

THE ROLE AND TECHNIQUES OF GREEN ACCOUNTING IN SUSTAINABLE BUSINESS PRACTICE

Anna Oborska¹, MSc

¹Latvia University of Life Sciences and Technologies

Abstract. By highlighting the importance of green accounting techniques in encouraging sustainable business practices, this research delves into their evolution, definitions, and implementation - starting with a review of green accounting's origins and development, the paper explores several academic meanings of the term before focusing on how it has helped bring social and environmental costs and benefits into traditional financial accounting. Additionally, it differentiates between environmental accounting and green accounting- highlighting the differences in their respective spheres of influence; financial accounting, management accounting, and external reporting are all part of green accounting, which is a systematic approach to accounting that aims to improve both financial and environmental consequences. Green accounting procedures have a favourable effect on financial performance and environmental transparency, as the paper shows empirically and then it goes on to analyse green accounting implementation in sustainable company operations. To aid in decision-making and encourage environmental sustainability - it also presents a conceptual model for green accounting that incorporates multiple indices. Lastly, the research highlights the significance of being sensitive while implementing green accounting methods and suggests more research to create practical tools that take stakeholder viewpoints and environmental hazards into account. In sum, the research shows that green accounting is essential for businesses to be more eco-conscious and for sustainable development initiatives to progress.

Key words: green accounting, environmental impact, sustainable business practices, green accounting conceptual model, green accounting implementation.

JEL code: D29, L29, L60, L69

Introduction

The topic of green accounting, which has gained a lot of attention since the society is raising concerned with the effects of the economy on the environment, is explored in the introduction of the research study. By highlighting its function in offering a holistic perspective of economic operations whilst factoring in environmental costs, this research highlights the relevance of green accounting in the modern setting. This paper's primary objective is to investigate how green accounting has developed through time, what it means and how it fits into sustainable business practices, it seeks to clarify the significance of green accounting in fostering sustainable development and improving the long-term financial viability of businesses and nations by reviewing relevant literature and research.

Several important questions are addressed by the research, such as: how has green accounting changed throughout the years and what defines it? When comparing environmental accounting with green accounting, what are the key distinctions and how can sustainable company practices make use of green accounting techniques?

According to the theory, green accounting is vital because it shows how economic activities affect the environment, which then helps companies and politicians make more sustainable decisions. The argument is backed up by the research, which uses a literature review to examine different definitions, frameworks and methods of green accounting. Contributing to the understanding of green accounting and its implications for sustainable development, the study tries to methodically examine research findings and discussions.

¹ E-mail: anna.oborska@yahoo.com

Research results and discussion.

1. Definition of green accounting

A variety of organisations, including corporations, universities, government agencies that oversee accounting and trade groups, have taken an interest in environmental statistics since the mid-1980s, however there is no agreed-upon definition of "green accounting" according to a survey of recent scientific articles. While addressing comparable issues many writers provide varied definitions of green accounting and some popular explanations of "green accounting" are as follows.

- Green accounting is defined by Zabala-Iturriagagoitia et al. (2021) as a "framework for measuring, reporting and enhancing the environmental and social performance of an organisation." To help organisations make informed decisions that line with economic, environmental and social objectives- they suggest green accounting, which takes a complete approach to accounting by incorporating the social and environmental costs and benefits of economic operations.
- According to Mishra et al. (2020), it is "an accounting process aimed at capturing the economic, environmental and social impacts of an organization's operations." The authors also stress the significance of green accounting in promoting sustainable business practices and reducing negative social and environmental impacts.
- When it comes to incorporation with financial accounting, Blanco et al. (2021) define green accounting as a "management tool integrating environmental and social considerations into financial accounting to promote sustainable development" - they emphasise how it helps organisations understand the social and environmental impacts of their decisions and how to implement sustainable practices.

All the writers acknowledge green accounting's value as a method for revealing and evaluating the social and environmental impacts of economic activity, but they differ on the precise features that make it unique. Sustainable business practices are promoted, and crucial information is provided to policymakers to aid in policy creation.

2. Evolution of green accounting

Much has changed in the field of green accounting throughout the previous two decades; increasing numbers of individuals are becoming aware of the negative effects that economic activities have on the environment, and as a result - the need for green accounting has grown and traditional accounting methods did not incorporate environmental expenses at first. According to Lopes and Costa (2019), the concept of "green accounting"—which refers to accounting methods that take into consideration the advantages and costs to the environment—emerged in the 1980s and Weidema and Wesnaes (1996) pointed out that government mandates and voluntary efforts have both contributed to the development of green accounting.

For green accounting, a watershed moment came with the 1987 publication of the Brundtland Report, which pushed for the merging of ecological and financial concerns; the idea of sustainable development, first proposed by Elkington (1994), is based on this research, and stresses the need to balance economic, social and environmental issues.

A great deal of green accounting concepts and approaches have surfaced in the time thereafter - in order to determine how economic activities affect the environment, organisations like the United Nations System of Integrated Environmental and Economic Accounting (SEEA) lay out guidelines (United Nations, 2012). Similarly, techniques have been developed to measure the effect that goods and services have on the environment (ISO, 2006).

The growth of green accounting is evidence of an increasingly widespread agreement that businesses should account for the damage they do to the environment; green accounting is already seen as crucial for sustainability-focused researchers, regulators and enterprises, and its importance is only going to grow as more and more individuals become more environmentally conscious.

3. Differences between green accounting and environmental accounting

The environmental effects of businesses are not only studied by green accountants, but also by environmental accountants; green accounting differs from environmental accounting in its emphasis - despite their shared relationship. Research studies have concluded following variations of the two, which are listed below.

- When it comes to environmental concerns, environmental accounting takes a more holistic approach than green accounting does, since it focuses only on positive aspects (Bartolomeo et al., 2017).
- Green accounting focuses on quantifying the advantages gained from environmental efforts, such as decreased emissions and improved energy efficiency, as opposed to environmental accounting's broader evaluation of environmental problems and their costs (Cucari et al., 2017).
- Environmental accounting includes not only environmental, but it also includes the socioeconomic aspects of sustainability, in contrast to green accounting's exclusive focus just on the environmental factors alone (Becchetti et al., 2019).
- Green accounting is such an approach to financial reporting, that is proactive and future-oriented, thus encouraging sustainable activities and solutions rather than solely analysing environmental issues (Jadhav and Dhingra, 2019).
- The phrase "environmental accounting" refers to a more general idea, which combines both ecological and financial considerations. In such concept - the good and the negative environmental impacts of a business are calculated, analysed and summarised incorporating data on pollution, greenhouse gas emissions and natural resource depletion, among other environmental impacts, into financial reporting - is an important part of this process.
- Green accounting is a subset of environmental accounting, that focuses on measuring and disclosing how a company's operations help the environment; it entails putting a dollar amount on the positive activities that companies undertake for the environment, such as reducing emissions of greenhouse gases or saving natural resources.

Table 1

Comparison of environmental accounting vs. green accounting

Environmental accounting vs. green accounting			
	Environmental accounting	Green accounting	Author
1	A comprehensive approach that includes both the negative and positive aspects of the environment	Green accounting only focuses on the positive aspects	<i>Bartolomeo et al., 2017</i>
2	Environmental accounting includes the cost of environmental impacts and the benefits of environmental activities	Green accounting is a subset of environmental accounting that measures the benefits of environmental activities	<i>Cucari et al., 2017</i>
3	Environmental accounting is a broader concept that encompasses social and economic dimensions of sustainability	Green accounting focuses solely on environmental dimensions	<i>Becchetti et al., 2019</i>
4	Simply accounting for environmental impacts	Green accounting is more proactive and future-oriented, it focuses on promoting sustainable practices and solutions	<i>Jadhav and Dhingra, 2019</i>

Source: author's conclusions based on the selected authors' articles

The above study concludes, that while there are some general parallels between green accounting and environmental accounting, their scope and focus are very different - while green accounting is narrowly focused on the advantageous environmental effects of a company's actions, environmental accounting often tends to be broader.

4. Systematization of green accounting types and techniques

According to Eccles and Serafeim (2013), the term "green accounting" refers to a variety of accounting techniques for managing a company's environmental costs, benefits, and performance. Financial accounting, management accounting, and external reporting are the three systematized categories into which green accounting methods and practices can be divided (Daub et al., 2016) as follows.

- 1) Accounting for the environment: accounting for the environment combines environmental costs and benefits into financial accounts. According to Schaltegger and Bennett (2017), environmental costs can either be internal (such as managing waste and pollution) or external (such as regulatory fines and taxes). Energy savings, product innovation, and eco-efficiencies are only a few examples of environmental advantages (Sharma and Sinha, 2018).
- 2) Management accounting: businesses adopt green accounting strategy to mitigate their impact on the environment. Life cycle costing (LCC) and activity-based costing (ABC) are two examples of managerial accounting methods, that aim to improve efficiency and identify the factors which contribute to environmental costs (Grabara, 2016). Expenses over a product's whole life cycle, from raw material extraction to disposal, can be better identified with the use of LCC method, in contrast to ABC method, which focuses on particular activities and processes.
- 3) External reporting: through sustainability reports and announcements, businesses can communicate their environmental initiatives to companies' stakeholders and as Erulkar et al. (2018) suggests - sustainability reporting serves 3 key purposes: to showcase environmental accomplishments to customers, to facilitate performance tracking and to identify areas for improvement. Environmental announcements can enhance stakeholder engagement in discussions about environmental management strategies and can promote greater transparency regarding the company's environmental impact.

Several research studies emphasize the significance of diverse types and different approaches to green accounting practices in attaining business sustainability goals. One such example is the study by

Santos et al. (2017), which showed how green accounting improved financial performance of companies. "When it comes to informing stakeholders about environmental performance - sustainability reporting is crucial" - states Eccles and Serafeim (2013). Businesses can enhance self-awareness of their environmental effect whilst at the same time discovering ways to improve - by incorporating financial accounting, management accounting and external reporting into their day-to-day operations, and this will also help in promotion of sustainability reporting. A greater emphasis on long-term sustainability and more sustainable corporate practices are achieved implementing such holistic strategy as this one.

5. Implementation of green accounting techniques in sustainable business practice

The importance of green accounting approaches in encouraging ecologically conscious company operations has significantly grown in past years, since green accounting methods help companies to track, report and to control their environmental effect, whilst at the same time revealing opportunities to cut costs and boost output (Singh and Gupta, 2017). Advantages of using green accounting techniques have been highlighted by multiple research articles, for example one such article concluded, that companies employing green accounting procedures had better financial performance, according to Santos et al. (2017), who studied the effect of these approaches on Brazilian businesses; data from this research points to a favourable relationship between environmental management and financial success for companies. In a similar manner - Hassan and Marimuthu (2018) investigated the potential of green accounting to persuade Malaysian companies to use sustainable reporting standards and it was found, that companies using green accounting practices were more likely to include data on their environmental effect in their annual reports, which suggests, that when it comes to environmental performance - these methods could improve transparency and accountability.

Gandolfo and Lima (2015) also noted that businesses can improve their environmental reputation, satisfy legal requirements and reap financial rewards from using green accounting approaches and a rise in both stakeholder involvement and customer loyalty may result from this. In general - green accounting helps businesses become more eco-conscious and sustainable by tracking their spending and revenue to find ways to cut down on waste while simultaneously increasing efficiency and reaping financial benefits in the long run.

6. Conceptual model for green accounting

In this research paper, various literature on green accounting and sustainable business practice has been identified. The aim of this research is not only to sum up various literature sources on green accounting but also to analyse these sources and as a result of such analysis - to give a variety of perspectives related to environmental management and accounting measures, that aid in developing a decision-making tool for businesses to adopt sustainable accounting measures and consequently demonstrate superior environmental performance. It is clear from the conducted research, that there has been relatively little empirical research on the topic of green accounting, with the majority of studies being qualitative ones. The construction of an accounting system that has been empirically proven, will make it possible to identify the environmental performance of various businesses and organizations, according to the research's findings.

The focus of currently available studies is sustainability rather than offering companies any tangible metrics by which to make budgetary decisions. The majority of the author's development measures for indices connected to organizational sustainability and lifecycle production are qualitatively feasible. The use

of these indices could aid in determining corporate sustainability levels. Tools that link project acceptance to profitability and sustainability are still being developed.

The decision-making processes that cover the business, social and environmental procedures of the corporation, are directly related to the maintenance of productivity, diversity, ecological balance, and equity across generations. Sustainable management is the name of the management strategy that firms use. As it takes into consideration the various externalities that are present, sustainable accounting has advantages over standard measurements. This sort of accounting makes it possible to effectively identify the cost-benefit ratio for risk management, adjustment charges, overhead costs, and disclosure notes in order to provide better sustainable practices. By combining sustainability and ecosystem value, it has been discovered that the significance of sustainable accounting is connected to the greening of national income accounts. National income serves as the primary source of data regarding the current state of the country's economy, making it a common indicator of how well a country is performing in comparison to others. However, this income account has a variety of environmental treatment-related traps. The cost to the environment and the eventual internalization of costs for external consequences have increased in response to growing government and consumer pressure. If electricity costs are monitored and regulated, they are seen as contributing to overhead accounting. According to this research, the analysis and discussion of potential sustainable accounting measures are connected to financial metrics, costs, income, cash flow, the flow of relevant energy, and costs associated with energy. Implementing Environmental Management Accounting (EMA), which aids in presenting a decision-making system for firms with regard to measures encouraging greater environmental performance by establishing efficient cost assessment structures, is crucial to making this possible. So, by taking these steps, firms can exhibit stronger products, plans, and investments in their future products.

7. Key factors for creating a conceptual model.

A conceptual model must be developed to create a framework on top of which regulations and guidelines may be established and put into place to make the industry more environmentally friendly. A model's framework needs to take a variety of factors into account. Some of these considerations include the firms' obligation to protect the environment, the threats to it, the connection between and impact of various industries on the environment, and how to assess that impact. Aspects of other models that have been the subject of prior research by other authors may be incorporated into the conceptual model.

As an example, Heba Y. M. and Yousuf (2010) looked at the ideas associated with ecological accounting. In their study, they looked into ways to develop the idea of environmental reporting so that the government might use it and hold companies more accountable for their externalities. The methods they employed would be useful for quantifying the environmental impact. Cullen's (2010) approach provided effective cost allocation techniques to improve cost accounting metrics, which in turn would help management make decisions and provide greater disclosure. Some of these models served as the foundation for the creation of a template that is described in the next section.

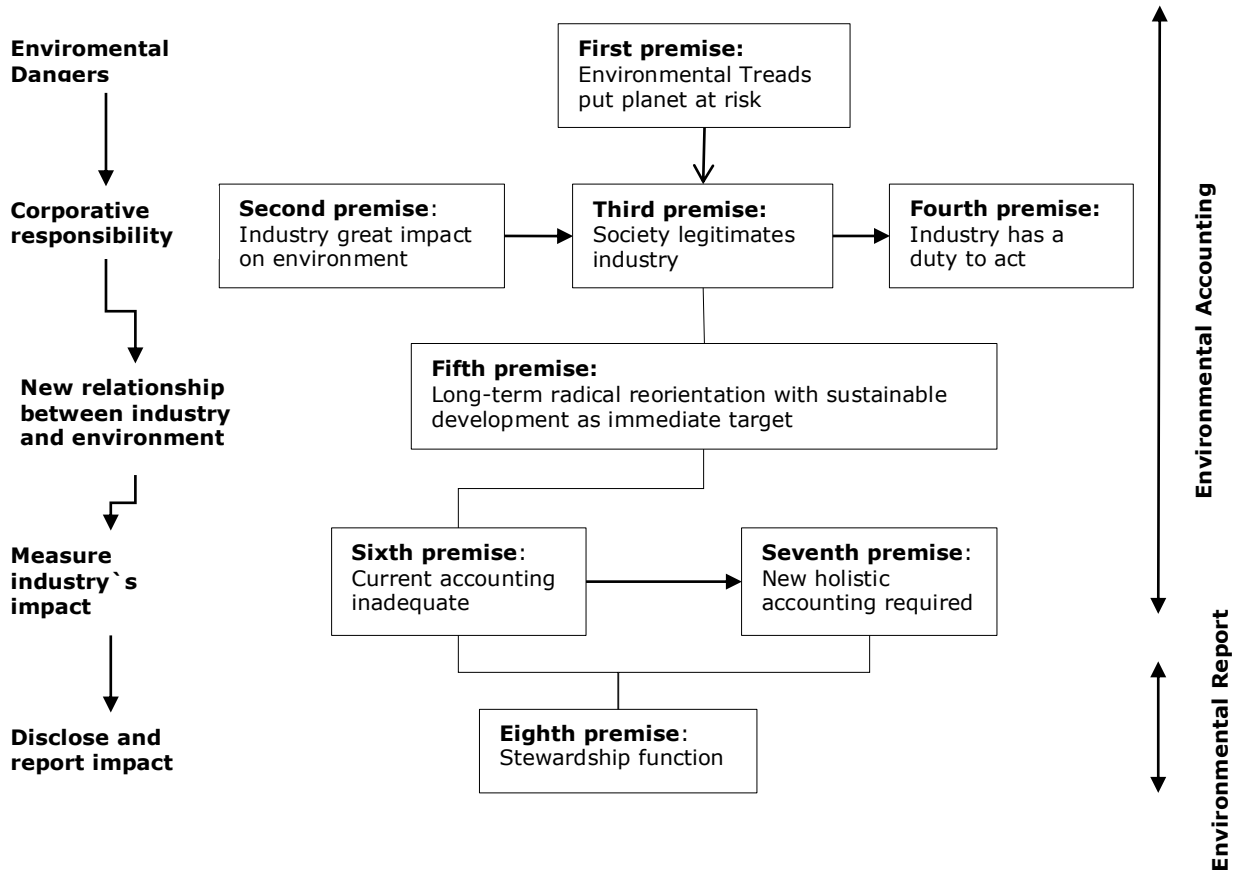
Conceptual model template

This paper is set forth in the context of a substantial body of research that addresses green accounting measures. It is evident from the information gathered from earlier publications that a multi-layered model with eight distinct indices has been identified. The purpose of this model is to offer an original perspective on the various aspects of green accounting while remaining open to the potential influence that other

models may have. This model intends to promote discussions about business attitudes toward environmental sustainability as well.

Table 2

A conceptual model for green accounting



Source: author's compilation based on Michael John Jones (2010)

CONCLUSIONS

The current work has examined the diverse approaches taken by various researchers in their individual investigations of environmental responsibility and sustainability. The socioeconomic conditions, especially in emerging and underdeveloped countries, are very diverse, as are the business reasons for implementing social and environmental accounting. Even if projects are very profitable and effective, accountants and managers might not accept the fact that they won't be permitted to implement those, if they violate important ecological functions. Managers that are more concerned with the environment will persuade clients to take on a larger portion of the responsibility for their participation in global clean-up initiatives. In an effort to teach the environmental engineers the methodology involved in environmental responsibility and the statistical methods required to monitor compliance with environmental rules, the internal accountants will be required to work in tandem with them. In order to propose a model for green accounting, this research summed up a theoretical framework to support environmental management (serious environmental risks; corporate responsibility; a new link between business and environment; measure industry's influence; disclose and report impact). The approach was created based on a personal conviction that businesses ought to try to ensure that environmental concerns are addressed. The main conclusions drawn as a result of this research:

- 1) green accounting is important in promoting environmental consciousness and sustainable businesses development;
- 2) green accounting practices are effective in enhancing a company's financial performance and environmental transparency;
- 3) conceptual model for green accounting aids businesses in decision-making and improves environmental sustainability ;
- 4) corporate perspectives on green accounting differ from academic viewpoints, therefore gaps need to be bridged between theoretical robustness and practical applicability.

The academic publications on green accounting, that were analysed for this study, don't entirely agree with corporate viewpoints, but they also don't propose extreme ideas that can't be put into practice in any real-world situation. This research aims to highlight the importance of being extremely sensitive to how green accounting procedures are implemented and how their requirements are to be valid and implementable theoretical policy prescriptions. Future research should be presented in a way that makes academicians sensitive to strategies for promoting green accounting and mobilizing risks, in order to recognize the issues with current green accounting practices and develop a workable instrument while keeping all sensitivity issues in mind.

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