

GREEN ACCOUNTING - CONCEPT, METHODS, AND APPLICATION WITH REFERENCE TO INDIA

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Abstract

Businesses are integrating the concept of natural components into their operations. Caring for the environment is one of the most important aspects of a company's social responsibility. The economic losses that environmental resources, both renewable and non-renewable, are experiencing are measured through a method of accounting called «green accounting». The achievement of financial performance through long-term growth and profitability is the primary focus of business sustainability. It is expected of businesses to consider and contribute to the well-being of the community and the environment. The public debate has long been dominated by environmental issues. It has been demonstrated that businesses' global sustainability is affected by their use of green accounting. The increased environmental responsibility of Chinese businesses has, according to reports, reduced debt capital costs. Capital restrictions are less severe for businesses with strong environmental sustainability records. India has unreported resource depletion and a disregard for sustainability. Adopting a green accounting method is recommended because it may enable citizens and decision-makers to start a discussion about how to maintain growth. Rewards for good quality should be implemented, comparable to those granted for good environmental performance in other emerging nations. The importance of integrating natural resource management and assessment into the foundations of public policy and administration must be acknowledged. Both internal and external auditors can use the EA system as a roadmap to follow to succeed.

Keywords: Green accounting, Environmental responsibility, Sustainability, Financial performance, Global reporting initiative

JEL Code: Q 52, Q 56 Q 57, Q 58

INTRODUCTION

Every citizen has an obligation to recognize the ecological harm they have caused and to take action to preserve the resource. Environmental and natural resource accounting is often referred to as "green accounting." Therefore, green accounting is also known as environmental accounting has been evolving in Europe since the 1970s, and in the 1980s, research on the subject started to be developed. With the passage of the Environmental Law in 1982, the fundamentals of environmental policy in Indonesia were established. Green accounting and environmental reporting are interchangeable terms (Cho and Patten, 2013).

Environmental resources without a commercial value and those that were previously disregarded in conventional economic development methods might be evaluated with the help of "green accounting." It highlights how green accounting aids in sustainable development.

Ashima Saxena (2020) stated that "green accounting" refers to the process of accounting for natural resources and the environment. Other costs associated with the environment may rise as a result of the exploitation of it as a resource by environmentally friendly technologies and wise decisions. All levels of the business must take action to implement renewable accounts. Caring for the environment is one of the most important aspects of the company's social responsibility.

Businesses are integrating the concept of natural components into their operations. It is essentially a twin issue of environmental preservation and economic growth for emerging countries like India. This approach records the expenses and advantages of a corporation. At the business and governmental levels, green reporting and accounting are still in their infancy in India. Large corporations have adopted environmental accounting based on corporate social responsibility (CSR) as a form of corporate accountability for the effects of their operations on the environment. University Social Responsibility, sometimes known as USR, is a type of CSR used in higher education. According to Salaudeen Shaik (2022), Peter Wood, a professor, and economist is credited with introducing the phrase "green accounting" to the general public in the 1980s. The economic losses that environmental resources, both renewable and non-renewable, are now experiencing are measured through a method of accounting called "green accounting." Protecting the environment and attaining economic growth are two separate challenges for emerging nations like India. A management technique called "green accounting" helps take environmental expenses into greater account. This research set out to identify the key environmental metrics that Indian firms reported on.

Initiatives of Govt of India

In the latter part of the 1990s, India initiated efforts to implement Natural Resource Accounting (NRA). 1997 saw the formation of a Technical Working Group on Natural Resource Accounting. In 1999-2000, a natural resource accounting pilot project began in Goa in accordance with the Group's recommendations. Seven additional studies on NRA at the state level were ordered in various fields in various States. An expert group was subsequently established in 2011 under the direction of Professor Sir Partha Dasgupta for the purpose of creating a framework for "Green National Accounts in India" and creating a timeline for implementation. The Expert Group's Report was submitted in March 2013.

About Global Reporting Initiative (GRI) Standards

A sustainability report must follow a set of three universal standards (GRI 101, 102, and 103) to be compliant. Green accounting, which is based on three essential pillars of corporate responsibility, is said to be more appropriate. Specifically, social responsibility for people, environmental responsibility for the planet, and economic responsibility for profit (Beattie, 2017). This comprehension refers to Elkington's concept of a triple-bottom-line business model (1997, 2001). The Triple-Bottom-Line Approach is the foundation of these criteria. Transparency and a shared knowledge of sustainability reporting are goals of the GRI standards.

1) GRI 101 - Basic

This standard provides a wide framework, which gives organizations planning to report in accordance with the GRI Standards a head start. This standard goes into effect on July 1, 2018, but organizations can start using it earlier. The size, location, or industry an organization should operate is up to the individual. This standard's Reporting Principles concentrate primarily on two aspects of a sustainability report: its quality and content. Accuracy, clarity, balance, comparability, reliability, and timeliness are some of the parameters used to evaluate the reporting's quality. When an organization submits its reports to GRI, it can claim that it uses GRI Standards.

2) GRI 102 - About general disclosures

This standard starts with the organizational profile, which focuses on things like the name of the company, the products and services it offers, its locations, its supply chain, employee information, and other similar details. The highest governance body of the reporting entity is required to establish policies pertaining to social and environmental issues. The timely implementation of these policies and due diligence procedures will also fall under the purview of this body. In the end, the sustainability report will be officially reviewed and approved by this body.

3) GRI 103 – Management Approach

Managers who are responsible for disclosures must describe any disclosure limitations as well as the reasons why the report's themes are significant to stakeholders. The topic-specific standards must be reported when they are being spoken about. These are used along with GRI 103.

4) GRI 200 - Economic Performances

The Organization's Revenues and Expenses, which produce the Economic Value Retained for the Period, are the primary disclosures required by this criterion.

Economic value retained = Revenue (value generated) – Costs (value distributed)

The organization must then list all potential hazards and opportunities that might result from climate change and affect its income, expenses, and costs.

1) GRI 301 – About Materials

The organization is required to state, as part of the first disclosure on materials, the volume or weight of non-renewable and renewable materials used by the company during the relevant reporting period for the production and packaging of the goods and services provided. The proportion of recycled materials used as inputs is the topic of the second disclosure, which is calculated as the proportion of recycled materials used as inputs is the topic of the second disclosure, which is calculated as

(Total recycled inputs materials used / total inputs) * 100

Similar to this, the standard mandates the third disclosure on recycled and reused items, as well as the packaging materials used by the organization, i.e.,

(Reclaimed Products and Packaging Materials / Sold Products) * 100

2) GRI 302 – About Energy

The following are the standards to follow by business firms:

- Under the first disclosure on Energy, the entity is obliged to disclose the entire amount of energy consumed that was produced in the form of electricity, heat, cooling, or steam from either renewable or non-renewable sources.

Total energy consumed = renewable and non-renewable fuel consumed + heating and electricity + cooling+ self-generated energy which is not consumed – electricity, cooling, heating, and vapor sold out.

- The second disclosure required by this standard concerns the amount of energy used by the organization outside of it, i.e., its upstream or downstream operations dealing with its suppliers or customers, respectively.
- The entity's energy intensity ratio is the subject of the third disclosure under energy. This means how much energy the entity needs for each activity or output. A measure of an organization's efficiency could be this.
- The entity's energy savings as a result of some direct or indirect measures are the subject of the fourth disclosure in the same category, which relates to a reduction in energy consumption. In contrast to the organization's base year, this is calculated. The method of reduced energy consumption, such as steam, electricity, or heating and cooling, must also be reported.
- The reductions in energy consumption for goods and services sold during the reporting period compared to the predetermined base year are the subject of the fifth sub-disclosure under energy.

3) GRI 303 – About Water and Effluents

The following is the procedure to follow to prepare disclosure:

- The interactions with water as a shared resource are the subject of the first disclosure in the water category. This examines how an organization uses water throughout its value chain and how it interacts with water in terms of water withdrawal, consumption, and discharge. An organization must disclose the ways in which it addresses its water-related effects on society.
- The supervision of water discharge and the collisions it causes is the subject of the second standard. The reporting entity must prioritize the condition of the water body receiving the discharge when establishing a minimum standard for the water discharged. To guarantee the protection of aquatic life, ecosystems, and people who are directly or indirectly related

to that water body, this standard takes into account water properties like pH and temperature.

- The third sub-standard examines the organization's water withdrawals from all sources—surface water, groundwater, created water, and third-party water—with a focus on water withdrawals category-wise from areas with water stress conditions.
- The use of freshwater out of the total amount of water withdrawn must also be disclosed in a separate disclosure. The formula is:

Water consumption = Total water is withdrawn – Total water discharged

4) GRI 304 – About Biodiversity

The following are the standards to follow:

- The first sub-standard under biodiversity deals with functional units of an entity that are close to, inside, or in places that have been designated as protected areas or areas that have extremely high biodiversity values but are not designated as protected areas. The organization is required to state the size of its functional unit as well as the sort of function it provides in this region, such as office, manufacturing, or extraction.
- The second sub under the biodiversity heading deals with the direct and indirect effects of such functional units of the entity on the local biodiversity, including changes to ecosystem composition, the introduction of pests, pollution, and infrastructure development, to mention a few.
- The final disclosure pertains to the overall size and location of the habitats that the reporting organization has restored or conserved, and it must be validated by an appropriate outside body.
- In contrast to its condition at the last closing time, the extent to which such places were repaired also must be revealed.

5) GRI 305 – About Emissions

The standards are stated briefly as follows:

- The first and foremost disclosure under the Emissions category relates to the direct emissions of greenhouse gases, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), and the like, in relation to a base year decided upon by the entity, along with the justification for the base year's selection. These emissions come from processes such as self-generation of power, heating, cooling, and steam, coal burning, transportation operations, and similar processes.
- The second disclosure focuses on the emissions of greenhouse gases that occur indirectly and come from energy-related processes like buying or using energy for heating, cooling, electricity, and steam.
- The third component comprises various indirect emissions of Green House Gases as a

result of functions not directly within the organization's control, such as upstream operations such as resource extraction and downstream activities such as product end-use.

- The intensity of greenhouse gas emissions by the operating unit, broken down into direct emissions, indirect emissions linked to energy, and other indirect emissions connected to its upstream or downstream operations, are covered by the fourth disclosure under this category.

6) GRI 306 – About Effluents and Waste

The standards for this are stated as follows:

- The quality of water emitted, and the location of such discharge are the subjects of the first sub-standard under the revised requirements.
- The second sub-standard addresses the nature of the waste released, such as whether it is hazardous or not, as well as the techniques employed for disposal, such as reuse, recycling, composting, landfills, and so on.
- In accordance with the third sub-standard, explicit disclosures must be made on the linked environmental effects of such spills.
- The fourth substandard addresses the importation, exportation, and treatment of hazardous waste created by the operational unit.

7) GRI 307 - About Environmental Compliance

This standard considers the reporting entity's environmental non-compliance activities. The organization is required to inform the public of any penalties, whether monetary or not, that the relevant authority imposes on it. This data may be used to inform stakeholders about the entity's adoption of ethical behavior. The lack of any sanctions imposed on an organization of this nature should be fully disclosed as well.

8) GRI 308 - About Supplier Environmental Assessment

The environmental impacts that are brought on by the parties that the reporting entity interacts with are the main emphasis of the disclosure made in accordance with the GRI criteria. By analyzing the supply chain's contributing variables, tries to reduce environmental harm. The first sub-disclosure in this context pertains to the proportion of new suppliers that the organization discovered after doing due diligence and taking into consideration the environmental effect.

9) GRI 400 - Social Performances

Parental leaves and other incentives offered to permanent employees are also disclosed. The reporting body must describe the organization's on-the-job opportunities for workers to receive ongoing training and professional development. It must be expressly mentioned whether any instances of discrimination were reported during the compilation of the financial statements.

For quantifying and disclosing the organization's non-financial metrics, GRI Standards offer a complete set of guidelines. Environmental disclosures in annual reports are now a widespread practice among businesses everywhere. A significant portion of the environmental expenses may be decreased by implementing greener innovation by using the concept of green accounting as a tool. Focused on environmental impact management in addition to resource management.

REVIEW OF LITERATURE

a) Concept And Merits Of Green Accounting

The idea of "business sustainability" is predicated on the idea that a company will continue to exist. To do this, businesses need to be able to manage their finances so that they have enough money to operate and expand. In order to ensure that future generations have enough resources for their requirements, they must also reduce any detrimental effects on the environment and society. Bookkeeping is a science that is impacted and impacts its current circumstance. The discourses of social accounting and environmental accounting emerged during a time when environmental awareness began to gain community attention. The identification, measurement, and allocation of environmental costs, as well as their integration into business decision-making and dissemination to stockholders, are all components of environmental accounting. Business sustainability depicts the state of affairs in which it is possible to preserve, develop, and safeguard resources while also meeting the demands of a certain sector. According to Pearce, D., Hamilton, K., and Atkinson, G. (1996), green accounting teaches participants how to consider environmental factors as a means of sustainability. According to Rezaee (2015), business sustainability focuses on achieving financial performance through long-term growth and profitability as well as non-financial performance that supports effective corporate governance, moral behaviour, and social and environmental accountability. Companies are currently expected to pursue not just financial success (profit), but also to consider and participate in the welfare of the community (people) and the preservation of the environment (the planet). like the triple bottom line idea (Hadi, 2014). According to Hecht (2016), environmental issues have long dominated the public debate. Up to the 1970s, several European countries conducted environmental studies; in the late 1980s, the UN and other international organizations followed suit with programs of a similar nature. An interim accounting handbook was released in 1993, and a more thorough accounting manual was issued in the years that followed. Research by Islam and Dellaportas (2011) sought to understand the perspectives of accountants in Bangladesh, a developing nation, on corporate social and environmental reporting and responsibility. The Institute of Chartered Accountants of Bangladesh (IACB) members were polled to learn their opinions on the issues surrounding social and environmental accounting and reporting procedures in Bangladesh. The results showed that while there has been some development in EA and social accounting, it is still quite restricted. As one of the first studies to demonstrate, Alewine and Stone (2013) pointed out that the existence and arrangement of environmental accounting data have different effects on attention and investment. With the four-perspective SBSC (sustainable balanced scorecard) rather than the conventional BSC (balanced scorecard), more money was spent on environmental stewardship

goals. Students in this study may have less awareness of environmental measures than professional managers and accountants.

b) Status Of Green Accounting In India And Other Nations

Muhammad Hasyim Ashari & Yudhi Anggoro (2020) reveal that the findings indicated that the adoption of green accounting at Malang Raya's public hospitals had a 15.0% (or 12.7% moderate) impact on company sustainability, with the remaining 85.0% (or 87.3%) being impacted by variables other than the adoption of green accounting. A probability sample and the snowball sampling approach are used in the sample selection. 40 public hospitals spread out over Malang District, Malang City, and Batu City (Indonesia) provided the results. This implies that green accounting is a crucial aspect to be followed by the business enterprises. Chinese companies allegedly have reduced debt capital costs because of their enhanced environmental responsibility, according to Yeh, C. C., et al. (2020). Investing in environmental responsibility will need a corporation to make a considerable commitment to decreasing the cost of equity financing for the company (Xu, S., Liu, D., & Huang, J. 2015). Environmentally sound performance can reduce the cost of equity capital (Oikonomou, I., Brooks, C., & Brooks, C. 2014; Salvi, A., Petruzzella, F., & Giakoumelou, A. 2018). Businesses that perform best in terms of environmental sustainability face fewer capital constraints (Salvi, A., Petruzzella, F., & Giakoumelou, A. 2018). Gola KR, Mendiratta P, Gaurav G, and Mridul D. (2022). With the assistance of MAXQDA Green Accounting, it is possible to comprehend the ways in which the operations of a company contribute to the economy's well-being and environmental security. This study aims to investigate the environmental disclosures made by businesses chosen from the Nifty 50. The annual reports of 29 sample companies are subjected to content analysis using MAXQDA software, both keyword- and sector-wise, and a high count of the formulated keywords is observed in some relevant sectors, such as energy, cement, and metals.

The Figure 1 illustrates the various laws that support directly and indirectly.

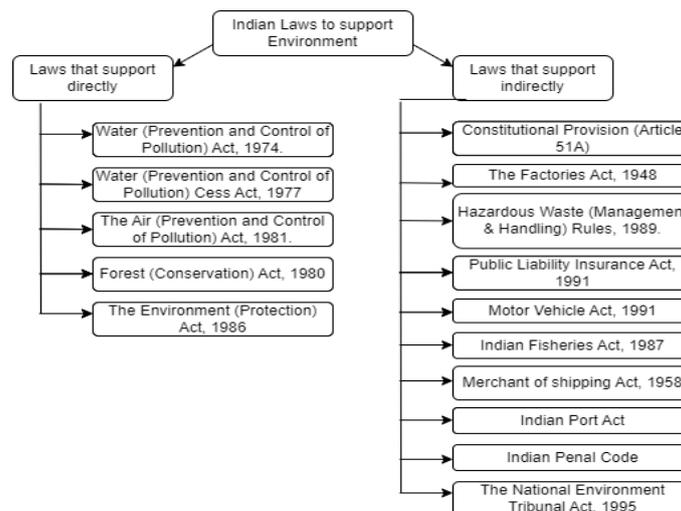


Figure 1: Indian Laws that support Green Accounting

Source: The author compiled and prepared the chart

STATEMENT OF PROBLEM

Stakeholders will believe that an organization is meeting its expectations by producing the required rate of return if the financial statements of the organization do not explicitly account for the cost of environmental degradation. A company's ability to pay its cost of capital will be incorrectly determined if the negative quantitative externalities to the environment are not considered. The introduction of ESG (Environmental, Social, and Governance) in 2005 made this feasible. Consequently, green accounting is unquestionably gaining popularity. Additionally, it has been demonstrated that sustainable business stocks exist. Many Indian corporations include an environmental commitment in their annual reports; however, this is merely a formality that does not reveal the financial ramifications. An effort should be made to convey internal environmental expenses to a corporation that have a significant influence on financial outcomes.

RESEARCH QUESTIONS

The following research questions have been raised

- a) What does "green accounting" or "environment accounting" mean?
- b) How significant is the idea of "green accounting"?
- c) Why should corporate organisations consider the environment?
- d) How do businesses take the environment into account?
- e) What analytical tools are popular for use with the EA or Green Accounting?
- f) How does Green Accounting affect the effectiveness of businesses?
- g) What best practises can be advocated and required for the good of society and business?

Objectives of the study

The following are the statement of objectives of the research:

- a) To comprehend the notion of green accounting.
- b) To know the relevance of the idea of green accounting.
- c) To comprehend and defend why business organisations care about the environment.
- d) To investigate how firms consider the environment.
- e) To determine which analytical tools are used in conjunction with the EA or green accounting.
- f) To investigate the impact of green accounting on corporate effectiveness.

- g) Identifying best practises and advocating for corporate businesses for the benefit of society and business.

RELEVANCE OF THE STUDY

Most of us are ignorant of the advantages of this novel concept. By doing the same, the environment will be revitalized and enhanced. The environment will benefit present and future generations and help the nation grow and flourish. This will also develop into one of the primary complaints and bases that the stakeholders, in particular the investors and customers, would consider when investing in the firm. It also helps the ecosystem flourish sustainably.

METHODOLOGY

The antecedents and consequences of green accounting, specifically the variables to measure its implementation, are explored through a systematic literature review and secondary data collection. EBSCO, a multidisciplinary online database, searched for research papers on "green accounting," "environmental accounting," "CSR oriented to environmental accounting," and "natural resources accounting" from peer-reviewed journals published between 2004 and 2022 for academic research and green accounting-related journals.

THEORETICAL MODEL

The following are the brief discussion of the theoretical models proposed by the different researchers:

a) Conceptual Model By Kanaka Raju K (2018)

- Green value-added products are considered eco-friendly if they adhere to tight guidelines about how their production, packing, delivery, usage, and disposal affect the environment. An "Ecolabel" symbol will be included on the packaging of environmentally friendly goods to indicate that they comply with certain sustainability requirements.
- Energy obtained from natural resources that are renewed more quickly than they are used up is referred to as renewable energy. Currently, solar and wind energy are the most widely used renewable energy sources.
- Information and communication technology (ICT) aids in automating numerous work processes so that managers and staff may spend less time and effort on regular activities. It is a chance to improve the customer support system even further.
- The principle of eco-efficiency, which entails improving customer value while minimizing detrimental environmental consequences, is the foundation of the EES (eco-efficient services) concept in functional sales. The primary objective of eco-efficiency techniques is to increase resource and energy efficiency.

- Green-labeled bonds and loans are now widely recognized as an effective means of directing investment capital toward projects aimed at climate change mitigation as well as adaptation and resilience.
- Any mode of transportation that is "green" and has a low impact on the environment is considered sustainable transportation. Sustainable transportation also involves striking a balance between our present and future requirements. Walking, biking, public transportation, carpooling, car sharing, and green vehicles are all examples of sustainable modes of transportation.
- The process by which wastes, or by-products of one industry or industrial process become raw materials for another is known as industrial symbiosis. The application of this idea contributes to the development of a circular economy and makes it possible to use materials in a way that is better for the environment.
- Because of continued investments in green alternatives, Copenhagen has ascended to the top of the list of the world's most eco-friendly cities. The city has a good level of life for its residents and a lofty goal of becoming even more environmentally friendly.

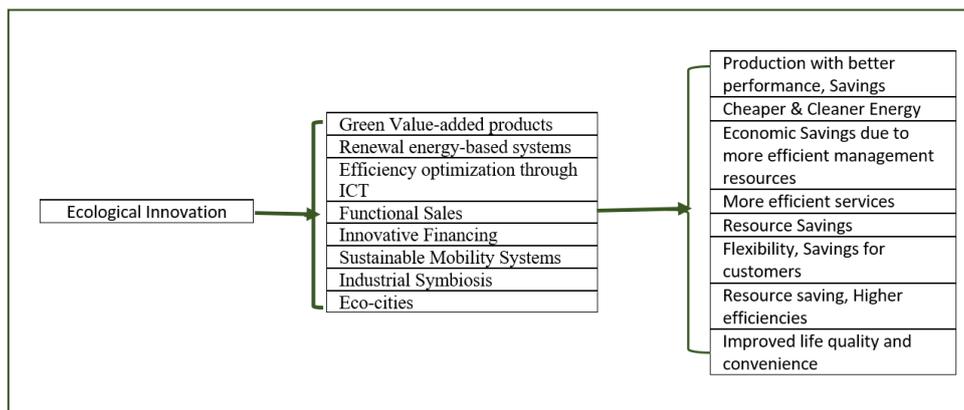


Figure 2: Conceptual Model

Source: Kanaka Raju K (2018)

The combination of the above leads to production with better performance, savings, cheaper and cleaner energy, economic savings due to efficient management of resources, more efficient services, saving of resources, savings for customers, flexibility, resource savings, and higher efficiencies, and improved life quality and convenience as depicted in Figure 2.

b) Conceptual Model By Muhammad Hasyim Ashari & Yudhi Anggoro (2020)

The researchers believe that the level of a company's sustainability can be determined by three main factors. These are the three main aspects:

- Financial audit and reporting are examples of financial aspects.
- CSR, social activity reporting, and social audit are examples of social aspects.
- Environmental aspects include environmental audits, reporting environmental issues, environmental responsibility, and involvement in environmental issues.

Capital sustainability, human resource sustainability, service continuity, and marketing continuity are all aspects of the company's sustainability as depicted in Figure 3.

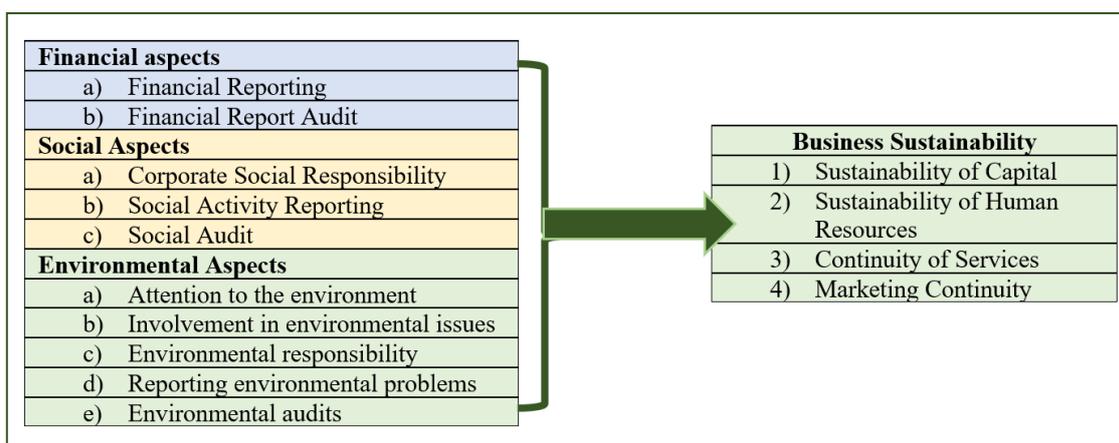


Figure 3: Conceptual Framework

Source: Muhammad Hasyim Ashari & Yudhi Anggoro (2020)

RESEARCH FINDINGS

Impact of Green accounting

Yousef F. H. (2003) states that Jordanians are aware of environmental challenges, yet they are not very committed to protecting the environment. They don't often report on how the environment is performing. The Mann-Whitney test results reveal that there is no difference in environmental knowledge, engagement, or reporting between Jordan and the United Arab Emirates. In the context of Malaysian industrial goods and construction firms, Ahmad, N.N.N. and Sulaiman, M. (2004) try to characterise the nature of created ecological disclosure requirements and the reasons for the disclosure. The study paper's findings show some limited support for the legitimacy hypothesis in an elaboration of the disclosure's nature and its causes. However, there are extremely few environmental disclosures. The aim of the study by Chatterjee, B., and Mir, M.Z. (2008) was to investigate how domestic enterprises reported on the environment in their annual reports using the authenticity theory. According to the study's findings, most Indian corporations have certainly made environmental information available on their websites and in their annual reports. According to Portuguese scholars Ribeiro, V.P.L., & Guzman, C.A. (2010), there is no correlation between enforcing mandatory environmental regulations and the development of

EA practice in the nation. The study focuses on Portugal, which is presently experiencing a time of heightened environmental disclosure rules. This will give local regulators a basis for creating more effective environmental controls and assist in their understanding of the EA and monitoring procedures now used in Portugal. According to Zvezdov (2012), a growing number of businesses have focused on the advantages of improving their social and environmental performance over the past two decades. A conceptual paper identifies the issues that arose during the rollout process and suggests a solution. According to the author, upper and middle management could benefit from the research's findings as they move away from project-based, limited analysis, and data-based decision-making to a management accounting system that is used across the entire company and can sustain itself. The environmental accounting and reporting study by Nasir Zameer Qureshi et al. (2012) is an important part of business strategy. That recognizes the numerous abilities necessary to measure, compile, and analyze the required data, generate the required performance reports, and describe the environmental aspect of the business strategy. The study focuses on the production of reports and standards for a variety of commercial and regulatory objectives. Ramesh's (2013) paper, an analysis of environmental accounting practices in a sample of Indian enterprises, aims to examine the measurement, identification, and quantification of environmental expenses. This report shows that most corporations are aware of environmental concerns and legal responsibilities for disclosure. The biggest drawback is that it is extremely challenging to precisely measure the company's environmental expenses and advantages. It is necessary to carefully weigh the costs and benefits of environmental contamination right now. According to Rewadikar (2014), green accounting is a management strategy for better considering environmental costs. It aims to learn how important it is for a company to use green accounting and keep track of what it takes from the environment and what it gives back consequently. The degree to which EA facts are disclosed has a beneficial effect on the financial success of businesses both now and in the future (Nguyen, L.S., & Tran, M.D., 2019). Environmental performance may be seen as a way of business operations with a variety of stakeholders (Oikonomou, I., Brooks, C., & Brooks, C. 2014). In their study, green accounting, and reporting practices across Indian corporate, Minimol M.C. and Makesh K.G. devised a model in February 2014 that outlines six factors to be addressed to evaluate the organization's performance. It has also investigated how much environmental reporting is done in India. In India, green accounting is still in its infancy, both at the national and business levels. There are three sides: integration with economic accounting, monetary valuation, and physical accounting. This study found the conditions under which businesses use green accounting. Though environmental pollution standards are in place, the report concludes that there are no clearly defined norms or procedures to account for them. Chaklader, B. and Gulati, P.A. (2015) examine the impact of several independent factors on the Environmental Disclosure Index using regression analysis. It demonstrates that natural accreditation lowers office costs by lowering observation costs since organizations consciously seek an outside arrangement of projected aims. Companies with stronger environmental credentials demonstrate that corporate environmental performance is positively correlated with an organization's value while also carrying a lower risk (Cai, L., Cui, J., & Jo, H. 2016; Fuadah et al., 2019). According to Jha, A., & Cox, J. (2015) a strong commitment to environmental responsibility can lower the cost of debt capital. This paper by Soares, et al

(2017) brings together ten research topics concerning the energy and environmental performance of buildings, which can support a shift towards a more sustainable built environment. The selected topics include nearly zero-energy buildings, the control of domestic energy resources in smart scenarios, and the need to include end-users' behaviors in the dynamics of energy demand. In five-year longitudinal research of environmental disclosures in corporate annual reports in the Middle Eastern, Arab, and North African areas, Gerged, A.M., Cowton, C.J. and Beddewela, E. (2017) employed content analysis as a technique. There are 180 non-financial enterprises in the sample. Although the reporting grew higher over time and suggested sustainability, it was still low in comparison to other parts of the world. Al-Shaer, H., Salama, A., & Toms, S. (2017) sought to find out what influences the number of environmental disclosures. The number of filings does not change if a company's stockholders grow. This provides additional evidence that the findings may be valid in other nations. Creative solutions alleviate the inconsistent meaning of narrative accounting regulations regarding environmental issues. Using volunteer data, corporate governance systems, particularly audit committees, have investigated the connection between environmental narratives and financial reporting. Fernandes, S.M., Bornia, A.C. and Nakamura, L.R. (2018) carried out a study in Brazil and discovered a few characteristics of the board of directors that influence the reporting environment in businesses. One of the statistically significant parameters that positively influence environmental reporting was found to be the board's independence. Lin, K.C., & Dong, X. (2018) note that due to the significance of using and disseminating EA information, academics from all over the world are paying particular attention to new studies on EA. These studies suggest that environmental performance may improve stakeholder satisfaction, brand recognition, and firm value and reduce capital investment costs. For companies with a superior history of solid environmental performance, the risk of bankruptcy is quite low. Aarathi B, Shweta S, Sneha S, and Kavitha D (2018) note that the analysis of the practices adopted by the firms is the study's principal goal. The success that the enterprises have obtained because of using green accounting is covered in the paper. Kanaka Raju K (2018) notes that most businesses in India provide information about their environmental initiatives in their annual reports; however, this is merely a minimal practice that conceals any financial repercussions. An effort should be made to inform a company about internal environmental expenditures that materially affect financial outcomes. The numerous green accounting indicators explained just 20 percent of the environmental performance. The purpose of this study by Maria E. D. Tunti, Karmila D. L. Mutia, and Linda Lomi Ga (2019) was to recognize Nusa Cendana University, Kupang's adoption of green accounting based on university social responsibility. According to the study's findings, UNDANA already has a master plan for environmental research and community service, as well as the support of human and financial resources connected to environmental challenges. The degree of environmental, financial accounting practices and current year corporal financial risk and upcoming years were investigated in Nguyen's (2019) study to see whether there is a tight correlation. The scope of exposing EA information is increasing upward (Nguyen et al., 2017). According to Rounaghi, M.M. (2019), accounting for the environment is crucial in every industry sector, regardless of its size. It is crucial to gather information from each organizational division. To achieve a common environmental goal, people from various

interest groups must communicate with one another. Regulations should be created based on useful principles, and EA goals and actions should be properly outlined. The financial reporting of environmental spending and responsibility was examined by Senn, J., & Giordano-Spring, S. in 2020. They concluded that regulators, as well as consumers, would find this study to be particularly helpful when environmental regulations are susceptible to change. The investigation contributes to the field of study. Ashima Saxena (2020) states that in 1991, as part of its request for environmental-related data from business organizations, the Government of India made its first public disclosure. Very few businesses offer sufficient environmental information. In this respect, guidelines on how to draft environmental resolutions have been provided by the Ministry of the Environment. All businesses should briefly outline the steps they have taken or are considering taking to embrace clean and pollution avoidance technology, reduce waste, recycle, and utilize waste. According to Tooranloo and Shahamabad (2020), who only focused on the economy, social problems haven't had much of an impact but have done more harm. However, accurate accounting will counteract the harm and raise environmental awareness. The results demonstrated that one of the contributing elements is a legal duty. This is the first to offer a reliable and consistent methodology for social and EA deployment. The relationship between the degree of environmental and financial accounting practices and the cost of capital was investigated in research by Nguyen Huu Anh et al., published in 2020. Over time, businesses with stronger EFAP results decreased their capital costs, but 73 firms were unable to do appropriate financial analysis for a lack of relevant data. 35 companies lacked sufficient data to calculate the financial return on capital. With a five-year lag, two-stage regression was used to tackle econometric issues.

The researchers' studies summary is presented in Table 1 to understand the variables and the impact of EA or green accounting:

Table 1: Researchers' studies summary

S. No.	Author	Variables	Result
1.	Yousef F. H. 2003	Environmental knowledge, engagement, or reporting	No difference between Jordan and the United Arab Emirates.
2.	Ahmad, N.N.N. and Sulaiman, M. 2004	Ecological disclosure and the reasons for the disclosure in Malaysia	No support and less ecological disclosures
3.	Chatterjee, B. and Mir, M.Z. 2008	Environmental information on their websites and in their companies' annual reports.	Made available in company websites and annual reports
4.	Ribeiro, V.P.L., & Guzman, C.A, 2010	Effective environmental controls in their understanding of the EA and monitoring procedures used in Portugal.	Heightened environmental disclosure rules
5.	Kabir, H. and Akinnusi, D.M. 2012	CSR perception, CSR information in the annual reports.	CSR perception varies widely around the globe and that only a small number of businesses include CSR information in their annual reports.
6.	Zvezdov, 2012	Social and environmental performance over the past two	Social and environmental performance over the past two decades yet to be improved.

		decades.	
7.	Nasir Zameer Qureshi et al. 2012	The environmental aspect of the business strategy.	Integration of EA into the business strategy.
8.	Iqbal, M., Assih, P. and Rosidi 2013	EA, Disclosures, and Value of the firm.	Environmental accounting influences the disclosure of environmental information, which in turn affects the value of the firm.
9.	Ramesh, 2013	Measurement, identification, and quantification of environmental expenses in Indian companies	Challenging to precisely measure the company's environmental expenses and advantages.
10.	Rewadikar, 2014	Green accounting as a management strategy for better considering environmental costs.	Learn how important it is for a company to use green accounting and keep track of what it takes from the environment and what it gives back consequently.
11.	Nguyen, L.S., & Tran, M.D., 2019	EA facts disclosure has a beneficial effect on the financial success of businesses both present and in the future.	The degree to which EA facts are disclosed has a beneficial effect on the financial success of businesses both now and in the future.
12.	Oikonomou, I., Brooks, C., & Brooks, C. 2014	Environmental performance and business/operations performance.	Environmental performance may be seen as a way of business operations with a variety of stakeholders.
13.	Minimol M.C. and Makesh K.G. 2014	In India, green accounting is still in its infancy and how much environmental reporting is done in India is low.	Environmental pollution standards are in place, but there are no clearly defined norms or procedures to account for them.
14.	Chaklader, B. and Gulati, P.A. 2015	Impact of several independent factors on the Environmental Disclosure Index (EDI).	It illustrates how natural accreditation decreases office expenditures by reducing observation costs since firms actively seek an external arrangement of expected goals.
15.	Cai, L., Cui, J., & Jo, H. 2016; Fuadah et al., 2019	Environmental credentials, corporate environmental performance, and organization's value.	With stronger environmental credentials demonstrate that corporate environmental performance is positively correlated with an organization's value.
16.	Jha, A., & Cox, J. 2015	Commitment to environmental responsibility and cost of debt capital.	A strong commitment to environmental responsibility can lower the cost of debt capital.
17.	Soares, et al, 2017	Energy, environmental performance of buildings, and environment sustainability.	Brings together ten research topics concerning the energy and environmental performance of buildings, which can support a shift towards a more sustainable built environment.
18.	Gerged, A.M., Cowton, C.J. and Beddewela, E. 2017	Quantum of reports on EA and environment sustainability.	Middle Eastern, Arab, and North African areas. Although the reporting grew higher over time and suggested sustainability, it was still low in comparison to other parts of the world

19.	Al-Shaer, H., Salama, A., & Toms, S. 2017	To find out what influences the number of environmental disclosures.	Using volunteer data, corporate governance systems, in particular audit committees, have examined the connection between environmental narratives and financial reporting.
20.	Fernandes, S.M., Bornia, A.C. and Nakamura, L.R. 2018	To find characteristics of the board of directors that influence the reporting environment in businesses in Brazil.	One of the statistically significant parameters that positively influence environmental reporting was found to be the board's independence.
21.	Lin, K.C., & Dong, X. 2018	Environmental performance, stakeholder satisfaction, brand recognition, firm value, and Capital investment costs.	Suggest that environmental performance may improve stakeholder satisfaction, brand recognition, and firm value and reduce capital investment costs. For companies with a superior history of solid environmental performance, the risk of bankruptcy is quite low.
22.	Aarathi B, Shweta S, Sneha S, and Kavitha D 2018	Indian Corporate Carbon Disclosures	Some well-known businesses that made the CDP (Carbon Disclosure Project) list include L&T, Essar Oil, Wipro, TCS, and Tech Mahindra.
23.	Kanaka Raju K 2018	Provision of information on their environmental initiatives in annual reports by Indian companies.	This is merely a minimal practice that conceals any financial repercussions. The numerous green accounting indicators explained just one-fifth of the environmental performance.
24.	Maria E. D. Tunti, Karmila D. L. Mutia, and Linda Lomi Ga 2019	Environmental research, community service, Human and financial resources connected to environmental challenges.	According to the study's findings, UNDANA already has a master plan for environmental research and community service, as well as the support of human and financial resources connected to environmental challenges.
25.	Nguyen et al., 2017	EA information	The scope of exposing EA information is increasing upward
26.	Rounaghi, M.M 2019	Accounting for the environment is crucial in every industry sector, regardless of its size. Goals for EA, communication among the people, and development of EA regulations	To achieve a common environmental goal, people from various interest groups must communicate with one another. Regulations should be created based on useful principles, and EA goals and actions should be properly outlined.
27.	Senn, J., & Giordano-Spring 2020	The financial reporting of environmental spending and responsibility (EA).	Environmental regulations are susceptible to change. The investigation of environmental spending contributes to the field of study.
28.	Ashima Saxena 2020	Environmental-related data from business organizations, the Government of India made its first public disclosures if any	Very few businesses offer sufficient environmental information. All businesses should briefly outline the steps they have taken or are considering taking to embrace clean and pollution avoidance technology, reduce waste, recycle, and utilize waste.

29.	Tooranloo and Shahamabad 2020	Regulations on EA	The results demonstrated that one of the contributing elements is a legal duty. This is the first to offer a reliable and consistent methodology for social and EA deployment.
30.	Nguyen Huu Anh et al., 2020	The relationship between the degree of environmental and financial accounting practices (EFAP) and the cost of capital.	Stronger EFAP results decreased their capital costs, but 73 firms were unable to do appropriate financial analysis for a lack of relevant data. 35 companies lacked sufficient data to calculate the financial return on capital. With a five-year lag, two-stage regression was used to tackle econometric issues.
31.	Muhammad Hasyim Ashari & Yudhi Anggoro 2020	EA reporting data and business sustainability	The adoption of green accounting at Malang Raya's public hospitals had a 15.0% (or 12.7% moderate) impact on company sustainability, with the remaining 85.0% (87.3% (being impacted by variables other than the adoption of green accounting).
32.	Yeh, C. C., et al. 2020	Environmental responsibility and cost of debt capital.	Chinese businesses have lower debt capital costs because of their increased environmental responsibility.
33.	Xu, S., Liu, D., & Huang, J. 2015	Investments to improve a company's performance in environmental responsibility, and costs of equity financing.	Making investments to improve a company's performance in environmental responsibility, it will make a significant commitment to lowering the costs of equity financing for the business
34.	Salvi, A., Petruzzella, F., & Giakoumelou, A. 2018	Environmental sustainability, and capital avenues (with less constraints)	The companies that do the best in terms of environmental sustainability have fewer capital constraints
35.	Oikonomou, I., Brooks, C., & Brooks, C. 2014; Salvi, A., Petruzzella, F., & Giakoumelou, A. 2018	Environmental performance and Cost of equity capital.	Strength in environmental performance can lower the cost of equity capital
36.	Gola KR, Mendiratta, P., Gaurav G., and Mridul D. 2022	Global Reporting standards, and The environmental disclosures made by the Nifty 50 corporations.	Understanding how businesses contribute to the safety and welfare of the environment and the economy may be done with the help of green accounting
Source: Compiled by the researcher			

Implications

The effects of business and human actions on the environment are a major source of concern for people all over the world. To lessen adverse environmental externalities in third-world countries, the Clean Development Mechanism (CDM) has urged first-world nations to invest in infrastructure and technology there. Calculating carbon footprint, which counts the amount of carbon dioxide (CO₂) that a person, organisation, or nation emits, is a related measurement.

It should go without saying that a commercial organisation has a huge obligation to the environment. Green accounting is still in its infancy in India because there are no accounting regulations that attempt to include environmental costs in the balance sheet. Most environmental disclosure reports are unstructured, and various industry-specific reporting formats are utilized (Negash, 2012). Soil erosion, the production of solid waste, biodiversity loss, and the problem of marine pollution are examples of degradation and harm (Sahay, 2004) to humanity. Resources, biodiversity, products and services, consistency, and transportation are only a few examples of ecological issues that are not sufficiently and clearly disclosed by Indian businesses (Swain, R.K., Kanungo, R. and Dash, S.R. 2017). Different industries and organizations disclose ecological information at different stages and that the information evidence presented in annual reports tends to be more qualitative than quantitative (Sen, M., Mukherjee, K. and Pattanayak, J.K. 2011). The subject of environmental accounting is very important. Although environmental preservation and economic expansion are important, they conflict with each other. The benefits and costs of environmental damage must be thoroughly considered to establish an acceptable amount of environmental deterioration and the required level of development. Integration is required for a monetary cost-benefit analysis of the environment. It is feasible to make public the internal expenses and gains associated with environmental actions performed by a business unit, as well as their sizable effects on reported earnings. A sustainable future is possible with the use of green accounting (Soares et al., 2017). Therefore, businesses are contemplating and developing plans to encourage ecologically sustainable practices for the present and the future. The costs and benefits of environmental contamination must be carefully considered right now. Green accounting is a management technique for better considering the expenses of the environment (Rewadikar, 2014). With implications for the economy, society, and law, environmental management has permeated boardrooms, manufacturing facilities, and commercial spaces. In addition to upholding corporate social responsibility and enhancing the bottom line, good environmental management gives businesses a competitive edge. Governments all around the world have not succeeded in achieving their goals with their command-and-control policies. Like strong environmental performance, good environmental reporting should be acknowledged and promoted (Sahay, A. 2004). The environment is becoming a more critical economic, social, and political issue. Promoting economic growth and preserving the environment are two issues the world deals with. Proper accounting of environmental consequences on economic development is necessary for sustainable development. Further, corporate reporting is a crucial tool used by corporate organizations to interact with the outside world. Many Indian businesses include environmental initiatives in their annual reports. Such reporting is only descriptive; no information regarding its financial ramifications is provided. Accounting data may be effectively linked with internal environmental costs to a corporation that has a major impact on the financial performance of the company (Manoj Goswami., 2014).

Best practices for evaluating the environmental costs and benefits and communicating those results to stakeholders must be adopted by leading businesses. Negash (2012) stresses on whether environmental deterioration may be tracked using International Financial Reporting Standards (IFRS). The financial accounts of three firms that care about the environment were

examined using qualitative and case study research techniques. The IFRS system, he advocates, offers helpful conceptual and practical foundations for keeping an eye on businesses engaged in ecologically sensitive sectors. In India the current standards are insufficient, though, and more variety in environmental accounting and disclosure procedures are yet to be developed (Ramesh and Madegoda 2019). The filing system's overarching goal is to assess how enterprises impact the society in which they operate. The law does not mandate that companies give a comprehensive, unbiased environmental performance assessment. The principles of environmental accounting and the possibility of expanding the use of environmental reporting (Abdel-Rahim, H. Y., & Abdel-Rahim, Y. M. 2010) should be necessitated. Sahay A (2004) finds that environmental reporting by Indian businesses is still in its infancy and seems to be more of a PR effort than anything else about strategy. According to GRI-India, the reporting is generally poor, fragmented, and unsystematic. Rewards for good quality should be implemented, comparable to those granted for good environmental performance in other emerging nations, to encourage businesses to provide improved environmental reporting. The emphasis placed on GDP as a growth indicator by traditional GDP statistics in the System of National Accounts (SNA) encourages unsustainable development. India has unreported resource depletion and a disregard for sustainability. Adopting a green accounting method is recommended because it may enable citizens and decision-makers to start a discussion about how to maintain growth and may encourage more prudent budget allocations to industries that generate income but are not included in traditional national accounts (Haripriya G et al., 2007).

A thorough evaluation of academic and professional literature shows that EA is crucial for managing organizations that work in ecologically sensitive sectors. The systematic review of the firms' agreements helps to split the expense of the environment and can be made public. This may support for more accurate expense recognition and billing of environmental-related charges (Haleem, A., Nazar, MCA, and Hilal, MIM 2021). It should be the main objective to comprehend the importance and advantages of environmental accounting. Currently, corporate social responsibility is concentrated on a few major topics, such as environmental responsibility. The business organisations must take measures to include renewable accounts at all levels of company (Chhagan N. Pithadiya, 2020). To encourage environmental accounting and reporting, organizations should have a fresh perspective on the subject. The initial stage in the environmental accounting process is to identify the environmental reporting requirements, such as "environmental policy, health, and environmental protection, energy conservation, environmental sustainability initiatives, sustainability monitoring," etc. The development of environmental performance Indicators is a crucial step in environmental accounting (Ashima Saxena 2020).

In a nutshell, green accounting is still in its early stages in India because there are no accounting regulations requiring the inclusion of environmental costs in balance sheets. It is feasible to make public the internal expenses and gains associated with environmental actions performed by a business unit. Adopting a green accounting method is recommended because it may enable citizens and decision-makers to start a discussion about how to maintain growth. India has unreported resource depletion and a disregard for sustainability. Adopting a green accounting method is recommended because it may enable citizens and decision-makers to start a

discussion about how to maintain growth. Rewards for good quality should be implemented, comparable to those granted for good environmental performance in other emerging nations.

CONCLUSION

Indian businesses still show little concern about the environment. This is so that companies may tout their good environmental performance because environmental reporting is uncontrolled and does not have to provide accurate data and trends. The implementation of prizes for excellent environmental reporting should encourage businesses to provide insightful environmental reporting.

Despite requests made under the Right to Information (RTI) Act, India's public information systems remain opaque, preventing significant progress toward sustainability. The importance of integrating management and evaluation of natural resources into the core of public policy and administration must be recognized. This encourages the creation of a suitable set of measures for natural resource accounting at the national and state levels.

Internal and external auditors may use the EA system as a road map to assist them in succeeding. EA has several beneficial effects on enhancing organizational performance, but it is important to take a close look at how environmental reporting is currently done. It is essential to establish a cause-and-effect association-based approach when contemplating environmental cost accounting.

Scope for Future Research

Policymakers can address a few of the issues that arise when environmental and financial accounting are combined. There are numerous approaches to this. This could be the foundation for many worthwhile research projects that could assist in the creation of capital allocation policies that consider the effects on society and the environment Nicholls (2020).

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