

A look into the need for Environmental Accounting and Reporting: A Conceptualization

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Abstract

Environmental pollution by organizations has become one of the major treat to individuals' wellbeing and therefore become highly concerned to global nations. The pollution involves; air, water, land and underground pollution which endangered and threatened species, oceans, atmosphere and land mass. The organizations concerned pay less attention to their treats in their social responsibility and the reporting of such responsibility in their annual reports. Therefore this study seeks to provide the mechanisms in environmental accounting and the need for its reporting by organizations concerned. The mode of the study is conceptual, hence utilizes materials from journal articles, internet and related publications for the topic. The study started with introduction before moving into the main text where; phases of environmental accounting, function and role of environmental accounting, basic dimensions of environmental accounting, structural elements of environmental accounting and role of professional in environmental accounting and reporting were discussed. The study concludes that manufacturing organizations are polluting the environment, and there is need for them to report their activities of compensating the environment as part of their responsibility in their annual reports.

Key-words: Environmental pollution, Environmental accounting, Environmental cost, Environmental Reporting

Introduction

Organisations especially manufacturing concerns are polluting the environment hosting them for their productive activities. This ranges from air, water, underground pollution, drinking water, land and habitat for endangered and threatened species, oceans, atmosphere, land mass to mention but few (Yakhou and Dorweiler, 2004). This therefore calls for public attention on

environmental issues due to activities of some organisations. The companies involved concentrates now on the hosting communities by expending relatively huge costs on environmental and social issues as part of their Corporate Social Responsibility (CSR) which supposed to be accounted for transparency. The number of companies and other organizations solidifying their environmental approach and developing business activities that take the environment into consideration and encompass environmental conservation efforts continues to increase. Efforts made in environmental accounting comprise a part of these environmentally-conscious business activities. Environmental accounting data is not only used by companies or other organizations internally, but is also made public through disclosure in environmental reports. The disclosure of environmental accounting data as one of the key elements in an environmental report enables those parties utilizing this information to get an understanding of the company's stance on environmental conservation and how it specifically deals with environmental issues. At the same time, a more comprehensive grasp of the companies and other organizations' environmental information can be obtained EAG (2005). The appearance of environmental problems impacts every area of science globally, as a result, accounting has to answer these challenges as well, one way of which is environmental accounting. From this range of environmental impacts, multiple disciplines are needed for analysis of effects, and for integration into management decisions and accounting reporting. Non-accounting disciplines needed include: (i) environmental science, (ii) environmental law and regulation, (iii) finance and risk management and (iv) management policies and control systems. The range of environmental costs, energy and material use and waste disposal, insurance and fines and penalties, shows participation of multiple disciplines, along with accounting sub-disciplines (Yakhou et. al, 2004).

The objective of this study is therefore to identify the need for Environmental (Green) Accounting and reporting as well as the various concepts relating to it.

Main Text

The concept of environmental accounting first appeared in the specialist literature about a decade ago. Environmental accounting, as defined by Environmental Accounting Guideline (EAG) (2005), aims at achieving sustainable development, maintaining a favorable relationship with the community, and pursuing effective and efficient environmental conservation activities. These accounting procedures allow a company to identify the cost of environmental conservation during the normal course of business, identify benefit gained from such activities, provides the best possible means of quantitative measurement (in monetary value or physical units) and support the communication of its results. Environmental conservation is defined as the prevention, reduction,

and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities. The environmental impacts are the burden on the environment from business operations or other human activities and potential obstacles which may hinder the preservation of a favorable environment EAG (2005).

According to the definition made by Schaltegger and Burritt (2000), “Environmental accounting is a branch of accounting that deals with activities, methods and systems; recording, analysis and reporting; and environmentally induced financial impacts and ecological impacts of a defined economic system.” Environmental accounting is that part of the development of accounting where non-monetary, physical and quality factors already receive great emphasis. Environmental (green) accounting comprises two sub-systems, one of them (environmental accounting) deals with the financial effects induced by environmental protection, i.e., environmental expenditures and savings, and the other one (ecological accounting) deals with the environmental impact of the economic activities of a company, i.e., with figuring to what extent the natural environment undergoes change as a result of the operation and activities of a company (Pál, 2011). The sub-systems of environmental accounting are the following (Csutora and Kerekes, 2004): in the focus of environmental management accounting is the collection and analysis of pieces of information derived from environmental costs and other costs and the preparation of internal analyses as well as the supporting of the rational decision making of management. Internal ecological accounting emphasizes the analysis of changes that occur in nature as a result of corporate activities. Environment financial accounting prepares reports for external interested parties about environmental obligations and expenditures of the company that have an effect on the financial position of the company. External ecological accounting, similarly to internal ecological accounting, takes into consideration the environmental impact and prepares reports from these data.

It is imperative to note that Environmental Accounting is a subset to Social Accounting. This is because Social accounting is a communication process, which mediates the social and environmental effects of the business activity of an organisation, with an emphasis on the transparency of the organisations (Brown et al., 2006). Environmental accounting on the other hand embodies a type of research and practice, which focuses on the effect the organisation, has on the natural environment and the effect the environment has on the organisation. All of this may be interpreted and expressed in terms of financial and physical units (Schaltegger – Burritt, 2010).

The Phases of Development of Social and Environmental Accounting

After clarifying the concepts, it becomes obvious that the historical summary should be started by examining the path of the development of social accounting. Based on the professional

literature it may be established that the following main phases of development may be distinguished in the course of the development of social accounting (Adams, 2004; Mathews, 1997; Eugénio et al., 2010; Gray et al., 2008; Parker, 2005; Perego, 2005).

Evolution: Increasing awareness of social accounting began in the 1960s (Gray, 2002; Dillard et al., 2005), first evolving in the areas of corporate ethics, social responsibility and ecological issues (Loew et al., 2004). In the 1960s the major environmental disasters encourage people to pay more attention to the environmental impact of human activity (Loew et al., 2004; Parker, 2005).

In the beginning: Interest in the topic increased (in the 1970s), but there is still a certain decline expressed in terms of questioning the role of accounting and the merits of publishing information about environmental activity.

The new wave: The natural disasters of the 1980s (e.g. Exxon Valdez) increase interest in the topic, because corporate activities are now causing problems on a global scale. Intensive development is also prompted by the fact this was the time when specialized accounting periodicals first appeared. This is the period when environmental accounting first starts to separate from social accounting.

Maturation phase: In the 1990s, the awareness of environmental accounting within social accounting increases and becomes a key topic of research, gaining recognition within accounting research.

Environmental accounting today: Environmental accounting helps measure environmental performance, which is closely tied to the social role played by companies. From a business perspective, more and more interest is being expressed in understanding, measuring and managing environmental costs and revenues.

Necessity of Environmental Accounting

Environmental Accounting Guidelines (2005) asserted that, the quantitative management of environmental conservation activities is an effective way of achieving and maintaining sound business management. In other words, in carrying out environmental conservation activities, a company or other organizations can accurately identify and measure investments and costs related to environmental conservation activities, and can prepare and analyze this data. By having better insight into the potential benefit of these investments and costs, the company can not only improve the efficiency of its activities, but environmental accounting also plays a very important role in supporting rational decision-making.

In addition, companies and other organizations are required to have accountability to stakeholders, such as consumers, business partners, investors, employees, local residents, and administration, when utilizing environmental resources, i.e. public goods, for their business activities. Disclosure of environmental accounting information is a key process in performing accountability. Consequently, environmental accounting helps companies and other organizations boost their public trust and confidence and are associated with receiving a fair assessment.

Functions and Roles of Environmental Accounting

The functions of environmental accounting are divided into internal and external functions as stressed by EAG (2005).

(1) Internal Functions

As one step of a company's environmental information system, internal function makes it possible to manage environmental conservation cost and analyze the cost of environmental conservation activities versus the benefit obtained, and promotes effective and efficient environmental conservation activities through suitable decision-making. It is desirable for environmental accounting to function as a business management tool for use by managers and related business units.

(2) External Functions

By disclosing the quantitatively measured results of its environmental conservation activities, external functions allow a company to influence the decision-making of stakeholders, such as consumers, business partners, investors, local residents, and administration. It is hoped that the publication of environmental accounting results will function both as a means for companies to fulfill their responsibility for accountability to stakeholders and, simultaneously, as a means for appropriate evaluation of environmental conservation activities.

The concerns that stakeholders hold regarding the environmental information of companies and other organizations vary according to the stakeholder. Investors, business partners, and financial institutions focus their concerns mainly on corporate value viewed from the perspective of the financial aspects of the company or other organization. Consequently, they are concerned with issues such as effective investment of environmental conservation cost, whether the results of that investment are sufficiently in line with initial plans and are comparable with trends at other companies, and whether latent environmental risk, which can have a serious effect on future corporate value, is being dealt with sufficiently. Stakeholders such as consumers, local residents, and environmental NGOs may be expected to analyze environmental accounting data from the

perspective of issues such as the management of hazardous substances, the existence of proactive environmental activities and their results, details about latent environmental impacts and preventative measures, and other social responsibility issues.

Investors and financial institutions tend to use general, integrated information as the basis for decision making, and examine detailed information as necessary. Consumers and local residents, on the other hand, are particularly interested in pending issues. Furthermore, while in the past investors took an approach that mainly focused on the financial aspects of a company, recent years have witnessed an expansion in “Socially Responsible Investing” (SRI), and SRI-related areas of interest continue to increase.

At the same time, the people within the company, such as managers and employees, are involved in a broad range of financial and environmental aspects. For example, managers can be expected to analyze environmental accounting information from the standpoint of increasing corporate value, which is the basis for comparison with companies in the same business sector, and also for preventing the occurrence of major environmental problems that create a hindrance to improvement of corporate value. Employees are of course concerned with corporate social responsibility and increasing corporate value, but in addition they are concerned about the stable growth of the organizations to which they belong, ensuring their own employment and wage earning, and maintaining environmental safety at their workplace.

Basic Dimensions of Environmental Accounting

(1) Relevance

Environmental accounting should provide valid information related to a company's environmental conservation costs and benefits from associated activities which contribute to the decision-making of stakeholders. The goal is to provide information beneficial to stakeholders in their decision-making.

a. Materiality and Significance

Consideration should be given to the materiality and significance of relevance. In environmental accounting, materiality is placed on the aspects of quantity and significance is placed on the aspects of quality. From the standpoint of the materiality, consideration is given to the quantitative impact of data that is expressed in monetary value or physical units. The significance focuses on the quality of information from the standpoint of environmental conservation or the future impact that it carries.

(2) Reliability

Environmental accounting should eliminate seriously inaccurate or biased data and aid in building the trust and reliability of stakeholders.

a. Faithful Representation

When disclosing environmental accounting data, it should be represented accurately, faithfully. In addition to the fact that the information must be accurate and without error, it must represent the costs and benefits that could be reasonably expected to represent without misleading.

b. Substance over Form

Information disclosure should not just be a mere formality of following steps laid out within these guidelines. When necessary, the company should determine an appropriate method of disclosure which conforms to and accurately describes the actual environmental activities being conducted.

c. Neutrality

Information that is disclosed taking a fair and impartial stance. A fair and impartial stance is when the company avoids the arbitrary selection of information or intentionally direct readers toward a given conclusion.

d. Completeness

The scope of environmental accounting should extend to all material and significant information for all environmental conservation activities.

e. Prudence

Information that may be vague or unclear should be handled carefully and the nature, scope and grounds on which it is based should be made clear. Careful selection is necessary in regard to projected results and predicted comprehensive impact. If these results or impacts are disclosed then the premises and reasoning behind this information should be clearly stated to prevent any misunderstandings by stakeholders.

(3) Understandability

By achieving understandability of disclosure of necessary environmental accounting data, environmental accounting should eliminate the possibility of any mistaken judgment about the company's environmental conservation activities. To ensure that the disclosed information is easy to understand for stakeholders, wording should be made as simple as possible. No matter how complex the content might be, it is necessary to disclose all essential information.

(4) Comparability

Environmental accounting makes it possible for a company to make year-on-year comparisons. Information provided should be comparable with different companies in the same sector. There are two methods for comparison: term, comparison of identical companies or organizations, and comparison between companies in the same business sector. It is essential that comparability be ensured when environmental accounting information is disclosed so as not to create misunderstandings amongst stakeholders. Nevertheless, due to the fact that environmental accounting information spans independent and divergent categories, simple comparisons are difficult when there are differences in the business sector, type of operation, or activities engaged in by the businesses.

(5) Verifiability

Environmental accounting data should be verifiable from an objective standpoint. Verifiable information is data for which the same results can be obtained when using premises, standards, and methods identical to those used by the party which created the data.

Structural Elements of Environmental Accounting

Environmental accounting as defined under Environmental Accounting Guidelines (2005) consists of the following structural elements with the purpose of attaining two types of benefits derived from costs incurred from environmental conservation activities during the regular course of business.

(1) Environmental Conservation Cost

Investments and expense related to the prevention, reduction, and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities are measured in monetary value.

Investment amounts are expenditures allocated during a target period for the purpose of environmental conservation. The benefits from these investments are seen over several periods and are recorded as expense during the depreciation period (the amount of depreciable assets recorded during the period).

Expense amounts refer to the expense or losses recorded under financial accounting standards resulting from the consumption of goods or services for the purpose of environmental conservation. Depreciable assets are assets that progressively lose value either through use or the passage of time, and which therefore necessitate the allocation of cost. With the exception of land or construction suspense accounts, investment amounts include tangible fixed assets such as buildings, structures, and machinery and equipment, as well as intangibles such as goodwill, patents, software, etc.

(2) Environmental Conservation Benefit

Benefits obtained from the prevention, reduction, and/or avoidance of environmental impact, removal of such impact, restoration following the occurrence of a disaster, and other activities are measured in physical units.

(3) Economic Benefit Associated with Environmental Conservation Activities

Benefits to a company's profit as a result of carrying forward with environmental conservation activities are measured in monetary value. The environmental conservation cost in EAG (2005) is the cost borne by companies and other organizations for environmental conservation (i.e., private cost). They do not include costs borne for health damage or environmental pollution suffered by third parties or society as a whole resulting from the business activities of companies and other organizations (i.e., social cost). There has been much research into the concept of social cost, but generally speaking it can be taken to mean the burden placed upon society as a result of the environmental impact of a specific company or other organization, or of an unspecified entity. Social cost is also referred to as "external cost" or "external diseconomy". For example, health damage suffered by a third party or damage caused to forests or agriculture due to environmental impact resulting from the business activities of a company or other organization will not result in a direct economic burden for that company or other organization provided that there is no proof of a causal relationship. Nevertheless, society as a whole may be considered to have sustained a loss.

Problems hindering Environmental Accounting Recognition and Reporting

Although greater attention is slowly paid to environmental issues in accounting education in many high-ranked universities, yet the general impression about the implementation and application of the Environmental Accounting and Reporting in real life is lagged far behind (Abdel-Rahim & Abdel-Rahim, 2013). This lag stems from two main causes as opined by Liu (2009):

(1) Lack of or incomplete understanding of the environmental and social impacts of EA&R and

(2) The shortage of necessary accounting and auditing tools and procedures to implement the Environmental Accounting and Reporting in real applications.

In regards to accounting profession, there are paramount 4 reasons for the lack of Environmental Accounting and Reporting adaptation:

(1) The profession has failed to maximize its potential for leadership;

(2) The sufficient expertise to participate in environmental partnerships remains undeveloped;

(3) The attestation to environmental reports is still not regarded solely as an accountant's function and

(4) The official standards with respect to most Environmental Accounting and Reporting issues and/or verification engagements continue to be lacking (Diaconu, 2009).

Stevenson's survey (2002) indicated that accounting educators feel that their willingness to teach environmentalism is impeded due to students' lack of awareness of environmental issues especially in their early studies. In the 1980s, the literature focused on reporting issues that were specifically concerned with Health, Safety, and Environmental (HSE) reporting. Currently, very few countries worldwide have any substantial Environmental Accounting and Reporting requirements. Furthermore, up-to-date, the different and diverse regulations and restrictions are neither well-defined nor accepted in a global or at least regional sense, and hence there are no standardized formats for the presentation of environmental information, either in stand-alone reports or as components of annual reports.

The way out to the problems hindering the Recognition and Reporting of Environmental Accounting

To bridge the gap between the educational aspects of Environmental Accounting and Reporting (EA&R) and its real application, the following steps are proposed (Abdel-Rahim & Abdel-Rahim, 2013):

- (1) The formation of EA&R agencies or societies to be in charge of:
 - (a) Studying and reviewing the huge scientific and case studies in available open and documented literature on EA&R;
 - (b) Unifying common global or regional EA&R aspects and terminologies;
 - (c) Designing standardized formats and templates for EA&R;
 - (d) Setting starting points and directions for the educators, governmental, environmental, social and managerial personnel for adapting the EA&R.
- (2) To establish necessary legislature for implementing and assessing the EA&R in corporations reports.
- (3) To define and stipulate the recognition and evaluation of liabilities for environmental remediation.
- (4) To enhance taxation policies for the inclusion of EA&R incentives. The abovementioned points show the importance of the EA&R and that its implementation is becoming a growing issue in many countries, as explained in the coming section.

EA&R Implementation Awareness:

Many countries have their own policies for the implementation of EA&R: One method for holding businesses responsible for their behavior is to require them to report on their actions. The level and breadth of business reporting on environmental matters have increased dramatically over the past 20 years or so as a result of governmental regulations, accounting standard setting, and voluntary reporting (Abdel-Rahim & Abdel-Rahim, 2013). Today, external reporting on environmental performance occurs primarily through Pollution Release and Transfer Registers (PRTR), as components of traditional financial reports or in stand-alone, corporate environmental reports (Chertow and Lombardi, 2005).

The need for corporate reporting of its environmental as well as financial performance has some practical potential in providing a greater degree of visibility to its environmental activities and consequences and casting light on what is often invisible to both governmental as well as concerned social groups. It is also important to recognize that visibility is not the only possible consequence of corporate reporting in this area, but rather its future prospects for sustainability and development. Indeed, it is possible that such reporting can either spare or even reduce what is known as negative effects and liability consequences about a company and its environmental activities. Also, companies are interested in the possibilities for environmental reporting to increase their legitimacy and spread in the wider world (Chertow and Lombardi, 2005).

Stand-Alone EA&R Implementation:

Currently, there is not any country that has official regulations in place requiring companies to issue a company-wide, stand-alone report on their environmental performance that can affect zonal, regional and global communities. In legislation introduced in 1989 in Sweden, all operations sites that require special permits due to the presence of environmental hazards must submit an annual environmental report to the authorities (Abdel-Rahim & Abdel-Rahim, 2013). Since 1996, companies in Denmark with significant environmental impact have been required to publish a “green account”, detailing significant consumption of energy, water, and raw materials. The Netherlands, in 1999, began requiring that companies with substantial environmental impacts produce environmental reports for both the government and public on identified operating sites. The contents of the government report, which are verified by governmental authorities, are specified to include information on emissions, soil pollution, soil clean up, and the company’s environmental policy, CRISP (2003). The number of companies which voluntarily issue stand alone reports that include environmental performance information have been increasing as has the diversity of the types of reports issued. Many reporting companies prepare a HSE report; however,

in recent years, companies are also focusing on social issues. A survey conducted by Maasland KPMG (2002) analyzed the level of reporting health, safety, social, and/or environmental issues by the top 250 companies in the Global Fortune 500 (GFT 250) and the top 100 companies from 19 countries. This survey has showed that most companies have prepared a Health, Safety and Environmental report.

EC Mandated Environmental Accounting Annual Reports:

Information included in traditional annual financial reports is mandated by many national governments, accounting standard-setting bodies, and stock exchange regulatory agencies. In the realm of environmental disclosure, intervention by governmental or profession regulators is necessary since, critical scholars (Gray and Milne, 2004) argue that voluntary ER will just not work. Second, the most pressing “accounting issue” related to EA was the disclosure of potential liabilities associated with environmental clean ups. Currently, a company that is subject to the Annual Accounts Act (AAA) is required to include in its directors’ report, disclosures on the environmental impact of the company’s operations as well as the use and disposal of its products. Additionally, firms are to report those measures in place to prevent or reduce their negative environmental impact, as well as their energy and raw materials usage. In May 2001, the EC published a recommendation encouraging member states to promote increased levels of issues of recognition and measurement of environmental liabilities, assets, expenses, and contingent liabilities to form an integral part of a company’s policies and its environmental protection improvements, resource consumption, and emissions. Further, beginning in 2004, companies had to disclose certain non-financial information including information related to environmental matters so that annual report users may gain an understanding of the company’s development, performance, or position in its industry (Hibbit and Collison, 2004; PwC, 2004). The statement applies to all companies whose financial position and results are impacted by environmental issues (PwC, 2004). In May 2005, the UK Accounting Standards Board (ASB) issued Reporting Standard 1: Operating and Financial Review (OFR). The standard requires the preparation by company management of an OFR as part of its annual report and accounts beginning with fiscal years ending on or after April 1, 2005. The standard requires the inclusion of information about environmental matters where appropriate. The implementation guide accompanying the standard acknowledges that the appropriate level of disclosure on environmental matters is industry-specific, but suggests that, minimally, all companies face issues associated with water and energy use, waste, and climate change (ASB UK, 2005). The Modernization Directive 2003/51/EC mandate that by 2005 all EU member states require listed companies to prepare their financial reports in accordance with international

accounting standards. Australia also has recently passed legislation related to mandatory environmental reporting within annual reports. In summary, the level of mandatory environmental disclosures in traditional annual reports has increased dramatically in the past ten years.

Role of Profession in EA&R:

Gray and Milne (2004) have characterized current EA&R as virtually meaningless. For the auditor, the vision is an understanding of environmental management controls, processes and systems, which will enable him to provide a true verification of environmental accounts. In three significant ways, the profession has failed to maximize its potential for leadership:

- (a) Sufficient expertise to participate in environmental partnerships remains undeveloped;
- (b) The attestation to environmental reports is still not regarded solely as an accountant's function and
- (c) Official standards with respect to most EA&R issues and/or verification engagements continue to be lacking (Beets and Souther, 1999).

Engineering firms are more directly involved than public accountants in many processes related to ER. The Modernization Directive of the EU and the OFR standard in the UK mandate environmental disclosures in annual reports. These annual reports are required to be subjected to attestation by public accountants. As more standard-setting worldwide bodies require the inclusion of environmental performance information in annual reports, public accountants will need to develop the necessary expertise to audit these disclosures. In recent years, major public accounting firms have advertised themselves as "all-purpose business advisors". The recent expansion of EA&R requirements abroad will force global accounting firms to expand operations in this area. An effort to increase public accounting's share of the EA&R business would be immeasurably enhanced if external verification becomes required as it is with financial statements. Wallage (2000) makes a strong case in support of the potential for large financial accounting firms to develop the expertise needed for environmental assurance. The evidence gathering techniques necessary for EA&R assurance should parallel accounting's auditing methodology. Although accounting practitioners are guided by strict independence rules, yet public accountants have developed expertise in the processes of assurance and always have the backing of well-developed and influential professional organizations. However, external validation of an environmental report, without defining standards, would create an independence dilemma.

Conclusion

It can be concluded from the foregoing that organisations especially manufacturing concerns are polluting the environment hosting them for their productive activities. This ranges

from air, water, underground pollution, drinking water, land and habitat for endangered and threatened species, oceans, atmosphere, land mass to mention but few. This therefore calls for public attention on environmental issues due to activities of some organisations. The companies involved concentrates now on the hosting communities by expending relatively huge costs on environmental and social issues as part of their Corporate Social Responsibility (CSR) which supposed to be accounted for transparency. On this basis, the EC published a recommendation encouraging member states to promote increased levels of issues of recognition and measurement of environmental liabilities, assets, expenses, and contingent liabilities to form an integral part of a company's policies and its environmental protection improvements, resource consumption, and emissions.

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