



## Green Accounting and Its Practice in India

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### ABSTRACT

India as still in the phase of developing is focusing on various factors out of which one factor is Environmental Awareness. Green Accounting is a measure of sustainable income level that can be secured without decreasing the stock of natural assets. This requires adjustment of the System of National Accounts (SNA) in terms of stock of natural assets. But it has some main defects. To overcome these drawbacks of SNA, the Statistical Division of UN has developed the System of Environmental Economic Accounting (SEEA). **It's Superiority over Conventional Accounting System.** Green accounting considers pollution preventive expenditure and also environment impact studies. It expands and complements the conventional system of national accounts with regard to costing. Environmental accounting is the measure that can be used by companies to discover more of these opportunities and, bring environmental concerns earlier into planning, decision making, and operations, thereby, making a full disclosure of such issues (Bailey and Soyka, 1996). Environmental disclosure in India is at emerging stage, even though its importance has gained significance world-wide. Incorporation of green accounting at National level would lead to the development of the Indian Economy.

**Key words:** Green Accounting, Environment, SEEA, Capital Accumulation, Expenditure, Depreciation

### Introduction:

Money is not the only factor for calculating the income or expenditure of the country. The use of natural resources is another important aspect. In order to surround ourselves with the assets and not the liabilities Green Accounting emerges. When the Economic Damages are considered with respect to the exhaustion of Natural Resources while determining the Income of the nation it is known as Green Accounting. A new system of sustainable accounting, known as Green Accounting, has emerged. "It permits the computation of income for a nation by taking into account the economic damage and depletion in the natural resource base of an economy."

India as still in the phase of developing is focusing on various factors out of which one factor is Environmental Awareness. In order to spread Environmental Awareness what more is needed is to have a proper prove by maintaining a proper account for the environment as well. It is a measure of sustainable income level that can be secured without decreasing the stock of natural assets. This requires adjustment of the System of National Accounts (SNA) in terms of stock of natural assets. In SNA, allowance is made for capital consumption or man-made capital while calculating Net Domestic Product (NDP). Net Domestic Product (NDP) = GDP-depreciation.

### SNA has three main defects:

- (1) It neglects the depletion of natural capital such as farmland, forests, fishing stock, minerals, etc.,
- (2) Environmental degradation mainly from pollution, and
- (3) Defensive expenditures which the society incurs in facing the external effects of environmental degradation.

**To overcome these drawbacks of SNA, the Statistical Division of UN has developed the System of Environmental Economic Accounting (SEEA). The SEEA focuses on:**

$$NDP = \text{Net exports (X - M)} + \text{Final consumption (C)} + \text{Net capital accumulation (I)}.$$

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To arrive at Green NDP (Or EDP), if net capital accumulation (I) is replaced by net capital accumulation of produced and non-produced economic assets minus net accumulation of non-produced natural assets, the identity becomes

$$\text{EDP} = (\text{X}-\text{M}) + \text{C} + \text{NAp. ec} + (\text{NAnp.ec}-\text{NAnp.n})$$

Where

EDP = Environmental domestic product.

(X-M) = Exports-imports

C = Capital accumulation

Nap.ec = Net accumulation of produced economic assets.

NAnp.ec = Net accumulation of non-produced economic assets

NAnp.n = Net accumulation of non-produced natural assets.

## REVIEW OF LITERATURE

Bhate (2002) examined that the Indian respondents are most involved with environmental issues, just like the involvement of UK respondents. Economic liberation and deregulation of Indian industries have created more awareness among Indians regarding environmental problems. Now there is increased disclosure of environmental information on companies websites and annual reports in order to gain organizational authenticity.

Banerjee (2002) reviewed the emergence of company environmental reporting (CER) in India has been a vital development, both for higher environmental management and overall company governance.

Cunningham and Gadenne (2003) studied that an improvement in environmental regulations acts as a momentum for changes in annual report revealing behavior and concluded that environmental regulation acts as an impetus for firms to include information on certain environmental problems in the annual report.

Tuwaijri et al. (2004) used equation approach to analyze the relations among environmental disclosure, environmental performance and economic performance. They documented a positive association between environmental performance and environmental disclosure by using proxy for environmental performance using the proportion of total waste generated recycled as identified using the TRI information and measure environmental disclosure using a content analysis in four classes, potential accountable parties designation, toxic waste, oil and chemical spills, and environmental fines and penalties, disclosures that are mostly nondiscretionary.

Ahmed and Sulaiman (2004) examined the extent and sort of voluntary environmental disclosures in annual reports by Malaysian corporations of construction and industrial products industries. The study concluded that the extent of environmental disclosure was low, and the environmental information disclosed in annual reports was scattered in the report and not targeted in a specific section.

Sahay (2004) identified that environmental reporting in India is in booming stage. The rationale for inadequate environment disclosers is probably that less pressure is applied to Indian firms by environmental teams, public and the government. The study examined the environmental reporting of top 250 Indian firms ranked in terms of sales in economic time survey (ET). The data was collected by means of questionnaire. The collected data recommended that conservation of energy finds a place in the board of director's report due to provisions of Indian company law. Only few firms reported their social and environmental performance but sustainability reporting is scarce.

Chauhan(2005) explained the various forms, scope and legal framework of environmental accounting in Indian context and came out with a proposed framework for implementing green accounting practices in India and concluded that it is the right time that the corporate should prepare a firm environmental policy, take steps for pollution control, and disclose adequate details of environmental aspects in their annual statements. For sustainable development of country, a well-defined environmental policy, proper follow up and accounting procedure is required.

Malarvizhi (2008) observed that Indian companies follow diverse reporting practices on the internet i.e. Annual reports, standalone reports and sustainability reports etc. But Annual reports are considered as the most favored channel of disclosure.

Cho et al. (2009) examined the reasons as to non-disclosure of environmental information by some companies. They found that the disclosed environmental cost do not seem to be of quantitative materiality. They suggested that disclosing information by firms see this as strategic worth. This found that company seems to add environmental information into their annual reports as a additional weight.

Qureshi et.al. (2012 ) in their research work concluded that a well-defined environmental policy is required as correct follow up and correct accounting procedure. They expressed environmental accounting and reporting as a vital part of business strategy and recognizes the multiple skills required in compilation and analysis of the requisite knowledge. Special emphasis is laid on generation of reports and their standards, for different business and restrictive functions. They also explored the important obstacles for environmental accounting and news.

Shukla et.al. (2013) revealed that the scenario of environmental accounting has not been transformed. Companies are putting effort for environmental protection. But no disclosure related to ecological cost, liability, and ecological expenditure was found under the study.

### Preparation of SEEA or Green Accounting:

Table1. shows the basic structure of SEEA or Green Accounting in the form of a matrix. It also explains the derivation of SNA aggregates in columns and rows from 1 to 4.

The explanation of columns of Table 1 is given below

**Column (1):**

Production side covering output, intermediate consumption, consumption of fixed capital (CFC), net domestic product (NDP) and use of non-produced natural assets in production.

**Column (2):**

Rest of the world (ROW) account includes exports minus imports (X-M).

**Column (3):**

Final consumption (C).

**Column (4):**

Produced assets as a part of economic assets that have come into existence as output from processes. This includes not only tangible fixed assets but also intangible fixed assets such as mineral exploration. It includes net accumulation of produced assets and other changes in the volume of produced assets i.e., gross capital formation.

**Column (5):**

Non-produced economic assets are defined as non-financial assets that have come into existence in ways other than the process of production. This includes tangible non-produced assets like land and sub-soil assets. Intangible non-produced assets like patented entities, leases, and transferable contracts.

**Column (6):**

Records the effects of economic activities on non-produced natural assets such as air, water and virgin forests that are not included as economic assets in the stock of natural assets.

The explanation of rows of Table 1 is given below:

Table1:

Row → ↓ Column	Economic Activities			Economic Assets		Environment
	1. Production	2. Rest of world (ROW)	3. Final consumption	4. Produced Assets	5. Non-produced economic assets	6. Non-produced natural assets
1. Opening stock of assets	—	—	—	Opening stock of produced assets	Opening stock of non-produced economic assets	—
2. Supply	Production	Imports(M)	—	—	—	—
3. Economic uses	Intermediate consumption	Exports(X)	Final consumption(C)	Gross capital formation	—	—
4. Consumption of fixed capital (CFC)	CFC	—	—	(-) CFC	—	—
5. NDP	NDP	Net exports (X-M)	Final consumption(C)	Net Capital accumulation (I)	—	—
6. Use of non-produced natural assets	Use of non-produced natural assets in production	—	—	—	(-) Use of non-produced economic natural assets	(-) Degradation of non-economic natural assets
7. Accumulation of non-produced natural assets	—	—	—	—	Change in stock of non-produced economic assets	(-) Reduction in natural assets other than economic assets
8. Environmentally adjusted aggregates in monetary environmental accounting	EDP	Net exports (X-M)	Final consumption (C)	Net accumulation of produced assets (NAP.ec)	Net accumulation of non-produced economic assets (NANp.ec)	(-) Net accumulation of non-produced natural assets (NANp.n)

**Row (1):**

It records the entries of opening stock of produced assets being the value of stocks of man-made capital produced and the value of stocks of natural resources, such as oil, gas and cultivated forests etc.

**Row (2):**

It records total domestic production and the value of imports.

**Row (3):**

Economic uses including elements of intermediate consumption, exports, final consumption expenditure and gross capital formation.

**Row (4):**

Consumption of fixed capital (CFC) also appears as a negative item. Therefore, Net Investment (I) = Gross Investment (Ig) -CFC.

**Row (5):**

Net domestic product (NDP) represents the elements that define the national income accounts identity between net domestic product (NDP) and expenditure categories:

Net Domestic Product (NDP) = Net exports (X-M) + Final consumption expenditure (C) + Net capital accumulation or Investment (I)

**Row (6):**

It includes the elements for the use of non-produced natural assets by depletion of economic natural assets and degradation of non-economic natural assets.

**Row (7):**

It relates to accumulation of non-produced natural assets which include change in stock of economic assets and reduction on natural assets relating to environment.

**Row (8):**

It relates to environmentally adjusted aggregates in monetary environmental accounting. These macro-economic aggregates of EDP = Net exports (X-M) + Final consumption (C) + Net accumulation of produced economic assets (N<sub>Ap.ec</sub>) + Net accumulation of non-produced economic assets (N<sub>Anp.ec</sub>)-Net accumulation of non-produced natural assets (N<sub>Anp.n</sub>).

### Objectives of Green Accounting:

1. Segregation of all environment related stock and flow: This objective leads to identification of the part of the gross domestic product of the country that considers the significant costs relating to the environment which gave a negative impact towards the economic growth.
2. Correspondence of physical resource accounting with the monetary resource accounting: This objective leads to the conversion of every physical resource into the monetary aspect of the resources so as to take it into account while calculating the National Income.
3. Evaluation of environmental costs and benefits: Another objective is to evaluate the cost with respect to the depletion of resources in production as well as final demand stage and also the changes occurring in the environment quality.
4. Maintenance of tangible wealth: It takes into account not only the human wealth but the wealth related to the environment so as to reach to the Net domestic product (NDP) including environmental aggregates.

### Problems of Green Accounting:

1. SEEA does not include comprehensive natural resource accounting because regional natural resource accounts are not reflected in the main accounts of the SEEA.
2. It focuses on the use of natural resource for economic activities and ignores the flows and transformations within the natural resources.
3. The types of data needed for SEEA are not available in the necessary format. Thus lack of data has been one of the main problems in the SEEA.
4. Another problem arises when environmental data are directly connected with data of existing national accounts for the preparation of the SEEA. They require assigning of environmental pollution loads to the appropriate economic activities. However, the costs of preventing pollution can only be determined if the causes of pollution are identifiable. But the causes of many types of environmental pollution are not clear. If there are several pollution factors which cause environmental damage, the assignment of this damage will be highly arbitrary.
5. Another problem arises when some of the consequences of environmental pollution become visible after a long time. Estimating only the immediate consequences will lead to wrong policy decisions.
6. Unlike the market prices used by the SNA, there is no simple justifiable valuation system for the SEEA. For different aspects of environmental problems, different valuation problems are used such as prevention and restoration costs and contingent evaluations based on surveys. There are mainly theoretical and arbitrary constructions in SEEA.
7. The pricing of all environmental variables in monetary terms in the SEEA has consequences:
  - (i) The accounting system is restricted to those variables which are easily monetized thereby reducing the range of the accounting system,



(ii) Monetization of environmental variables and their concentration of only a few aggregates results in a drastic reduction of the SESA system.

### **It's Superiority over Conventional Accounting System:**

Conventional national income accounting does not fully take into account pollution preventive expenditure. Green accounting considers pollution preventive expenditure and also environment impact studies.

Conventional national income accounting does not measure the depletion of natural resources and the degradation of the environment. Green accounting considers the costs of depletion of natural resources and changes in environmental quality.

### **Conventional national income accounting does not fully report different types of resource expenditure:**

(i) Consumption of environmental goods such as exhaustible resources; and

(ii) Conflicting uses of environmental services such as the atmosphere used by producers as an input into production and by household as a consumption good.

### **On the other hand, green accounting expands and complements the conventional system of national accounts with regard to costing:**

(a) The use (depletion) of natural resources in production and final demand; and

(b) The changes in environmental quality, resulting from pollution and other impacts of production, consumption and natural events.

Environmental disclosure means to reveal environmental costs of development. It reflects the use of precious natural resources for generating national income through environmental reporting. Environmental accounting is the measure that can be used by companies to discover more of these opportunities and, bring environmental concerns earlier into planning, decision making, and operations, thereby, making a full disclosure of such issues (Bailey and Soyka, 1996). Environmental disclosure in India is at emerging stage, even though its importance has gained significance world-wide. Recent years have witnessed the growth of environmental accounting in the companies. Today corporations are participating in the prevention of the environment and making the contribution for the same. The developing countries like India are facing the two major problems in this regard. One is regarding protection of the environment and other is regarding promotion of economic development. Economists in the world are making attempts to develop a system that report both gross domestic product and green domestic product, to give a better picture of the trade-offs involved in the process of economic growth. Corporations are utilizing the resources for environment conservation and deals with the environmental problems. Environmental reporting has become an ingredient for sustainable development.

### **Scope of Environmental Accounting**

The scope of Environmental Accounting is incredibly broad. It includes company level, national international level. The subsequent aspects are enclosed in Environmental accounting.

Environmental accounting is a management tool for enhancing the economic performance of the organization. He explored the information and developed the model named EEEGECOST model which was applied to the company to see its implementation and got success (Patrick, 2006).

Environmental accounting can be used as a tool for organization change for this a model is being developed by Gray et al. which states that environmental accounting is used to negotiate the conception of the environment by companies that have not significantly changed (Gonzalez et al. 1988). Environmental accounting has got its roots from social responsibility and developed across framing up of different model and implementation of those models on the companies to see the impact.

### **Role of corporate in Environmental Sustainability**

CSR times, 2015 revealed that Infosys has achieved new milestones in Environmental sustainability by focusing on energy efficiency, water conservation and waste management etc. They are making new building by taking into care the environment factor. As per the Article in Economic times ITC devote significant resources to sustainable development. The company has a sustainability committee to help integrate social and environmental objectives with business strategies and set goals in contributing to climate change mitigation. Cisco technology is also working towards environmental sustainability by working on improving our own environmental performance and using technology to help the customers reduce their impacts. India environment Portal mentioned that Nalco has bagged the India Pride Award for the year 2015-16 for CSR, Environment Protection and Conservation, instituted by the Dainik Bhaskar Group. The company has planted over 78 lakh trees in the periphery of its operating units so far. Companies have traditionally used print medium of information disclosures on sustainability and environment for various strategic reasons.

### **Challenges of Green Accounting**

- It is a Long-term process and so reaching the conclusion is a difficult task.
- Green Accounting is really good but theoretically only, practically it requires major actions.
- Not all resources can be covered under this as conversion of everything into quantitative terms becomes difficult.

- Green Accounting does not have a standard accounting method so the comparison between firms or countries will be difficult.

## CONCLUSION

Green Accounting is a special chance with which India can stay ahead of British Heritage in order to create a new India which will not be a developing but a developed country. Green Accounting arouse because its not just a benefit or revenue which we get by the natural resources but somewhere someone pays for the environment also thus creating a dual aspect. India needs to make a choice between protecting our environment or just let it be destroyed and not a choice between protecting our environment or our economy as the environmental protection will gradually lead to the development of our country. Willingness of adopting Green Accounting is not enough, it must be done. Knowledge regarding the importance of Green Accounting is not enough, it must be applied in the working as well. Just the urgency of doing is not sufficient everything must be brought into action as well. Accounting is the language of business and green accounting is the language of the environment via business. Green Accounting is an important aspect and can't be ignored as it not only covers the environment information but also the economic information. Incorporation of green accounting at National level would lead to the development of the Indian Economy.

## SUGGESTIONS

- Awareness must be spread about the concept and need of green accounting to the general public as well.
- Maintaining green accounting records must be made mandatory for all organisation and government must take strict actions against it.
- Annual reports must also carry the information regarding the environmental accounts.
- A proper accounting framework must be developed for the purpose of green accounting.

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