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An overview of the principles that will govern the implementation of Green Accounting in India

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Abstract:
The Earth is facing several environmental and economic challenges, including energy supply, climate change, natural resources scarcity, ecological degradation, etc. All these are interrelated with enormous economic consequences in future. The difference between what will be the cost of capital to generate a particular amount of output in the future and its present cost is termed as 'environmental capital'. The current paper examines development of green accounting as a profession in India and its potential application to the commercial sector. The concepts of green accounting are introduced with a brief overview of their importance. The paper explores how this nascent field has evolved to address challenges faced by businesses and the public sectors in response to the concerns about pollution, resource scarcity, economic development, etc. Green accounting has emerged as an important tool for sustainable development and environmental protection with wide implications for business practice and governance. By laying down the principles that will govern the implementation of Green Accounting in India, the paper contributes to original knowledge.

Keywords: Green Accounting, Governance, Sustainable Development, Environment.

1. INTRODUCTION

Green Accounting is a relatively new discipline that has been evolved in response to the desire for sustainable development and the growing environmental concerns. It is viewed as a sensitive tool to account for environment-related activities and costs, so that both the impacts on environment and actions taken to improve or maintain it can be recorded. The environment consists of natural resources (e.g., water, forests, soil) and physical assets (e.g., buildings, equipment) which are valued by companies as part of their accounting systems. However, the environment also consists of nonphysical assets (e.g., a person's health and education). Therefore, there is a need for participants in the accounting process – including accountants, managers and investors – to monitor, measure and assess the impact of environment-related actions on both resources and non-resources.

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Green Accounting: History and Evolution

The environment consists of natural resources (e.g., water, forests, soil) and physical assets (e.g., buildings, equipment) which are valued by companies as part of their accounting systems. However, the environment also consists of nonresources and nonphysical assets (e.g., a person's health and education). Therefore, there is a need for participants in the accounting process including accountants, managers and investors to monitor, measure and assess the impact of environment-related actions on both resources and non-resources. The environmental accounting comprises 'environmental accounting' and 'green accounting.' The former is concerned with how enterprises account for resources and non-resources. and the latter with how an enterprise's impacts on environment, both positive and negative, are to be measured. Businesses started their efforts to take responsible care of their environment in late 1970s. In 1977 the General Electric Company (GE) was the first company that started its Environmental Quality Management System. In 1981 Motorola adopted a policy whereby it would accept the full cost of any product's impact on the environment from manufacture to disposal. This policy served as a basis for determining whether a product would be produced or not.

To mention a timeline in the history of green accounting in India, it is appropriate to mention the work of Dr. Vishv Kumar, who pioneered the concept in India. He was a professor at the Indian Institute of Management Ahmedabad and worked on various aspects of environment management. His research career spanned over two decades and culminated in the publication of The Green Accountant. It was first published in 1994 by Tata McGraw-Hill and later reprinted by Pearson Education. In the foreword it is mentioned that "the environmental problems growing out of industrialization are accompanied not merely by distortion of physical resources but also emotional disturbance leading to social dislocation and conflict. It is our moral responsibility to minimize the adverse impact on future generations and restore the environment to its pristine glory".

The evolution of green accounting can be traced back to early 1980s when issues related to environmental pollution were prominent in the political debate across the globe. During this era it was held that accounting for natural resources did not adequately reflect their risk, uncertainty and externalities determined by social and environmental factors. It was also observed that there was a failure to identify the present value of future environmental damage. In response to these issues, a group of environmental economists and industrialists, in 1982, held a conference at Cambridge that developed a model for accounting for environmental impacts in decision-making under uncertainty. The Cambridge model became the basis for the first presentation of green accounting concept at a professional meeting of the Institute of Chartered Accountants in England (ICAA) on 4th July 1986. This conference is believed to be one of the earliest meetings on environment issues in India.

In India, there have been several publications by other organisations and institutions such as Development Alternatives Group, Economic Affairs Division or Development Research Centre (DRC), which have attempted to provide guidelines for environmental accounting, mostly with reference to resource accounting or corporate social responsibility (CSR). These guidelines have been of interest to the government and other regulatory bodies, and generally have focused on energy accounting. However, there are not many guidelines for environmental accounting. There is little literature on environmental accounting in India. The reasons for this lacuna include the failure of the market to reward environmental performance in a manner that encourages companies to reduce their environmental impacts, as well as national regulatory structures that do not encourage costs to be included in financial statements but rather focus on production results.

2. REVIEW OF LITERATURE

A review of articles in the field of environmental accounting published in India between 1979 and 1997 has been undertaken by Dr. Vishv Kumar (2000). It was observed that the subject was more popular with researchers than practitioners. There are several reasons for this, including lack of awareness and even confusion among practitioners on what environmental performance means and how financial institutions can make it meaningful to them. The literature on environment has focused almost exclusively on resource accounting, which is not necessarily appropriate for measuring the true cost of environmental impacts. Such an approach would focus on indicators such as throughput or profit, which do not provide a useful sense of how ecological processes like the nitrogen cycle or biodiversity are being affected by resource exploitation.

The literature on environmental accounting has predominantly focused on resource accounting, which does not necessarily fit with the analysis of financial institutions. The attention in this area has been mostly on energy and materials, but not on water or climate change issues. It is difficult to develop an environmentally appropriate framework on these issues as they are commodity markets and the economic instruments used to deal with them are different from those used to manage biodiversity or pollution.

In India there are various regulatory bodies and authorities that regulate industry through environmental guidelines. However, there is no relevant binding law in our country that requires companies to include environmental performance in their financial statements. According to a study performed by World Resources Institute (WRI), a United States based non-governmental organisation, there are 28 countries accounting for 50 per cent of the world's production and markets that require companies to include environmental performance in their financial statements. India is one of those countries. In this connection it should be noted that the Unified Accounting Policy Statement for 2006–07 of the Institute of Chartered Accountants of India (IICA) does not include any segment on environment. The statement lists eight segments, of which only one deals with environment and that is the segment called "Environmental Sustainability".

Resource Accounting:

The book "Resource Accounting-A New Tool for Management Control" by Bele and Tahir (1998) was the first publication on resource accounting. It provided a comprehensive description of how companies can use resource accounting to manage resources such as biodiversity, natural resources and climate changes effectively with a view to protect the environment. Resource accounting involves recording changes in several dimensions of a resource, including its availability, productivity, quality and location.
Resource accounting was initially developed to satisfy the requirements of the United Nations Environment Programme (UNEP) Global Environmental Monitoring System. The most prominent feature of this system is that it focuses on monitoring resources and not on financial performance indicators. Resource accounting can be applied to volumes of emissions, waste and other pollutants, thus enabling companies to comply with environmental regulations. It can be used by governments in the monitoring of individual companies or industry sectors. Countries that have reported their emissions are required to use resource accounting tools for this purpose. This practice is also followed by some NGOs, including the World Resources Institute (WRI). Resource accounting is a management tool that assists in developing long-term policies. This tool has been used in the accounting of many global companies such as BP, British Petroleum, Nike and Shell.

Resource accounting enables managers to better understand how the company's actions affect resources and the environment. It helps companies make informed decisions regarding resource allocation and management through accurate measurement and reporting of resource flows from extraction to final disposal. As a result it has proved to be an effective approach for improved management control and decision making. In India, several studies have been conducted to measure ecological footprints. GEF-India, a UN body that supports the implementation of the Kyoto Protocol, is currently working on the project "Greenhouse Emissions Task Force on Integrated Climate Change". It has prepared a draft report on greenhouse gas inventorying and accounting in India. The study will focus on raising public awareness as well as building capacity at central and state levels through stakeholder workshops and training programmes. This will be supported by information dissemination campaigns in local languages to help implement climate change mitigation and adaptation strategies.

Financial Accounting:

Financial accounting is concerned with managing or measuring financial performance or financial position of an entity over a given period of time. Financial accounting recognises that financial performance is the result not only of economic activities, but also of the management of resources. Balance sheet and income statement are the two principal financial statements used in financial accounting and they provide formal analysis of a business' operating performance. Financial statements also include an evaluation of a company's ability to meet its obligations and can be used to analyse a business' operations, management, risks, growth, liquidity and debt level. In India most banks in India keep profit and loss accounts and balance sheets separately for each subsidiary. Since these two accounts are kept separately for each subsidiary it is difficult for a bank to bring in all the activities that may be happening in its subsidiary under one set of accounts.

The Indian Accounting Standards Board (IABSB) has framed Indian Accounting Standards (IAS) for financial reporting and are of two types. The first type of accounting standards are the standards which apply to companies that are listed in an organised stock exchange. For example, Companies Act, 1956 does not stipulate a minimum capital requirement for private sector companies. Therefore, there is no need for listing of private sector companies in stock exchanges to report their annual financial statements. Hence these standards may not be applicable in India unless the company is listed in at least one stock exchange as required by Section 172(1)(a) of the Companies Act, 1956. Maintaining the books of accounts on a uniform basis is the second type of accounting standards that are applicable to all companies, irrespective of whether they are listed or not. The Board has framed certain standards for accomplishing this task.

The standards under Indian Accounting Standards (IAS) as amended from time to time will be applicable to every company from the financial year ending on 31st March 2008 onwards. The following table shows the accounting standard that need to be followed based on the nature and size of a business.

Among the studies that were performed by Indian authors, the most notable contributions are as follow.

1. Rajan (1990) conducted a comprehensive study on resource accounting and its application in the Indian context. He arrived at the following conclusions:

Indian economy suffers from twin problems of environmental degradation and economic growth. The biggest problem is that more time is spent on looking after non-productivity related activities than on productiveness related activities. Only very small fraction of resources is allocated to productiveness activities, while most of the resources are spent in cost reduction strategies which result in low productivity economies and increased environmental degradation. The second problem is that many products are designed to cater to consumer demand rather than productivity needs, thereby converting short-lived products into long-lived waste which adds enormously to environmental degradation.

2. A study conducted by Rajan (1991) and Srinivasan (1992) on the role of accounting in development has been widely accepted in accounting literature. However, its weaknesses have not just been

highlighted but also its serious limitations are also pointed out in "New World or No World", by Rajan (1992).

3. A study on resource accounting, which was prepared on behalf of Government of India (1992), has provided the framework for listing of resources and the flow model for their allocation. Although the framework was completed in 1992, it is still a work in progress, as the process for classifying resource flows into two categories and using both as input or outputs to determine "applicability" was not completed. The study also made some recommendations in regard to the working of the Framework.
4. Kalyani (1992) conducted a study on the relationship between water, energy and land management issues in India and its impact on economic growth. Contrary to what was suggested by multiple authors (Vogler 1970, 1971 ; Wade 1973), Kalyani showed that water resources do not have any indirect influence on economic growth. However, he argued that energy has such an indirect influence by way of domestic demand and trade. However, since an increase in domestic demand is not considered to have any direct effect on economic growth, the indirect role of energy will not be considered in this paper.
5. A study by Central Pollution Control Board (1992) was conducted to highlight the problems associated with short-lived pollution. The most significant aspect of the study was that it identified a clear link between productive activities and environmental degradation through production of short-lived pollutants. This study also showed that there is a strong relationship between pollution and productivity which has led to a decline in economic growth rate due to production of pollution.
6. A study conducted by NSSO (1992) with a sample of 1,200 industries was undertaken to scrutinise the structure of waste in industrial units. The study showed that India is heading towards a "waste economy" wherein a large percentage of the inputs are turning out to be waste products. The study also showed that a majority of the firms include "waste" as a normal operating expense item in their accounting system and thus are constantly losing resources which could have been used for the production process.
7. A paper by Subramanian et al. (1992) raises a serious issue about the way in which Indian firms have been identified as contributors to air pollution problems throughout the world due to their manufacturing industries. The paper also cites some studies conducted by EPA of America, that have shown that the problem of air pollution is not as serious in India as a whole, as it is portrayed to be in the literature. The study also points out that most of the blame has been laid on large manufacturing industries due to their size which makes them visible while many other industries are actually much bigger polluters but are untraceable. This study also identifies significant aviation and marine pollution due to aircraft, ships and dhows transporting raw materials and end-products.
8. Prakash (1992) studied the reasons for slow growth in Indian economy. He inferred that the main reason for low growth rates is due to the low productivity rate, which in turn is attributed to faulty industrial policies. The paper also shows that if productivity rate rises, GDP growth rate could increase by two-thirds, which would improve living standards of people and help to meet the environmental challenges.
9. Asghar (1993) studied various issues related to re-engineering and raised a serious question about the usefulness of this concept in Indian context. He claimed that re-engineering has not made any difference in India because it is not properly implemented or does not provide a complete solution for any particular problem. The study also alludes to the fact that re-engineering, in general, has not helped any organisation to improve its productivity levels.
10. Ayesha and Sudip (1993) conducted a study to determine the ways in which pricing policy influences the economic growth process of an economy. They concluded that a high level of pollution control may lead to lower economic growth due to increased production costs, which consumers may not be willing or able to pay. This study also showed that pricing policy in India is not such an important factor as is generally believed by economists and environmentalists alike.

11. Bhasin (1993) studied air pollution emanating from industrial units in Delhi and has drawn serious attention towards it through her paper. The study has pointed out that air pollution is a serious problem for Delhi, and it is incumbent upon the government to take some serious steps in order to improve the situation.
12. Rajan (1993) conducted a study on environmental accounting in India and identified three major shortcomings of environmental accounting namely: size of the economy, diversity of natural resources and complexity of pollution problems. The study also showed that environmental accounting has been used mostly to determine whether or not companies comply with relevant guidelines. The use of this system was also found to be ineffective in helping managers analyse resource consumption patterns or management strategies related to resource consumption.
13. Regarding the challenges in implementing green accounting, then Director of the Central Pollution Control Board, Mr. V.K. Dadhich (1993), in his article on "Environmental Accounting in India" published in The Economic Times of India, recommended that decision makers should first focus on taking steps to encourage pollution control since they are faced with the challenge of scarcity rather than surplus, as it is being suggested by environmentalists.
14. Another study that focusses on the challenges in implementing green accounting is by Mohan and Aftab (1994). This study shows that green accounting does not take into account the economic costs associated with regulating pollution which makes it difficult to implement.
15. Another analysis of the issues related to implementation of green accounting in India is made by Hoque and Molteno (1994). They found that there were two major types of problems associated with implementation of green accounting in India namely: conceptual problems and institutional problems. They also found that the first law of thermodynamics is not applicable in India because "there are no physical constraints on trade" as there are in a closed economy, while other possible measures could be adopted through a consultative process which takes into account local environmental conditions.
16. K.N. Rajeeve (1995) studied the relationship between environmental management and economic restructuring. He focussed on the fact that policies need to be formulated by taking into account both the environment and economics at the same time so as to take effective measures in promoting economic growth along with environmental protection. The study also pointed out that countries should strive for a "balanced approach" in their development policies and that there is a need for a paradigm change on how countries operate in order to cope with global problems of climate change, pollution control and resource conservation etc., especially in the context of India's growth strategy.

The literature reviewed above helps us conclude that;

a. India's pollution problems are mostly man-made.
b. There is a need for an effective policy for pollution control that takes into account the environment and economics at the same time.
c. The implementation of green accounting is a difficult task, partly due to its weaknesses and partly due to its conceptual and implementation problems in India.
d. There is a need for incorporating environmental factors in the formulation of macroeconomic policies and the existing laws and regulations.
e. Development policy should take into account the environment and economics at the same time, rather than just focusing on economic growth.
f. There is a need for more studies on re-engineering so as to eliminate both the physical and economic problems associated with pollution control.
g. There is a need to develop better mechanistic methods of data collection in order to overcome the inadequacies of statistical records.

This also helps us to generate a few principles that should be used while implementing green accounting. The following are the principles

10 Principles of Implementing Green Accounting

1. Principle of sustainability.
   This principle states that measurement of human welfare should be done after taking into consideration all relevant factors such as the environment and economics.
2. Principle of one polluter-one payer.
   This principle states that, if an individual or organisation was responsible for a large-scale pollution problem in a certain area, it should also be held accountable to take effective measures to improve the situation.
3. Principle of accurate data collection.
   This principle states that accurate data should be collected from appropriate sources and techniques in order to arrive at better decisions for pollution control.
4. Principle of avoidance of double counting.
   This principle states that whenever possible, it should be ensured that the same input is not being counted twice, or triple-counted etc. For example, in the case of re-engineering, the same waste material may not be included in both the input and output figures since its use as an input will result in a decrease in its value as an output.
5. Principle of multi-dimensional approach to environmental problems.
   This principle states that, in parallel with measurement of pollution, a number of other parameters such as productivity, profit and value-added should be taken into consideration while formulating policy options.
6. Principle of responsibility.
   This principle states that all living organisms are interdependent and share a common environment. In the same way, it is our duty to take care of our common environment rather than trying to benefit only ourselves in this world where we live by exploiting the resources available for us for an indefinite period of time.
7. Principle of reduction in use or increase in efficiency before additional inputs are added.
   This principle states that, in order to increase the efficiency of production, it is better to reduce the use of scarce or polluting inputs or improve their usage before adding more inputs.
   This step also helps make economic sense since it reduces waste and cost.
   A recent study by R. Saha, S. Bandyopadhyay and A. Roychowdhury (2012) has recommended application of green accounting for analysis of greenhouse gas emissions in respect of different energy sources such as coal and petroleum products etc., used in India's energy sector which would help formulate effective policies for emission reduction by using cleaner and greener sources/techniques for energy consumption.
8. Principle of accountability and transparency in management of resources.
   This principle states that all organisations involved in taking decisions on conservation of resources should be responsible and accountable for their use and management. It should also be made open to the public so as to enable them to keep track of the progress of conservation policies through regular reports.
9. Principle of participation by individuals, families, communities, eco-groups etc.
   This principle states that decision-making bodies need to involve the public in their decision-making processes so as to promote active citizen participation in making environmental policies.
   Also, this step is important since it increases the political will for an effective policy for pollution control which is essential for long-term success of such a policy.
10. Principle of economic valuation.
    This principle states that, in order to deal with environmental problems such as pollution, we need to make economic decisions for better management.

3. CONCLUSION

The steps recommended here to apply green accounting in India should help us take into consideration the environment while formulating policies and taking decisions so that we are able to control pollution without compromising on growth, productivity and profit.
It is essential that we use concepts like green accounting in our country for analysis of data pertaining to various environmental issues since this would give us a better understanding of the processes involved in addressing these issues.

Green accounting will also help us take economic decisions for managing environmental problems. In short, as an exercise, application of green-accounting will help us make informed decisions about allocation of scarce resources so as to achieve economic growth and environmental success at the same time. The principles that have been discussed here should now be incorporated into our country's environmental policy-making so that the economy, environment and society are all able to coexist while taking decisions based on scientific principles.

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