comprises a set of activities that can increase accounting systems for identifying, recording and reporting of effects caused by environmental destruction and pollution. Environmental accounting based on economic and environmental implications and because of the lack of market-based values, its application requires a change in culture. Environmental accounting a somewhat offers the changes in the organization and more widely in the community.

Keywords: *Environmental Accounting, Environmental Costs, Culture, Decision Making*

Background:

Following the economic and business development in every part of the world, disruptive effects of human's economic activities on the environment were paid attentions to so that composing rules and principles for inhibition of destruction of environment initiated and one could say that this trend consisted of four time periods:

- 1- 1970s: In this period, the theoretical and explanatory discussions of environmental accounting were provided (Sadjadi and Jalili, 2005). The committee of accounting standard publicized the accounting standard no.5 in 1975 so as to help identify potential damages to the environment but due to problems of defining the amount of damage and environmental responsibility, there was a need for a new guideline and in 1980, the same committee publicized standard (8-9) in which costs of environment-polluting investments were defined so that environmental costs should be clearly defined to decrease the pollutions in pre-planned programs (Gholami, Gohari, Kiai Rad,2013). A federal law called "SuperFound" was passed as the general law of responsibility, reconciliation and environmental debts (this is one of the most significant passed laws on environmental issues base on which 1.6 billion dollars trust funds was allocated as cleanup costs of locations to which environmental damages have been made.
- 2- 1981-1990: In this period, revision of "SuperFound" was done and some discussions on the role of environmental accounting in elaboration of information for environmental activities were provided.
- 3- 1991-1995: This period included the development of environmental accounting, provision of associated reports in addition to probability of accounting such reports
- 4- Post-1995: In this period, the role of environmental accounting as an evaluation mechanism of companies in environmental domains were emphasized based on passed standards of official

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accounting authorities (Abdi and Eghdam Mazrae, 2006). In September and October, 1996, ISO14000 standards were published for supporting the environment. These ISO¹-14000 standards were pervasive which are called as “main standards”:

- ISO 14000 is to control and limit organizations’ environmental disruptions. This standard is flexible enough to match with every organization all over the world.
- ISO 14004 is a guiding standard for ISO 14001 in which requirements and details of ISO 14001 are examined. This guidance is used as requirements of environmental management and controlling environmental operations.
- ISO 14064 no.3, 2006: is associated with greenhouse gases and guidance on evaluation of statements of greenhouse gases
- ISO 19011: defines the auditing rules for both ISO 14000 and 9000. This ISO is a substitution for ISO 14001.

When a report called “Our Common Future” was published in 1987 by “Brundtland Commission”, the concept of stable development was emphasized in discussion of environmental issues compared with development and it was accepted by the union of international environmental development in 1980. The concept of stable development was discussed when environmental issues were the focus of political discussions and so, instead of acting as pressure for environmental changes, it functioned as a medium for supporting the environment. Based on the fact that improvement of environmental quality and economic development are potential matching and complementary objectives, stable development can reduce some tensions resulting from paradoxical tensions on development limitations during 1970s. A charter called “Guideline 21” or “Earth Charter” was published which should have been applied for stable development of different countries.

Multidimensionality of Stable Development:

Creation of a conceptual framework on the basis of which stable development is formed necessitates the acknowledgement of different aspects of stable development. Three aspects of stable development requiring special attention are: economic, political and epistemological aspects (Michael Redclift).

Economic Aspect:

As noted in discussion of environmental computations, previous discussions on economy were about demand and supply now and in future which closely associated costs of economic development with the environment. John Stuart Mill in a book called “Principles of Political Economy” emphasized the fact that: “If we attempt to maintain human well-being, we have to protect nature from unchecked development”

Political Aspect:

The aspect of political stability consists of two discrete but associated components: a power bestowed on human organization and a social structure both of which help to define the political processes by which environmental management is done and play a role in identification of the relationship between knowledge and power in consensual disagreement with international theory of environment and resources. In a condition in which the popularity of environmentalists is rising, provision of a set of complete and well-known social theories would be useful.

Epistemological Aspect:

Stable development is usually discussed without attention to epistemological issues. It is supposed that the method of data collection in the north is through applying scientific principles which is considered an academic epistemology (Michael Redclift).

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Environmental Accounting:

Before discussing this issue in accounting, since the reports composed in traditional manner didn't properly report environmental costs and as pressure of groups such as shareholders, government, consumers, investors and other entities for implementation of environmental accounting became a serious issue, the need for such a reporting method was felt. Environmental accounting is a trans-organizational and cross-group understanding of changes associated with societies and environment.

At the moment, different approaches of environmental accounting (EA)² exist. In operational accounting, accounting of nature and environment is considered as a branch of accounting science the activities of which are only associated with managers and investors. In operational accounting, EA functions are reduction of environmental costs, cover-up of environmental costs in distinctive expenditure area like overhead costs and inhibition of management's awareness of environmental costs and incomes while environmental accounting seeks through transparency of accounting tasks. So, EA implies tracking and identification of "Green" costs and incomes of products and services in accounting management either in the organization or based on responsiveness to the society and environment at large. Environmental accounting is highly favored in different countries and in international scale an example of which can be found in pervasiveness of ISO-14000 standards (Baigzade and Sadif, 2001). Environmental accounting demands a coherent perspective; analysis of energies and resources can provide a valuable viewpoint in creating demand for resources, energy and investment efficiency for such energy resources (Ecological Modeling, 2014).

Environmental aspects of accounting system, especially natural and vulnerable properties, can be called "Green Accounting".

Green accounting is a general term which includes environmental accounting, ecosystems and natural resources. But in addition, environmental accounting is also a general term because it means coordination of different aspects of environment either in small or large scale which has more potential for execution in small scale. Environmental accounting in its smaller scale implies entry into the discussion of financial accounting, reports accounting and accounting of environmental management. It is believed that accounting should be responsible in measuring, evaluating, disclosing and performance of environmental activities in financial statements or its annexes. There is no doubt that measurement of environmental performance depends on accounting systems but its fulfillment needs more information compared with common accounting information. Financial viewpoint towards environmental issues are not generally true but economists and accountants have to achieve the best estimations based on common techniques.

Environmental accounting is a popular term which is applied in different fields:

- Evaluation and disclosure of financial information associated with environment in the forms of reporting and financial accounting
- Evaluation and utilization of financial and monetary information associated with environment within the field of accounting environmental management
- Estimation of effects and consequences of external environment often called as "Full-Cost Accounting".
- Accounting flows and accumulation of natural resources based on monetary and physical values called as "Natural Resources Accounting".
- Collection and reporting of accounting information in organizational level in the form of accounting information of natural resources for the objectives of financial accounting (Marfo, 2007)

Environmental accounting in the level of business unit can be executed and give useful information to users of financial statements. In the level of business unit, it can provide information through accounting management and financial accounting .In larger national level, necessary information can be provided by accounting of national income (Kazemzade Ersi, 2001).

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Accounting of National Income :

In the level of general economy, environmental accounting is used to do the computations associated to costs of underground resources and flows of such resources. The provided definition of “national income” for doing computations of environmental accounts like GDP is an example of application of environmental accounting in macroeconomic level (Graff et.al, 1998).

Financial Accounting:

In the level of microeconomics or business units, environmental accounting can be used in financial accounting and provide requirements for disclosing environmental costs and debts. Users of financial reports conceive accounting reports as important in decision making and provision of public responsibilities.

Management Accounting:

The application of environmental accounting in management accounting is that business unit can use its undermining rules to measure the cost of materials and environmental costs for accomplishing its operational mission.

In the level of microeconomics, environmental accounting can also be applied in financial accounting and management accounting.

Objectives of Environmental Accounting:

- Highlighting environmental opportunities and limitation of overhead costs lacking value-added
- Estimation and measurement of environmental costs of companies and including them in overhead of the plant
- Definition of environmental opportunities for providing gross profit
- Installation and maintenance if an environmental information system for enhancement of operational management
- Defining future costs and efficiency caused by installation of an information system of environmental management
- Contribution of designing a green process of product/service development (Abdi and Eghdam Mazrae, 2006)

Environmental Costs:

Costs raised by committing to environmental rules and principles for a company such as company costs for correction and development of environmental quality, costs of acquiring equipment of controlling environmental pollution, fines and punishments of disobeying environmental rules and environmental protection. Companies have freedom in handling such costs. They can set the objectives of using environment as the basis of their operation and define which costs should be defined and categorized as environmental costs (Sadjadi and Jalili, 2005).

Identification of environmental costs associated with production in any company or organization is highly significant in management decisions. Achieving accounting objectives such as costs reduction, increasing income and enhancement of environmental performance demands potential environmental costs now and in future. In addition, defining environmental costs as distinct from others would be clearly done (Bathe, S, 2002). The method of definition and interpretation of environmental costs are of management duties the precision of which affects raising income and reporting of companies and organization.

Environmental costs of previous periods should be regarded as costs of previous periods and direct and indirect environmental costs of present period as current costs in addition to expected environmental costs bringing future economic benefits are defined as transfer cost (Burritt. R.,T. Hahn and S. Schaltegger, 2002).

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Achieving environmental objectives including costs reduction, rising income and improving environmental performance of companies would need attention to managing environmental costs now and in future. Although obtained revenue of companies are affected by environmental costs but a conception of environmental performance is the benefits obtained by such environmental costs the reporting of which is difficult with existing reporting structures so that most of the companies don't reveal environmental costs without their future benefits and reporting associated values. Although reporting environmental costs for retaining investment value would increase the wealth of the rich people, such costs can't be properly evaluated but difference in type of business in a green industry can affect the cost of shares due to popularity factor (C.M. Abraham & Social Abraham, 1991).

The term "environmental valuation" refers to two important aspects:

- 1- The costs which directly affect financial activities of company called internal, private or special costs.
- 2- Environmental costs for which the company is not responsible and by which no direct economic consequences for financial activities of the company are presumed.

Environmental costs are significant for management due to the following reasons:

- Most of environmental costs can be eliminated by decision to invest in more efficient green technologies or redesigning of processes and produced products because such costs might lead to no value-added in a system or product.
- More efficient management of environmental costs can improve the environmental performance of the company in addition to leading to significant benefits for the society
- Correct understanding of environmental costs and awareness of environmental operation of processes and provided products can result in improved valuation procedure contributing to companies to better design of green products and processes.
- It is been supported that providing better green products and processes will create competitive advantage among company products for the benefit of the customers (ESP, 1995; Sajadi and Jalili, 2005).

Costs undertaken by business unit include:

- Normal costs are costs of using resources and where included as environmental costs or not, it is necessary to consider them in management decisions.
- Essential or legal costs which are undertaken by the company due to acknowledgement of state rules and principles
- Initial environmental costs which are made before initiation of production process, operation tasks and system design using existing equipment
- Voluntary costs the undertaking of which is not for obeying the rules but they are considered for environmental improvement by a business unit or increasing company prestige among its customers.
- Potential costs are reconciliation or restoration costs caused by accidental release of environmental pollutants which failure in identifying them has led to attention to such associated costs in the system of management accounting and future decisions.
- Perceived/communication costs are those which are undertaken by the company to affect the conceptions of management, customers, employees, society and law makers including voluntary costs of environmental activities like growing trees (EPA³, 1995).

Information system of accounting is an essential part of management information systems which play an important role in contribution to environmental protection by polluting companies and acknowledging their role in undertaking environmental costs in addition to method of adding such costs to existing

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accounts. Such a system can contribute to disclosure of issues by accountants who can provide useful information for management (Cho C. Freedman and M Patten. D, 2009) .

Application of Environmental Accounting in Investment Decisions:

Business units develop their range of activity through investment in human and physical resources. One can say that long-term survival of a business unit depends on its investment choices. So, shareholders of business units expect minimum investment efficiency compared with that of competitors which put a pressure on business units to invest their capital in cases with higher efficiency.

If environmental costs are not properly calculated, analysis of investments in environmental improvement will provide useful information for the management in defining more investment in such cases compared with their associated cost. In order to calculate the initial results, the management of business units is obliged to identify and measure environmental costs in a systematic and constant manner (Sayed Fahim Nezhad, 2002).

Because environmental costs constitute the majority of operational and investment costs of business units, those business units which can reduce such costs will have significant efficiency. One of the special applications of environmental accounting for analysis of investments is “Total Cost Evaluation”. Such evaluation method is used by investors, especially environmental investors, to evaluate the potential benefit of investments in a more precise manner. This will not realize project profitability but leads to more transparency, precision and resolution in investment decisions (Hesabdar Magazine, no.185).

Application of Environmental Accounting in Designing Strategic Plans:

The potential benefit can be significantly affected by environmental costs and management procedure of such costs. Therefore, accounting considers environment as a strategic element of long-term success in a business unit.

Most of customers are increasingly asking for quality requirements of which environmental performance constitutes an inevitable part. Companies which produce mineral product have found profitable markets through production of green products so that product customers believe that they can affect the environmental quality of such products by their decisions.

This system coordinates data of environmental accounting in order to provide the information for better understanding of decision consequences. This information can be used strategically to facilitate advanced environmental performance (Shahveisi, 2005).

Environmental accounting provides distinctive services for managers of business units. The management can utilize environmental-accounting information in some of its internal decisions such as:

- Designing product and production process
- Performance evaluation and cost control
- Investment in fixed assets
- Waste management (Sadjadi and Jalili, 2005)

In Iran, companies are not well-acquainted with concepts of environmental accounting and they only set some environmental principles and rules (Shahveisi, 2005).

CONCLUSION

Nowadays, most of the companies face environmental issues and seek a proper method for reporting and disclosure of information for the public. The issue of environmental pollution has become one of the most important difficulties of humankind especially in Iran so that its capital is regarded as the most polluted world cities. This issue justifies application of environmental accounting as an effort to protect the environment.

Through establishment of a proper environmental accounting system, the accountants can be a powerful medium for the government in implementation of economic and financial controls. In this way, qualified professional groups can edit and regulate professional requirements especially standards of

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environmental accounting so as to make companies obey published rules. The government can use the correction of existing laws, passing new laws and assigning legal punishment for environmental-polluting companies to decrease the air pollution and associated authorities should think about institutionalizing a culture of obeying environmental rules in society. The issue of accounting environmental activities is valuable if considered as an independent activity and due to following a constant improvement pattern in the process of environmental auditing, the necessary feedback of accounting information system would complement associated auditing and provides the possibility of evaluation of manager's performance to realize constant improvement. On the other hand, trans-organizational financial reporting, regarding environmental performance, can predict the necessary costs and benefits of environmental programs and define management objectives for external users. Although some of the benefits of undertaking environmental costs are only qualitative and perceptually immeasurable, appropriate disclosure in financial reporting can impact a positive viewpoint among shareholders and capital market. This finally leads to an increase in P/E and daily increase of stock value which enhance the wealth of shareholders.

Due to the problem of lack of accounting information of higher precision in companies which manage their primary activity along with environmental activities, existence of an appropriate valuation system seems necessary. Nowadays, there is a new perspective regarding environmental consequences of profitable institutions which has created fundamental changes from product and process design to post-sale services. This is while the real value of natural resources such as air, water, etc. used in production of different products are not correctly reflected in final price of products and green industries produce same products in spite of undertaking internal environmental costs in comparison with non-green competitors. So, managers are not only responsible for efficiency and effectiveness of their institute activities, but they also should be responsive to environmental issues caused by such activities. A profitable unit has to be environmentally and socially responsible while fulfilling its economic missions.

Suggestions:

Although many different accounting information systems of environmental management have emerged, the innate difficulty of providing a monetary definition of environmental benefits and natural resources has caused no apparent development of green accounting information systems. Although development of capital market is accompanied with demand for valid financial information, there are a lot of policies for achieving Sustainable Development (SD) which should be confirmed. Implementation of such policies necessitates activities like evaluation of environmental effects, regions of natural resources and correction policies like pollution control, moving the location of industries and surveillance over their environmental activities. In this regard, preventive policies are more significant because such policies contribute to identification of disruptive effects of environmental resources so that industries start their activities with appropriate environmental mechanisms and environmental accounting is one of the most significant mediums of identification, detection and measurement in this regard. However, environmental accounting still faces different difficulties like lack of information support, expert employees and accounting principles. For example, this issue that in new decisions on economic activities from the viewpoint of environment economics, such activities should be based on social costs and benefits so that the external effects of such activities are considered and the polluting company should attempt to resolve them. Provision and surveillance of standards by international and state authorities are conceived as more-than-ever necessary.

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¹ International Standards Organization

² Environmental Accounting

³ Environmental Protection Agency