Study of the Importance of Mutual Interaction of Accounting and Environment and how it affects the Profitability of Economic Units

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Abstract

Relationship between humans and environment has been continually complex; human is both part of nature and independent of it. An overall view of science is that humans evolved through natural selection, but from the perspective of technology, humans shape the environment and at the same time they can observe and record it. This view contains a record of environmental and human impacts on the environment. Those who believe that human is anthropocentric and those who oppose this view both insist on environment protection, conservation of natural resources and particularly critical natural capital. (Akyns et al, 2003). The first purpose is to provide a theoretical justification for the accounting and reporting environment. In other words, this article aims to show why developing a comprehensive system of environmental accounting for enterprises is essential and why they should report results of this system to the shareholders. In this paper, it is assumed that companies should behave in a responsive and accountable manner to the community. Environmental accounting is a wide range of accounting knowledge. This approach that offers reports for internal use is environmental management accounting to contribute management decisions about pricing, controlling fixed costs and capital budgeting which its external application is to disclose environmental information of public interest and the financial community.

Keyword: economic units, accounting, environment

Review of Literature

With increasing environmental liabilities since the mid-seventies, companies were forced to disclose losses into the environment. The first step towards the formulation of standards was developed in 1975 by the Accounting Standards Board, which this organization published its issue No. 5 as disclosure of contingent liabilities and accrued ability to help identify environmental liabilities.

In order to complete the above standards in 1976, interpretation No. 14 was published by Accounting Standards Board as a reasonable estimate of the amount of a loss.

In 1976, increasing environmental damage forced the Congress to ratify Resource Conservation and Environmental Recovery Act to the request of community and followed by 1980, the federal law known as the law of liability, indemnity or environment liability was passed.

In 1990, Accounting Standards Board Issue released No. 8-90 entitled capital costs of pollution.

Why should we Perform Environmental Accounting?

Environmental costs is among several types of costs that companies incur to produce goods and services; and subsequently, environmental performance in today's world is one of the important criteria of measuring commercial success. Environmental costs and its performance has attracted the attention of managers for the following reasons:

1. Most of the major environmental costs can be significantly reduced or eliminated as a result of commercial decisions.
2. Environmental costs can be ambiguous in overhead accounts or not considered at all.
3. Many environmental expenditure can be removed by earning money through selling useless byproducts and receiving a certificate ((green technology)).
4. Better management of environmental costs can have development of environmental performance and the major benefits to human health and the success of the business.
5. Understanding environmental costs and performance of production process can lead to more accurate costing and more appropriate pricing and can help companies perform designing of goods and services production process with greater emphasis on environmental issues.
6. In terms of competitive aspect, goods and services that environmental cases are observed within can be preferred.
7. Environmental accounting and environmental performance can support a company's development and its operation in terms of Environmental Management System.

Although accounting is to reduce emissions of carbon dioxide and other pollutants promoted by the International Accounting Standards Board, it is certainly not enough (Cook, 2008).

Types of Environmental Accounting

According to the report of U.S. Environmental Protection Agency (EPA) provided in 1995, a broad term accounting environment is divided into three separate sections that its focus and each part's users is also different:

Column	Types	Focus of each part	Users
1.	Revenue management	Nationalities' national	Inter-organizational
2.	Financial accounting	Business corporates	Inter-organizational
3.	Management accounting	Commercial companies, product lines, managers of various parts	Inter-organizational

There are various ways and means for environmental accounting to meet these information needs for multiple users who require environmental information relating to the company. However, there are widespread agreement on two main groups of environmental impacts related to the companies.

- Impacts of company's environmental impacts on the corporates' economic system (monetary information)
- Impacts related to the company on environmental system (physical information)

Monetary and Physical Information

Environmental impact of companies on their economic system is reflected by their environment monetary information, while the company's impact on the environment is reflected by physical information.

Category one includes all environmental effects on the company's past, present and future of cash flows which is expressed in terms of monetary unit (Such as expenses related to producing greener products, expenses related to environmental crimes, ...).

Second category includes all materials and energy in the past, present and future impacts on ecological systems. Physical information is expressed in terms of physical units, such as kg, square meter, j, etc. (such as kg of materials consumed per client, the joule of energy used per unit of product):

Non-accounting principles required in the accounting environment include:

1 - Environmental Science
2 - Environmental laws and regulations
3 - Finance and Risk Management
4 - Policy management and control systems

The results of the environmental report is based on pricing in terms of complete costing and bio-accounting. There are three sets involved in environmental accounting:

1 - Senior executives of institutions: environmental policy is founded.
2 - Environmental Management at executive levels: environmental policy is to bring fulfillment.

3 - Environmental Employees: involved in huge decision for environmental control equipment.

Stages of development of environmental accounting in terms of matrix:

1970s: Descriptive methods used to implement common patterns,
1981-1990: The role of accounting in information disclosure related to environmental activities
1991-1995: evolution of environmental accounting in issues disclosure and launching environmental accounting,
1996: paying attention to the role of environmental accounting for environmental performance based on regulatory standards,
1997: creating environmental accounting framework in preparing accounting and reporting standards

Definition of Environmental Management Accounting

It is the production, analysis and use of financial and non-financial information related to supporting management within a company,

Environmental management accounting combines environmental policies, and policies relating to the business and thereby to create a sustainable business guidelines.

The concept of adaptation principle supports concepts of short-term coping strategies that causes loss of biodiversity through air, water and land pollution. (Sarah Vanatamo, 2004).

Environmental Cost Accounting (ECA)

Costing means using what is recorded by accounting science to evaluate directly products costs and processes. Environmental costing recognize a cost directly for each environmental case and specify the costs of types of related activities. The service provided by environmental costing accounting is that a way should be created to accurately identify business processes and allocation and appointment of current environmental costs should be removed or reduced and the actual products costs should be replaced.

Environmental accounting is implemented into two ways (Grinel and Hunt):

1. ABC method: (activity-based costing): that are seeking for organizational levels such as unit group of cost centers, storage products based on techniques and responsibilities
2. Quality cost framework that specify environmental costs in terms of quality, cost containment, assessment and internal and external weaknesses.

Interdisciplinary Approaches to Environmental Accounting

It requires multiple principles of one of the undeniable characteristics of environmental accounting.

1. It is primarily required that in general, policy and planning related to business, environmental policy should be adopted.
2. There should be some regulations to present environmental accounts and their reports.
3. To ensure compliance with environmental regulations and appropriate reporting by environmental accounting, audit is required.
4. There are need to educate students and future professionals for technical and legal bases and avoid narrowed-view in the basics.

Training Environmental Auditor

Environmental accounting has a decisive role and the capacity for environmental accounting reliance is many important. Principally, environmental scientists have first performed the audit process and they should consider environmental auditors separately from financial auditors for the development of regulations and this audition would specify level of reliance on regulations and then will be directed towards a higher level and rate of adherence to environmental controls will promote management. Assets and liabilities are reliable measure for the environmental impacts, thereby accounting for a clear picture of environmental performance are based on the accounting report.

Environmental Management

The task of environmental organization is to facilitate to achieve comprehensive development. The tasks of management to reach these goals are as follows:

1 - Reviewing and monitoring the environmental context of the changing business
2 - Identification of Sensitive Information
3 - Requiring changes in environmental performance and execution environment
4 - Authentication of transferring information to ensure compliance with regulatory directives

Role of Director of Environmental Affairs, which is now the main center for environmental management, include the following:

1 - Assessing, reviewing and monitoring the performance and environmental performance of companies
2 - Controlling regulatory requirements
3 - Implementation and management of the environmental management system
4 - Raising environmental awareness in the company

Environmental Management System (EMS), provided useful tool for the integration of environmental and business rules using the ISO 14001 standard tool. The system completed their performance through input and output in each system.

Results obtained from EMS include:

1 - Reducing emissions and waste
2 - Product design for the environment
3 - Energy efficiency and keeping it
4 - Opportunities for enhancing environmental impacts.

International Standards for Environmental Management

International standard for environmental management are included in ISO 14000. Compliance with these standards is voluntary. Environmental standards as part of a global initiative that took place in 1992 which its main advantages are:

1 - Inserting the standards of environmental performance beyond its control
2 - Founding the company in a way that is environmentally conscious.

Processes of setting standards of ISO 14000 includes the following:

- ISO 14001 as the basic framework of an environmental management system, makes practical environmental policy of the organization.
- ISO 14004, an index to implement ISO 14001 and a method to assess the environmental impact,
- ISO 14010 Guidelines for Environmental Auditing Matters
- ISO 14011 Guidelines for Auditing Process
- ISO 14012 qualification criteria for environmental auditors
- ISO 14020 environmental standards tag
- ISO 14040 Guidelines for environmental impact assessment of the production cycle.
- ISO 14041Set goals and objectives of Environmental Management System

Environmental accounting is how to deal with the environmental costs of errors:

Environmental cost errors has been designed in such a way to determine:

1 - What is the financial burden of environmental monitoring?
2 - What is its impact on the environment and society?
3 - What is the cost of the environmental impact assessment?

From a control perspective, four types of environmental costs can be identified:

Prevention, internal failure, external failure and evaluation

These costs reflect the following:

1 - The cost of preventing or correcting environmental impact of facilities or using facility,
2 – Prevention costs associated with correcting defects,
3 - The final control costs and avoiding frequent errors.

These costs are created due to little knowledge in the field of environmental standards, these costs can be a management tool and ubiquitous influence of appropriate application of fixing errors on the company includes the legitimacy of the responsibility of the company, building consensus and communication facilities.

Environmental Policy in the Face of Environmental Monitoring

General impression is that environmental policy should be tailored to the business strategy of the company. Environmental accounting, like financial accounting, is created from an environmental design and control budget is established for it, and followed by studying its performance, an environmental audition would be done in terms of environmental impacts. The company is left to its own by imposing auditing standards to set standards for its performance without intervention (in fact, if there is no monitoring, companies will not fully implement environmental laws).

Do nations should combine economic role of environment with national accounts or not? (An issue which was investigated in 1960). Governments around the world equipped themselves to well-known economic data systems of national income accounts to calculate macroeconomic indicators such as GDP. One weakness of this system is that the cost cannot be identified to protect the environment. It is a misleading fact that some of the environmental goods would not be on sale despite providing some of the economic value. For example, firewood collected in the forest, meat and fish prepared for herbs consumption. Although some countries actually calculates such goods in national income accounts, but there is no standard way to do it. Also, the evaluation of environmental services such as aquatics that are provided by the forest and fertilizing agricultural crops by insects is difficult.

Usually no economic value or worthlessness of such services will not be count. Another problem is the depreciation of natural capital. For example, a building or vehicle is depreciated in accordance with the principles of commercial accounting while all natural capital as income is considered. Thus, state accounts that indiscriminately exploits its forests show high income for several years, but do not count loss of assets i.e. fertile forest.

How Environmental Costs should be calculated?

In this section, some of the methods that are currently used will introduce:

Natural Resource Accounting: this accounting includes data from natural resources and changes that are caused by natural processes or human use. Such accounts typically form agricultural land, fisheries, forests, minerals, oil, and water. Evaluation of flows value, when the goods is sold in the market, is relatively easy, but evaluation of changes in the reserves is more difficult, because these changes may be occurred due to physical changes in the resources or because of market price undulations. This analysis is more difficult about environmental goods that sale plays no role in them.

Outsources Accounting

National Accounting Matrix include Environmental Accounts that have been developed by the Dutch. The matrix makes accounting in the form of a table that can detect emissions by economic sector (EUR acetate). Statistical branch of EU helps benefit from this method as part of environmental accounting program. Physical data in national accounting matrix system is used for evaluating the impacts of different growth strategies on environmental quality. These data can be separated from the type of these contaminants to specify its effects on the state's internal environment or didactics and the environment of all the globe.

Value of Environmental Goods and Services not Offered to the Market

The question is whether values related to environmental goods and services not offered in the market, such as non-contaminated lake interests or a spectacular landscape, will be involved in environmental accounting or not? In one hand, value of these materials will be valuable if these calculations are used to evaluate balance between environmental and economic goals. If not, these accounts can reflect costs of environmental protection, without reflecting its interests. On the other hand, some people feel that measurement of an activity is a framework that acts beyond common accounting and should not be directly associated with national accounts. The main concern is that it is difficult to standardize evaluation methods.

Green GDP: Many people who are involved in creating environmental accounts estimate it low, because there are no standardized methods for environmental accounting and a green GDP may have a different meaning in each project that calculates it. Therefore, values among countries cannot be compared to each other. Besides, while a green product can help problems in the policies, it is not useful to solve these problems.

Role of Environment in Corporate Analysis

Environmental issues is less considered by investment visitors, for they regard it as a non-financial issue. As a result, this issue has a less impact on the process of evaluating companies. Most analysts believe the environmental impacts on company's assessment will be important for the next 5 to 10 years. Whether this approach will lead to fundamental changes in the company's analysis will depend on this issue in that whether companies will play the main role that environment have in their performance, profitability and future growth.

Regulations for Environmental Protection

These regulations deal with environmental damage and environmental protection,

1 - The Law of Conservation and retrieving 1976
2 - Clean Air Act
3 - Clean Water Act
4 - Law of Planning and Community Right to Know
5 - Substance Control Act

First Act regulations for hazardous waste from the production stage to sell.

The second rule for sources of air pollution, which has a central monitor.

Third Act provides regulations about water pollution sources that restricts discharging polluted water by companies.

Fourth act requires companies that have defined amounts of hazardous substances to respond to the emergency call.

Fifth act of production, processing substances and distribution in chemicals commerce and compounds that are able to adversely affect health and environment.

Audit of Environmental Issues

International Chamber of Commerce defines Environmental Audit as: careful study of the interaction between the activities of each business unit includes all materials published by the surrounding air, land and water, Regulatory restrictions, the impact on the neighboring community, landscape and understanding environment and public understanding to the company that the area is activate in.

Types of Environmental Audits

1 - Compliance Audit that ensures the company will handle all environmental regulations.
2 - Systems auditing: it regards this issue that how these systems are used internally to manage environmental risks.
3 - Exchange Auditing and transfer of property: it is used in buying properties and reduce or identify potential risks that are involved in these properties given the environmental risks.
4 - Audition of production facilities: Storage and sale to intercept risky materials throughout the lifecycle, from source to destination, is used.
5- auditing that considers its preventive measures and amount of that risk can be reduced if the company incur by applying that measures.
6- auditing that determine the amount of related debt and costs achieved from environmental costs.
7-auditing that evaluate production process by itself to ensure that these products create certain requirements.

Tax on Waste and Scrap

Tax on waste and the one that recently imposed on scraps is an important tool in the movement to prevent becoming scrap into waste and increasing replacing first hand or second hand wastes or recycling. Waste tax was introduced to minimize waste and encourage ongoing management of waste. There are two different types of rates for this tax to distinguish inert wastes from mobile ones. Inert waste includes materials such as dirt, concrete, bricks and mobile wastes that breaks down, such as wood, paper and cardboard.

Tax rates is lower for inert wastes given their less importance, but they will determine higher for mobile wastes that have more ability to contaminate and more recycling. Apart of taking taxes, states want to achieve their goals in the recycling of municipal solid waste. These taxes may be increased by an additional rate which are applicable for all controlled waste that go to landfill.

So the economic impact will be felt equally by all local authorities and manufacturers of industrial and commercial waste, and this tax will bring in directly to waste account, whether these wastes convert to waste or not,

Accounting standard of sustainable development: Financial Reporting Standards No. 12 and International Accounting Standard No. 37:

Costs of prevention, control and prevention of materials to water and air and management of waste are considered as working costs. Some of the environmental costs are separate and are easily recognizable, but some others should be reasonably evaluated.

Financial Reporting Standards No. 12, UK and International Accounting Standard No. 37 which its annexes are related to environmental issues and accounting and emphasizes on the significance of environmental considerations.

According to the standards, reserving liabilities for the estimated future costs that their time or amount are not certain, and owned and contingent liabilities that require some future event, for example, potential environmental liabilities could be related to pollution cleanup costs and claims related to compensation of costs or closing the factory.

Financial analysts expect that companies should have such reserves in their accounts and debts. In all UK companies, there is standard reporting 12, but standard 37 is adopted voluntarily. Before introducing standards 12 and 37, a company's debt is only determined by its legal regulations. This requirement is supported by its standards. For example, if mining wall is collapsed, it will hurts the environment. If it is stipulated under the agreement related to company that the damages to the land will be compensated at the end of operation, conditions for compensation should be involved in the report. It has been emphasized in both standards 12 and 37 that company should apply the rule that implemented immediately after the end of fiscal year.

Reserves Accounting in Case of Damage

Other changes introduced by 12 and 37 requires establishing a legal condition when there is a required damage. For example, building an oil rig may create legal obligations to restore sea bed after wrecking the rig. In the past, a company could compensate costs of dismantling long-life assets over their business operations, but today there is no longer possible; the company should calculate the costs of its dismantling during building the rig.

Assessment Based on the Best Estimates

In the time of calculating debts, there may be uncertainties due to the impact of a range of existing technologies in the field of pollution cleanup. Uncertainty is not an excuse to be used as a pretext for refusing to report for potential liabilities. Standards 12 and 37 indicate that a company should provide best reasonable estimates from the costs required for reintegrating a commitment and indicate its details in related notes. Standards indicate this point that where the effect of time value of money is raised, calculations should be based on the present value of the expected costs and allow to reflex discount and pre-tax rates and value evaluations would be current market's risks.

Exchanging of Waste and its Impact on the Financial Statements

UK companies have agreed to reduce their waste during 5 years that this plan is implemented and receive financial incentives to receive it. This plan reflects real assets and liabilities that potentially affects both reported earnings and shareholder value. Currently, about 6,000 companies in the UK have contracted, which receive bonus or penalty based on the amount of emissions into the environment directly or indirectly.

Reporting frame of this issue means that assets may arise from the conferred benefits and debts may be resulted from requirements related to reducing wastes and their emission restrictions. In addition, revenues and expenses, respectively, may be obtained from buying or selling stocks or fines.

Disclosure: Indicators related to the disclosure of financial information and financial disclosure regarding environmental obligations. Some information related to financial statements while others should be disclosed somewhere in the Annual Report. The recommendations call for information on policies and programs related to environmental protection measures and will encourage more disclosure in their annual report due to integrating documents. However, environmental costs should be disclosed separately.

Annual reporting process benefits many financial interests helping to ensure that using resources and emission of waste materials are assessed and managed.

Conclusion

Environmental accounting include manufacturing, financial analysis and use of information related to environmental financial issues for economic and environmental performance of the company. The aim is to establish a clearer relationship between financial and environmental performance and integrate environmental sustainability into the culture and organizational performance and providing the information necessary for decision makers to reduce costs and business risk and create value added. Environmental accounting can provide a mechanism to disclose aspects of environmental performance of an organization and its hidden value through more complete and clear accounting and reduce the impacts and increase profits.

Economic savings form only part of the business case for sustainable development. More value relates to invisible benefits that are linked to social and environmental responsibility. Of non-tangible benefits are the value of its brand and reputation, ability to attract and retain the best people, the higher productivity of labor, etc.

Environmental accounting tools specifically for the accounting industry (which include both social and environmental influence) can help financial managers to be responsible for the growing volume of legislation and voluntary measures

Resources

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