

## **ENVIRONMENTAL MANAGEMENT ACCOUNTING**

### **(EMA) IS AN ESSENTIAL BUSINESS TOOL FOR**

### **CORPORATE**

### **AN EXPLORATORY STUDY**

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#### **ABSTRACT**

*Environmental pollution develops very serious issue and stakeholders are worried about the issue, which give path for the implementation of environmental accounting. Endosulfan issue in Kerala, Pollution in the Ganges and its cleaning got good media coverage. Still there exists omission in the adoption of the environmental accounting practices by the corporates. Implementation of Environmental Management Accounting (EMA) is one of the methods to improve environmental and economic performance of business firms. It deals with assessment and disclosure of environment related information, which helps to take both internal and external decision making of the organization. This paper, an attempt is made to discuss about internal decision making tools in taking decisions regarding environment consideration. Environmental Management Accounting (EMA)'s implementation in corporate is the need of the day.*

***Key words: Eco friendly, Environmental Management Accounting, Environment pollution, Physical and Monetary information, Tools for decision***

#### **I. INTRODUCTION**

Many countries around the world consider environmental issues along with the other issues like increase in costs, competitions etc. Global agreements like the Montreal Protocol, the Kyoto Protocol and the Rio Declaration etc. take measures for preventing future environmental damage to our mother earth. Our current way of life poses a threat to our world. During the last three decades, the global view of environmental issues has risen significantly. Incidents like Bhopal Chemical leak (1984) and the Exxon Valdez oil spill (1989) lead to this to an extent and worldwide concern and attention received by these events. Many issues were discussed at that time, like global warming, loss of natural habitats etc. This has led an enquiry of business practices that are prevailing. Companies and Managers consider that environmental costs are insignificant for their own business and the system either do not record or if at all recorded then generally hides these data and conveniently forget the fact that some production costs have an environmental component.

## **II. STATEMENT OF THE PROBLEM**

Most of the business activities whether manufacturing or not, have environmental impact. It was taken into account decades ago, but not now. There is no universal definition or accounting standard to measure. When environmental costs are ignored in the accounting system, it does not reveal the actual cost of production. Now when the entire world is going for protecting the environment, encourages green management/ green products, and other protective and preventive methods. So it is appropriate to study this topic now and create awareness in the mind of every one. Hence the researcher identified to study on the topic “Environmental Management Accounting.”

## **III. NEED OF THE STUDY**

This study helps to understand why environmental accounting is important from the point of view of accounting and it helps to consider the environmental related information for decision making.

## **IV. OBJECTIVE OF THE STUDY**

To create awareness about Environmental Management Accounting and recognize suitable tools available to evaluate environmental cost incurred by corporate in India

## **V. REVIEW OF LITERATURE**

- **Bierma, Waterstraat and Ostrosky(2000)** conducted a study on the supply and use of chemicals and addresses the issue of life cycle costing. They found that there are considerable environmental costs are associated and often these costs are hidden due to poor material tracking and inaccurate overhead allocation.
- **Schaltegger and Burritt, (2000)**- In this study they noted that environmental management accounting acts as a control and accountability tool and provides information systematically. This information is used for taking decisions and help to achieve desired goals.

## **VI. SCHEME OF DISCUSSION**

It is an exploratory study which provides insights into and understating of environmental management accounting. Secondary data will be reviewed through journals, newspapers, and internet search engines. For the purpose of understanding the study is classified into the following sub sections

### **(6.1.1) Concepts of Environmental Accounting and (6.1.2) Environmental Management Accounting**

### **(6. 2) EMA Techniques in Internal Decision Making**

#### **6.1.1. Environmental Accounting (EA)**

It is a division of general accounting in which due consideration is given for environment as well as economy. It can be used by various levels as corporates, industries and even in national and international etc. It assesses the resources used and estimate the cost incurred by the company or consider what the impact on environment was.

By implementing this accounting, the corporates can derive the data regarding resources used by them in a year. Having data in the hand, corporates can consciously slow down wastage, and can manage efficiently and cost effectively the other resources like energy, power and water. It helps various levels of management in decision making also motivates them in invest in green project and environment friendly projects.

1. Global Environmental Accounting –This level is focused worldwide level
2. National environmental accounting – It deals with on country level
3. Corporate Environmental Accounting – It discuss about the corporate level
4. Environmental Management Accounting - Transform the data which is derived from financial and cost accounting, to increase the efficiency and reduce adverse influence on environment and take proper management decision considering cost of environmental protection.
5. Environmental Financial Accounting- It provides information to the external stake holders.

### **6.1.2 Environmental Management Accounting (EMA)**

Accounting conventions do not provide adequate information for environmental management purpose. The emerging field of ‘Environmental Management Accounting’ (EMA) has been receiving increasing attention now- a- days to fill this gap. The US Environmental Protection Agency was the first one to set up a formal program to promote the adoption of EMA. But later many countries have come forwarded and promoted and adopted EMA.

Recently many organizations are paying heed to the cries of the public. Many internal and external stake holders are paying interest to the environmental performance of the organizations. Internal stake holders like employees and workers are affected by pollution in the work environment and external stake holders- communities, environmental activists groups ad regulators etc. In Kerala State- Northern part many people are suffered and suffering due to Endo-Sulphan – a pesticide sprinkled through helicopter for their crops. Now a day’s financial institutions also promoting green finance. Directly or indirectly promoting environment friendly product to manufacture. Organizations have come to recognize the benefit and monetary savings of improved environmental performance by compact use of resources and reduced costs of treatment for wastages and emissions. Strategic benefits like manufacturing of environment friendly green products manufacturing, responding quickly to the cost- effective environmental change and better relationship with local communities and stake holders and financiers.

UN’s Division for Sustainable Development, Environmental Management Accounting, Procedures and Polices (2001) mentions as this way, EMA is identification, collection and analysis of physical and monetary information on environment related costs earnings and savings. Physical information assesses monetary and non- monetary data on materials, like use of materials, personal hours and other cost drivers, and monetary information on environmental related costs, earnings and savings. The information what is required for EMA comes under two categories. (6.1.1) Physical Information under EMA and(6.1.2) Monetary information under EMA

### **6.1.3. Physical information under EMA**

Any organization which wants to assess environmental cost correctly it has to collect monetary as well as non-monetary information or statistics on use of materials, personal hours and other cost drivers. EMA gives due

weightage on materials and material driven costs as many organizations have direct impact on the environment. Usage of energy, materials, water and their emission and wastage also affect the environment and one of the major cost drivers of many organizations is purchase cost of material 1.

Most of the manufacturing organizations, which convert the raw material purchased with the help of energy and other resources in to finished goods and it is delivered to customers. During this conversion process the entire input is not turned into finished product. There are normal wastage and abnormal wastage, due to quality issues of the material or wrong design or even due to operational inefficiency of workers. There are certain resources which are used in the production process but not a part of the finished goods or final product. Examples are water used for construction sites for curing, or fuel used in the transport operations, water used for cooling of equipment in between product batches etc. These resources become waste at the end and the organizations have to manage its disposal. Other sectors are also no exceptions to this. They do create significant amount of generation of waste and emissions. To an extent we can reduce its environmental impact by changes in the product design, and reducing the quantity of paper used in wrapping.

Other sectors include agriculture, livestock, and extraction of other mineral and metals, service sectors like transport and hospitals etc. Waste and other emissions to the environment contaminate the atmosphere and affect the health of humans and other livestock as well as the ecosystem of the earth. There are certain activities which can have extreme impact on the environment. Activities like extraction of natural resources like coal, mica, natural oil, other minerals and metals etc. It causes depletion of resources besides entire removal of topsoil and vegetation and disturbs wildlife feeding, reproduction and migration environment. It also affects the water bodies. It becomes poisonous and contaminated. There are impacts on local people that depend on the affected environment for food and clean water. Removal of slowly and/ or non- renewable natural resources is also a cause for worry.

#### **6.1.4. Monetary Information under EMA**

This is a sub system of Environmental Management Accounting, and it shows the financial impacts of environmental performance. It permits management to take decision bearing in mind monetary aspects of products and projects. It creates monetary information for internal management's use, for example the amount spent as fees or as fines for violating the environmental laws, or amount investment in project which protect the environment.

#### **6.2. EMA Techniques in Internal Decision Making**

For internal decision making corporates uses various tools. It categorised into three heads as (6.2.1) Cost analysis (6.2.2) Investment analysis and (6.2.3) performance appraisal

##### **6.2.1. EMA Tools for Cost Analysis**

Environmental Management is possible only if corporates are having suitable facility to identify and measure environmental costs. Some of the tools for cost analysis are (i) Life cycle Assessment (LCA), (ii) Hierarchical Cost Analysis (HCA), (iii) Activity Based Costing (ABC) and (iv) Material Flow Cost Accounting.

### **6.2.2 Life cycle Assessment (LCA)**

Now –a- days customers are demanding products that are energy efficient, functional and environmental friendly / green products. This shows that a momentum towards management of energy and eco- friendly awareness started. For example, Automatic washing machines which are manufactured in Germany contain computer micro Chips that sense the weight of a load and give soap and water accordingly. Zero – polluting electric vehicles are on road and many countries are promoting it.

Few of the corporates strategically positioning themselves for the present era by integrating environmental considerations into their products and processes now. They are abiding the government rules and regulations also trying to reduce their environmental impacts. Some corporates use LCA to help them evaluate their total environmental burdens and opportunities associated with their products, processes or activities. This technique helps them to provide a complete picture of activities with the environment and identifies opportunities for environmental improvements. It also helps to understand the nature of environmental consequences of human activities.

There are certain inter- related activities linked with this LCA, like goal setting, data collection and environment evaluation and improvement assessment. Goal- setting stage studies about the issues in each of the life- cycle stages of the product. Data Collection associated with acquisition of raw material and other resources used to convert it into finished product and till its disposal of the waste after completing its lifespan. Data regarding air emissions, water pollutants and destruction of environments etc. during production is required to get permission from government.

Impact on environment linked with ecological, health, economic effects. Corporate has to improve its environment evaluation by including its internal and external environment costs. During improvement assessment phase LCA intentionally evaluate the options for reducing the environmental impact of the product or processes.

### **6.2.3 Hierarchical Cost Analysis (HCA)**

While implementing this tool corporates are seeking the least costly option. Many corporates believe their investments pollution concerns have minimal importance and focuses on pollution control. Under this method corporates consider the full range of environmental costs.

### **6.2.4 Activity Based Costing (ABC)**

When corporates incur environmental costs, it varies from product to product and process to process. Some may have less impact on environment while others may have more. In order to get the accurate information about the costs, some organizations use Activity Based Costing (ABC).

This tool provide two approaches for tracking the costs- (i) to establish sub- accounts in the general ledger- which allocates costs to various activities in the appropriate proportions (ii) Cost/ Activity driver analysis – where by cost is identified to cost- bearing activities effectively and allocate costs to individual products. It helps managers to take proper decisions. ABC method creates more accurate cost information for better product pricing and also helps in cost reduction and pollution prevention projects.

### **6.2.4 Material Flow Cost Accounting**

As per this tool, material, and energy flows through a value creating system over a certain period of time. By including EMA perspective, this tool evaluates cleaner production capacity, estimation of waste generation costs, composition of various waste and energy streams and emission and detailed cause of these.

### **6.2.5 Investment Analysis and Appraisal**

This tool is based on capital budgeting. Many organizations adopt traditional approaches and overlook pollution prevention projects. Few biases can creep in the traditional method. (i) Managers who are familiarized to using traditional accounting methods are unable to point out internal environment costs. (ii) Traditional investment appraisal techniques reduce the issues and favour less risky and short term projects. Now organizations those are anxious of competitive advantage use some outline and measurement techniques to effectively incorporate environmental risks into their capital budgeting process. They include (a) Total Assessment Cost, (b) Multi-Criteria assessment and (iii) risk and uncertainty analysis.

### **6.2.6 Total Assessment Cost**

It has broader view than traditional investment analysis. This method improves decision making process for investment analysis and ensures that the data collected include both direct and indirect environmental costs. It helps organizations to analyse long term costs and savings of pollution prevention projects. It utilises full environmental cost accounting techniques to assign environmental costs and savings to all completing projects products or processes.

### **6.2.7 Multi- Criteria assessment**

These assessment criteria designed in such a way that to helps oranzitions to evaluate systematically according to multiple criteria options. This tool empowers the organisations to study and deliberate criteria in decision making.

### **6.2.8 Risk and Uncertainty analysis**

Risk involves with a situation which is known whereas uncertainty associated with a situation which is unknown. To measure risk in an environmental situations, it is recommended that the company make adjustments to the cost and benefit profiles rather than to the discount rate. A good method to this situation is to test the sensitivity of the outcome of the project evaluations to variations in key parameters.

### **6.2.9 Performance appraisal**

In this stage corporates recognize the importance of integrating environmental measurements into their performance evaluation systems and fully integrating environmental considerations into their corporate life. This make sure that statements of environmental responsibility is enunciated by the CEO and in corporate mission statements are properly implemented.

In the long run environmental performance and financial performance are interrelated. Business organizations cannot continue to struggle for environmental excellence while evaluating and rewarding performance based strictly on short term financial indicators.

## 6.3 Environmental Balanced Scorecard

Very rare organizations connect Financial and Non – financial measures of corporate performance in areas like productivity and environmental management. The developers of BSC recognized that managers need both financial and operational measures to manage an organization effectively. No choice is required for this.

### 6.3.1 Uses and Benefits Of EMA

Once EMA is implemented an organization becomes more competent and environment friendly. The major reason is visibility of environment cost, which leads to current accounting practices which is a challenge to the organization. EMA ties both physical and monetary information and it leads to new type of eco-efficiency indicators. The calculation of these indicators helps to reduced costs and more efficient use of environmental resources is possible.

## VII. CONCLUSION

Environmental Management Accounting is an important topic and it play a vital role for the development of the economy. It focuses on all related matters like data related with contribution of natural resources to the economic wellbeing, as well as resources degradation and environmental pollution. The corporates can get benefit by implementing this system. They can get actual cost of production of products, real and hidden costs and also helps them to fix proper price. They have a chance to make stake holders happy and can proudly talk about their ecofriendly atmosphere and product they manufacture. In India implementation of EMA in corporate is poor. As latest Company Law or Accounting standards does not prescribes any disclosure norms. Lack of awareness and commitment on the part of company management keep them away from reporting environmental costs and benefits.

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