

# Civilization Costs Mother Nature: Tracing the Conceptual Ideals and Legal Landscape of Environmental Accounting in Bangladesh

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## Abstract:

Today, environmental conditions are deteriorating fast, and a tragedy is imminent. Business's careless environmental practices largely cause these transformations. Thus, corporations must demonstrate morality through protecting the environment (Shil & Iqbal, 2005). Bangladesh has inadequate waste management, air and water pollution, and land degradation (Masud et al., 2017). So, environmental deterioration and natural resource waste must be avoided for future generations (Gao, 1995). Due to these challenges, universities, government, and advocacy groups have intensified social and environmental research (Abdalla et al., 2014). This research aims to comprehensively examine the existing literature on Environmental Accounting (EA) and establish EA's conceptual and legal foundations in Bangladesh. This study analyzes Environmental Accounting and Reporting (EAR) scholars' concepts rigorously. Additionally, it delves into the legal framework by analyzing relevant laws and international treaties, conventions, standards, codes, and guidelines related to EAR. This study also reviews Financial Accounting Standards (IFRS & IAS) relevant to EAR. This concludes that different authors conducted substantial research at different junctures. They presented several ideological frameworks, and this paper uses Michael John Jones' probable conceptual model for EAR, environmental accounting within a neo-classical framework, and Simon S Gao's suggested new framework (1995). Bangladesh also has several EA regulations, international treaties, agreements, and standards. These frameworks will be the foundation of future EA research.

**Keywords:** Environmental Accounting (EA), Environmental Accounting and Reporting (EAR) Framework, International Accounting Standards (IAS), International Financial Reporting Standards (IFRS), International Accounting Standards Committee (IASC), International Accounting Standards Board (IASB).

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## Introduction:

Recent years have seen "accounting for the environment" emerge as one of accounting's fastest-growing subfields, and its reach has expanded beyond that of traditional accounting academics and practitioners (Mathews, 1997). Sustainability and environmental catastrophes were the first catalysts for the growth of environmental accounting (Van, 2012) that began in the 1970s in Norway (Shil & Iqbal, 2005) and has grown in importance in the past decade (Hecht, 2000). However, developing environmental accounts is a controversial topic with considerable effort from various experts and there is still significant disagreement on the practical methods to do so, resulting in many countries holding back on their development (Hecht, 2000). The accounting system must be built to provide sufficient data on the environmental impact of businesses. In addition, environmental issues are now a worldwide concern, necessitating many layers of analysis, such as organizational, regional, and national, when doing environmental accounting (Van, 2012). Over the last decade, conceptual and technical aspects of building environmental accounting have received much attention; however, more needs to be learned about how these are used for policymaking (Shil & Iqbal, 2005). It is advised that Bangladesh's professional accounting organizations and international & national policymakers should develop distinct conceptual frameworks for environmental accounting and reporting for the nation's financial and non-financial sectors (Masud et al., 2017).

## Literature Review:

Hecht (2000) said that over the last decade, environmental accounting's significance has expanded as national

income accounts have been revised to account for the environment's economic function. However, many nations have yet to adopt this kind of accounting, and the debate over whether or not to do so continues to go on. In 2001, the United Nations Department of Economic and Social Affairs (UNSD) released a paper titled "Improving the Role of Government in the Promotion of Environmental Management Accounting (EMA)". This article aimed to describe the fundamentals of Environmental Management Accounting, with a particular emphasis on methods for measuring environmental costs that may be used in formulating national EMA standards and framework. The World Bank's environment department and the UN's Department of Economic and Social Affairs in the Statistical Division (ESAD) have partnered to build a complete structure of economic and eco-friendly national accounts. The suggestion states that the Millennium Ecosystem Assessment (MEA) has determined that the inability to value ecosystem services was the fundamental cause of the problem and that environmental accounts may include improved policy. Using environmental accounting, nations may monitor the progress toward establishing a firm groundwork for policy intervention and relying on sustainable development at every stage. Van (2012) analyzed the historical context and current trends in environmental accounting, focusing on its usefulness as a complementary tool to the conventional accounting system; this review, which will finish with a look at the situation in Hungary, will focus on these issues. Deshpande (2015) focused on understanding the concept of green accounting. Environmental considerations are increasingly being included in corporate strategy. Businesses may track their resource use and the associated costs using green accounting. The strategy utilizes an ecosystem's cost and benefit to a firm to determine a net benefit. The findings revealed that green accounting practices in India varied significantly between manufacturing and non-manufacturing enterprises.

Shil & Iqbal (2005) endeavored to provide a comprehensive definition of environmental accounting and delineate its scope. Additionally, they comprehensively examined the prevailing methods used by various firms, ranging from general-purpose financial statements to the extent of disclosure. Gao (1995) intends to discuss environmental accounting, namely its framework and structure, emphasizing its basic operating system. According to this system, environmental accounting may be broken down into two distinct subfields: corporate environmental accounting and social environmental accounting. Under this structure, there are two data types: product-centric and ecosystem-centric. Jones (2010) creates a deep theoretical environmental reporting and accounting framework. There are eight premises in this theoretical framework. In addition, he proposed a revamped environmental accounting system to record and report on every aspect of a business's environmental consequences. This involves taking into consideration issues like air and water pollution and the steady loss of natural resources. One might choose either a harm cost basis, an avoidance basis, or a restorative basis in their thinking. Lehman & Kuruppu's (2017) study aimed to clarify how the field of social and environmental accounting (SEAR) might help us better connect with nature. Based on four ideal types—procedural ethics, critical theory, postmodernism, and interpretivism—their research offers a tentative classification. Business cases, critical theories, radical theories, and critical realism/interpretivism are all examples of these developments in SEAR. This article aims to help newcomers to the field understand what SEAR is and how to get started with it. Ahmad et al. (1999) explored the concept of green accounting in two workshops organized by IUCN, Bangladesh, in Dhaka (1997, 1998). Experts, scholars, bureaucrats, decision-makers, and consultants from various government and non-government organizations were among the attendees. The workshop minutes have been available to raise consciousness of the necessity of using environmental accounting in Bangladesh. It is intended that scholars and organizers find the contents helpful in supporting a more complex calculation of national revenue to accurately represent the forces of the environmental and other related concerns engaged in economic operations.

Pramanik et al. (2009) provided a theoretical explanation of environmental reporting and suggestions for businesses. The paper noted that there is no required framework or style for business environmental reporting and that such reports remain optional. Typically, voluntary disclosure results in non-disclosure, whereas mandatory disclosure results in minimal disclosure. As it is a matter of life and sustainability, environmental disclosure should, therefore, incorporate both perspectives. This paper concluded that the level, scope, and manner of disclosure are in no way satisfactory. Professionals and relevant regulatory bodies need to step up with rigid norms and standards to address this critical issue. According to Barbu et al. (2014), national legislation enormously affects IFRS reporting. Additionally, they agreed that IFRSs were implemented differently across enterprises and nations, mainly due to the continued existence of reporting conventions and variations in national regulations. Firoz & Ansari (2010) discussed IFRSs and IASs according to their relevance in different environmental accounting scenarios. They also concluded that although companies still need to expand the breadth of environmental and financial reporting beyond the current reporting practices, environmental and financial reporting practices are growing day by day.

### **Objective:**

This paper has two primary goals. The first goal is to bring together and make sense of many theoretical foundations and conceptual frameworks for environmental accounting that have been published in the past.

Secondly, to navigate the legal frameworks of environmental accounting in Bangladesh based on different rules, regulations and treaties applicable to Bangladesh.

### **Methodology:**

The study's methodology is based on the analysis and interpretation of pertinent professional literature. As for its relevance, it is based on the fact that, to the best of the authors' knowledge, a similar in-depth study has yet to be conducted on environmental accounting frameworks that focus on a developing nation like Bangladesh.

### **Rationale of EA Framework:**

New and current needs for natural resources will not be taken into account by the traditional accounting system. This might threaten non-market product inclusion in GDP, natural capital replenishment, environmental degradation as a social cost of economic activity, and the long-term viability of financial performance and development (Farouk et al., 2012). Businesses are responsible for significant environmental degradation, making corporate environmental accounting an essential study area (Van, 2012; Pramanik et al., 2009) as well as a green or environmental accounting system may help reduce the likelihood of pollution and related damages (Asheim, 1997). Lafontaine (2002) states that addressing environmental issues in everyday life requires looking at them from a variety of angles, including the economic, legal, accounting, financial, and technological. In order for the organization to take on duty, it must first undergo the statutory screening of the dangers posed by the surrounding environment. Eugénio et al. (2010) suggested that more investigation into the connections between disclosure and performance is necessary, specifically looking into concerns of culture and the legal framework under which businesses operate.

Since 2008, Bangladesh Bank (the country's central bank) has released several circulars focusing on societal and environmental issues (Sayaduzzaman & Masud, 2012). In addition, it has been pivotal in recent years, especially when it issued a detailed circular addressing the adoption of environmentally friendly practices by banking institutions (i.e., BRPD Circular No. 2) (Masud et al., 2017). Thus, in 2011 the Bangladesh Bank (BB) announced the first-ever guidelines for environmental risk management (ERM) in the banking or financial sectors (BB, 2022). Now, Bangladesh Bank's green policy guidelines are the only legally binding framework for Bangladesh's financial institutions (Masud et al., 2017). For Bangladeshi banks and other financial institutions, the Bangladesh Bank released ESRM Guidelines in 2017. Based on the lessons learned during the guidelines' first rollout, BB has issued a revised set of regulation-the Guidelines on Environmental & Social Risk Management (ESRM) for Banks and Financial Institutions in Bangladesh-to standardize the industry. A mandatory Environmental and Social Impact Assessment (ESIA) report must be submitted with loan applications in 10 ecologically and socially sensitive industries listed in Appendix 1 of the ESRM instructions. BB offers sector-specific instructions to address these sectors' social and environmental risks. (SFD Circular No-03, Dated: 26/06/22). As of 2013, Bangladesh Bank has also been issuing a yearly report on the financial industry titled "Green Banking Review," which details the many green performance efforts undertaken by banks, both financial and non-financial (Masud et al., 2017). These guidelines are only applicable to banking and financial activities of the aforementioned 10 sectors of Bangladesh, not to all sectors or activities; that's why it is compulsory to develop a framework (conceptual and legal) for environmental accounting in Bangladesh. Moreover, Farouk et al. (2012) suggested that there needs to be a lot of empirical research in environmental accounting.

### **Conceptual Model:**

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

Environmental Accounting helps us figure out how the natural world affects the economy. Natural resources contribute to economic well-being, and environmental accounting shows the costs associated with pollution and resource depletion. Environmental accounting is sometimes referred to as "green accounting", "resource accounting" or "integrated economic and environmental accounting" (Hecht, 1997). The field of environmental accounting has its origins in the social accounting system, from which it has evolved into a sub-system that may complement more conventional forms of accounting (Van, 2012). Shil & Iqbal (2005) thought that environmental accounting may be used to demonstrate this dedication by striking a balance between the expenses incurred by businesses and the benefits received by society. Mehedy et al., (2018) simply refer environmental accounting is the practice of incorporating information on the financial and environmental impacts of a company's activities. Its goal is to visually represent a company's environmental expenditures and the returns on those investments in terms of money. Information, environmental safeguards, and accountancy all play a role in environmental accounting. For instance, "environmental accounting" might mean taking into account the environment or establishing a system of double-entry bookkeeping for environmental activities (Peskin & Lutz, 1990). According to Houldin (1993), environmental accounting will incorporate the following areas of study: cost analysis in critical areas like energy, waste, and environmental protection; investment appraisal that takes environmental factors into account; the creation of innovative accounting and information

systems; the evaluation of the costs and benefits of environmental improvement programs; and the creation of accounting methods that express these findings. The terms "environmental accounting" and "environmental reporting" refer, respectively, to creating and implementing a system for keeping track of environmental data and disseminating such data to interested parties outside of the organization. Environmental accounting is related to environmental evidence and eco-auditing systems (Mohammad, 2012). The term "environmental accounting" (EA) is used in a wide variety of contexts, including the evaluation and disclosure of financial information about the environment within the framework of financial accounting and reporting, the evaluation and use of physical and monetary information on the environment within the framework of Environmental Management Accounting (EMA); the estimation of external environmental impacts and costs, also known as Full Cost Accounting (FCA); and the accounting for the externalities resulting from an organization's activities (IFAC,2005).

## 2. The Phases of Development of Social Accounting and Environmental Accounting

Environmental accounting is a subgenre of social accounting that focuses on the effects of a company's operations on the natural environment (Eugénio et al., 2010). However, in the 1980s, environmental accounting became more prominent while social accounting faded into the background, signaling a shift in the trajectory of both disciplines (Van, 2012). Mathews (1997) provides an extensive 25-year social and environmental accounting literature review. The author divides time into 1971–1980, 1981–1990, and 1991–1995. He grouped articles by period into empirical investigations, normative declarations, philosophical debate, non-accounting literature, educational programs and textbooks, regulatory frameworks, and other literature evaluations. This segment is excellent for newcomers like us who want to investigate this field. Finally, the author discusses social and environmental accounting literature, predicts future directions, makes some comments, and concludes that "accountants, whether academic or professional, must redirect their efforts before they become experts in a shrinking area of diminishing importance." Expanding accounting to incorporate social and environmental data, particularly environmental audits, may avoid this.

The following section is regarding the growth phases of environmental accounting as it is very necessary to develop a concrete conceptual understanding of environmental accounting.

Table 1: Growth Phases of Environmental Accounting

Phases	Developments
Evolution	In the 1960s, social accounting originally gained popularity in the contexts of business ethics, social obligations, and environmental concerns.
The beginning	Even though there was a surge of interest in environmental issues in the 1970s, some people are beginning to doubt the value of accounting and the need to disclose data on environmental impacts.
The novel wave	Natural catastrophes in the 1980s sparked a heightened interest in the field because of the worldwide scale at which corporations are increasingly contributing to environmental degradation. The advent of niche accounting publications also contributed to the period's rapid growth. Environmental accounting begins to develop independently from social accounting during this time frame.
Maturation phase	Environmental accounting within social accounting became more well-known in the 1990s, and it emerged as a significant area of study that received acknowledgment in accounting research.
Modern Environmental accounting	Environmental performance may be measured with the aid of environmental accounting, which is directly related to businesses' social role. Businesses are increasingly interested in comprehending, analyzing, and controlling environmental costs and revenues.

Source: Hajnalka Van, 2012, *Environmental Accounting – A New Challenge for the Accounting System*, (p 2-3)

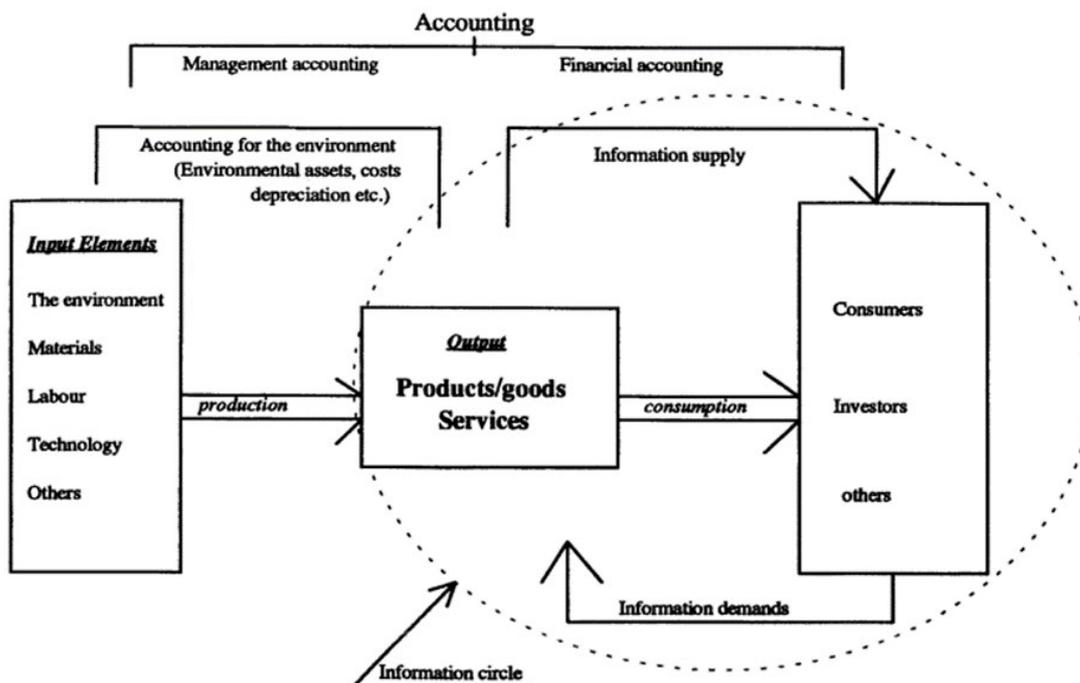
## 3. Conceptual Framework:

Due to the difference in economic resources and environmental problems between industrialized and developing countries, their requirement for better resource and environmental accounting must differ. So, no resource and environmental accounting method can be applied universally to all developing countries. The best framework for emerging nations like Bangladesh would likely borrow ideas from many different models used successfully in developed nations (Peskin & Lutz, 1990). A conceptual model is desperately needed to create a framework over which laws and standards may be devised and put into place to make the business more environmentally friendly. A model's framework has to take several factors into account. Some of these considerations include the businesses' environmental responsibilities, the environmental threats, the interactions and effects of various industries on the environment, and how to quantify these effects (Farouk et al.,2012). The conceptual model may incorporate elements of other models that have been the subject of prior research by different authors. In their 2010 study, Abdel-Rahim, H., & Abdel-Rahim, Y. looked at the ideas behind environmental accounting. In their study, they investigated methods to advance the concept of environmental reporting so that the government

might use it and hold businesses more responsible for their externalities. The techniques they used would aid in calculating the environmental effect. 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. Several of these models served as the foundation for creating the correct model described in the following section.

**Gao (1995)** spoke about theoretical foundations for including sustainability accounting as a component of the overall accounting system. In his article, he showed two environmental accounting frameworks: Neo-classical and Alternative or new.

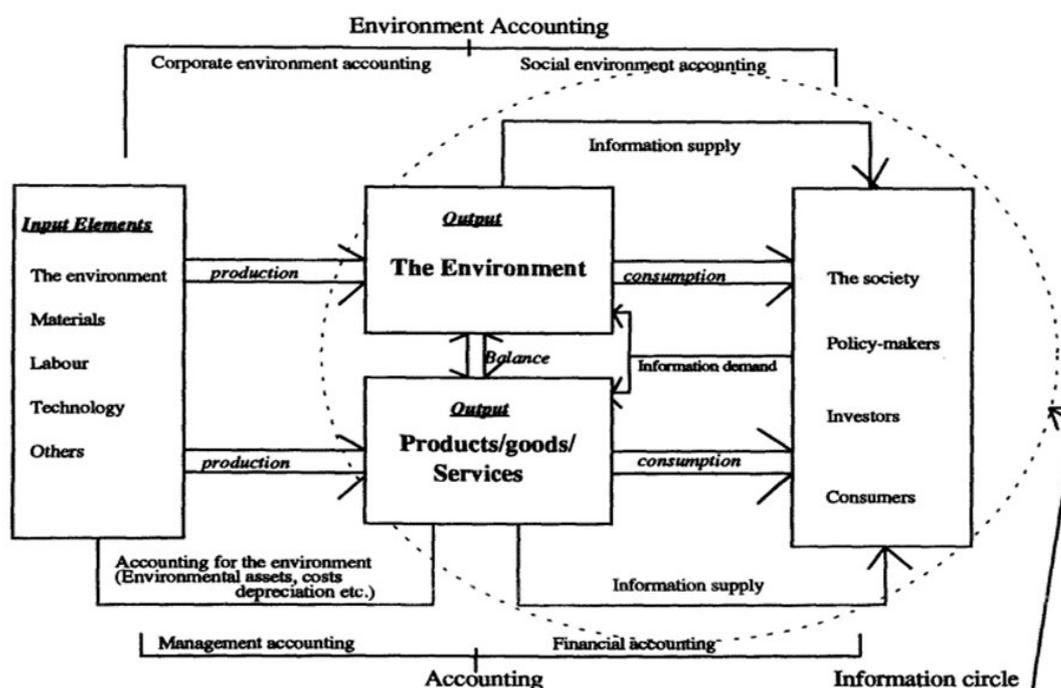
**Neo-Classical Framework:** Traditionally, environmental accounting has been based on neoclassical economic theory, which treats environmental assets and liabilities as if their impact on economic activity were the same as that of more conventional, commercially traded assets and liabilities.



**Figure 1: Neo-classical Framework of Environmental Accounting by Simon S. Gao.**

According to this approach, environmental accounting, or particularly accounting for the environment, qualifies as a subset of managerial accounting and is primarily concerned with the costing of environmental assets and the analysis of environmental risk. The information circle theory illustrates the relationships between the environment, production, and consumer information supply and demand.

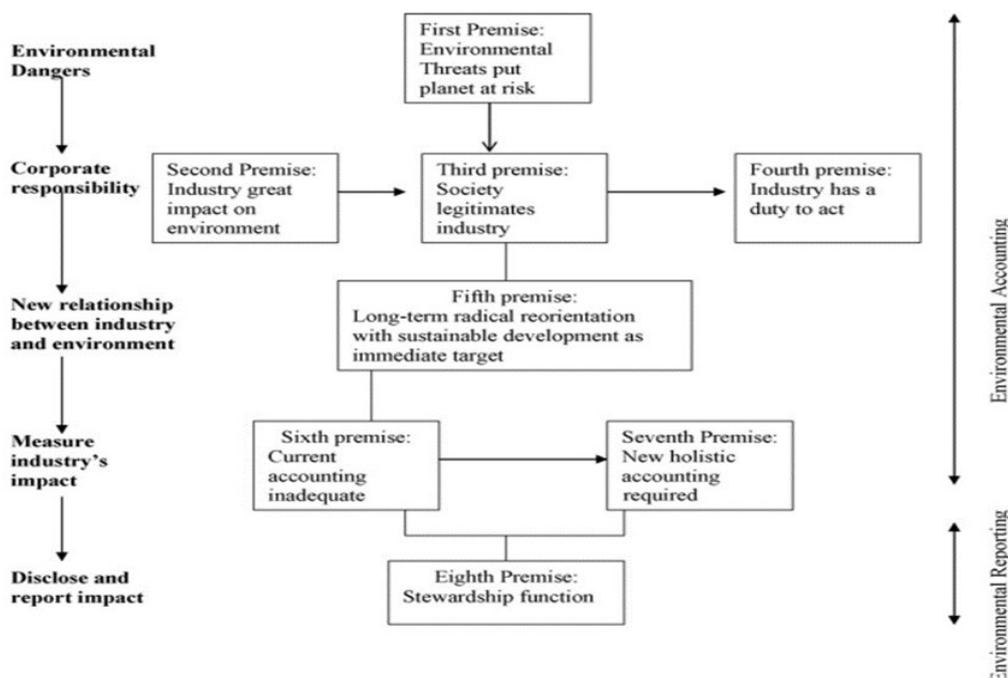
**Alternative framework:** Based on this framework's assumptions, environmental outputs, and their non-environmental counterparts must remain in a state of dynamic equilibrium. Demand exists for data that elucidate the structure of items that are both environmentally friendly and those that are not. According to this model, Corporate and social environmental accounting are the two main subsets of environmental accounting.



**Figure 2: Alternative or New Framework of Environmental Accounting by Simon S. Gao**

Under this framework, the scope and audience for environmental accounting, defined here as the process of keeping track of, measuring, evaluating, and reporting on data related to the environment's production and consumption, will grow. Natural resources are used in the production of both environmentally friendly and non-green goods. This framework represents input, output, consumers, and environmental accounting relationships. This summary is in line with the UN's suggestions.

Jones (2010) created a deep theoretical model to support environmental reporting and accounting. There are eight assumptions in this theoretical framework. They are based on research in environmental ethics, economics, and accounting. This integrative and summative theoretical model (shown in the picture) builds on the many threads of earlier theoretical research. As a whole, this essay takes the viewpoint of the Western industrialized world. However, it might be useful in the third world.



**Figure 3: A likely conceptual model for environmental accounting and reporting by Michael John Jones.**

This model comprises eight underlying premises and five primary components: environmental risks, communal responsibility, a new interaction between industry and the environment, and the requirement to assess and report this influence. Environmentally speaking, people and especially industry are having a significant impact. Human activity has historically had a gradual and random effect on the natural world, but today, industrial activity, in particular, has a considerable impact on a wide range of human endeavors. These days, businesses should formally acknowledge that the environment is in danger, that they have to take action to protect it, that they are, in fact, acting as stewards of the environment, and that they must acknowledge and cooperate with a more extensive network of social, economic, and environmental systems. An effect measurement framework for the industry is needed. Accounting as it is practiced now, however, has to be updated for a variety of reasons (including but not limited to economic dependency, capitalist perspective, corporate focus, emphasis on neoclassical economics, quantitative measurement, and technical accounting procedures). So, there must be a new comprehensive accounting system that accounts for the company's ecological consequences. Lastly, it is claimed that companies will be more responsible for environmental impacts because of their stewardship function.

### **Legal Structure of Environmental Accounting in Bangladesh**

Financial accounting was less regulated in 1971-1980 than in 1995, and environmental accounting was unregulated; however, standard legislation applied. Few attempts have been made over time to standardize environmental accounting mostly based on current financial accounting conceptual frameworks and standards. In 1995, numerous nations were close to establishing a clear regulatory framework. The accounting profession, except in Canada, is not developing clear conceptual frameworks and standards to regulate reports. Instead, they are adapting and interpreting laws (Mathews, 1997). There has been tremendous expansion in international and mutual agreements, state regulation, soft rule, law and policy literature, and legal philosophy in the subject of environmental law across the globe in recent decades. While there is a wealth of information out there, it has traditionally been challenging to access it all in one place for no cost. In order to meet the need for easily accessible knowledge on environmental law, the IUCN, FAO, and UNEP collaborated to develop a website called ECOLEX- a web-based information service combining data on environmental legislation gathered by the three organizations involved to provide a comprehensive resource. Accounting for the environment and reporting on it are in their burgeoning stages of development (Deshwal, 2015). Laws, regulations, and guidelines on corporate environmental reporting and disclosure are needed to be developed (Shil & Iqbal, 2005) to guide the rehearses of Environmental Accounting and Reporting (Mehedy et al., 2018) and also to ensure the level of compliance with environmental rules (Deshwal, 2015). A final choice on framework or system layout and the extent to which the strategy is executed should be based on an appraisal of the policy demands of the specific nation with the resources that the country can dedicate to data production (Peskin & Lutz, 1990). Therefore, compulsory regulations are probably more successful than optional regulations (Jones, 2010).

According to Section 18(A) of the Bangladesh Constitution, the government must work to maintain the natural assets, ecosystems, woodlands, wetland areas, and animals to benefit its current and future residents. However, Bangladesh receives relatively less attention in Environmental Accounting and Reporting studies than other developing countries (Masud et al., 2017). The Bangladesh Environmental Conservation Act of 1995 and Rules 1997 (and its amendments) were enacted as the primary environmental protection legislation in the country. Its purposes include environmental conservation, establishing environmental standards, and regulating and eliminating pollution. This act gives the government the power to set up a Department of Environment to facilitate the implementation of this act. Bangladesh also established the Ministry of Environment and Forest, now known as the Ministry of Environment, Forests, and Climate Change, intending to coordinate environmental protection and anti-pollution measures among the states and the various ministries in response to growing global concern about environmental protection. It is important to remember that every new construction project in Bangladesh must first get an Environmental Clearance Certificate, as prescribed by rules, from the Director General (Section-12 of Bangladesh Environmental Conservation Act of-1995) and asked to disclose environmental information on demand (Masud et al., 2017). Per the established guidelines, all such projects must get environmental and anti-pollution clearance before commencement. This section tries to identify the legal aspects, legal bindings, or legal frameworks of environmental accounting in Bangladesh.

#### **➤ Various Laws Pertinent to Environmental Protection are as Under**

(a) Directly related to environment protection:

- Bangladesh Environmental Conservation Act, 1995 (revised in 2010)
- Environment Conservation Rules, 1997 (revised in 2003)
- Environment Conservation Rules, 2023
- National Environmental Policy, 2018
- Environment Pollution Control Ordinance, 1977
- Environmental Quality Standards for Bangladesh, 1991

- National Environment Management Action Plan (NEMAP), 1995
- Environment Court Act, 2010
- The Environment Pollution Control Ordinance, 1977
- Bangladesh Water Act, 2013
- National Land Use Policy, 2001
- Brick Manufacturing and Brick Kilns Establishment (Control), 2013 and (Amendment) Bill, 2019
- Noise Pollution (Control) Rules, 2006
- Guideline on Environmental and Social Risk Management (ESRM) for Banks and Financial Institutions in Bangladesh, 2017
- EIA Guidelines for Industry, 2021

**Source: Masud et al., (2017), ESRM Guidelines (2017), Pramanik et al., (2009), Jolly (2014), Negash (2012) and authors' own compilation.**

(b) Indirectly related to environment protection:

- Constitutional Provision (Article 18A)
- The Factories Act, 1965
- Motor Vehicles Ordinance, 1983
- National 3R Strategy, 2010 for Waste Management
- Clean Dhaka Master Plan 2005
- Ship Breaking and Recycling Rules 2011
- Industrial Policy 1991, 2005
- Labor Policy, 2012
- Bangladesh Bio-safety Rules, 2012
- Ecologically Critical Area (ECA) Management Rules, 2016
- Bangladesh Bio-diversity Act, 2017
- Hazardous Waste and Ship Breaking Waste Management Rules, 2011
- Biomedical Waste Management Rules, 2008
- National Solid Waste Management Rules, 2021
- Bangladesh National Building Code (BNBC), 2020
- Ozone Depleting Substances Rules, 2004

**Source: Khan & Jui (2016), Masud et al., (2017), ESRM Guidelines (2017), Pramanik et al., (2009), Negash (2012) and authors' own compilation.**

➤ **International Treaties, Conventions, Standards, Codes and Guidelines for Environmental Accounting and Reporting**

In 1972, The United Nations Environmental Program (UNEP) was established as a direct result of the global Conference on the State of the World, which took place in Stockholm that year and brought together global leaders for the first time to deal with environmental challenges as a whole (UNEP, n.d., Wikipedia, n.d.). The UN created the World Commission on Environment and Development (WCED), also known as the Brundtland Commission, in the mid-1980s due to changing conditions and environmental challenges in industrialized and developing nations. The 1987 Commission report "Our Common Future" suggested "sustainable development." This notion gained global recognition and led to the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, known as the "EARTH SUMMIT." At this summit, chiefs of state signed four accords, including Agenda 21. Agenda 21 lists dos and don'ts for protecting the environment in the future century (Pramanik et al., 2009). There is a continuous increase in the number of global regulations, statutes, and guidelines that concern ecological or sustainability reporting. Among these international standards, the GRI G3 Guidelines are widely recognized as the most comprehensive tool for assessing and reporting on sustainability. The others are:

- ❖ UN Environmental Program (UNEP)
- ❖ World Commission on Environment and Development (WCED), known as Brundtland Commission
- ❖ The UN Global Compact
- ❖ UN Principles for Responsible Investment (UNPRI).
- ❖ The Organization for Economic Cooperation and Development (OECD).
- ❖ The International Organization for Standardization (ISO).
- ❖ The Coalition for Environmentally Responsible Economies (CERES) Principles
- ❖ The SA8000 standard
- ❖ AA1000 Accountability Principles Standard (AA1000APS), 2008.
- ❖ AA1000 Accountability Principles (AA1000AP), 2018.
- ❖ The Carbon Disclosure Project (CDP)
- ❖ United Nations Division for Sustainable Development (UNSD), (2001)

- ❖ The International Union for Conservation of Nature (IUCN)
- ❖ Global Environmental Management Initiatives (GEMI)
- ❖ European Union Eco-Management and Audit Scheme (EMAS)
- ❖ Global Reporting Initiatives (GRI)
- ❖ The Public Environmental Reporting Initiative (PERI)

**Source: Khan & Jui (2016), Masud et al., (2017), ESRM Guidelines (2017), Pramanik et al., (2009), Negash (2012) and authors' own compilation.**

These organizations and initiatives are taken from time to time to provide guidelines, direction, framework, or regulation of environmental accounting and reporting.

➤ **Financial Standards Related to Environmental Accounting and Reporting**

A set of accounting rules controls corporate financial reporting (Khan & Jui, 2016). While professional accounting bodies are usually slow to develop accounting standards concerning environmental issues (Pramanik et al., 2009), a number of standard-setting organizations (i.e., SASB, VRF, CDCB, ISSB) have been working to create environmental accounting and reporting standards that assure the accurate and complete disclosure of business environmental performance related-info as well as align the traditional accounting and reporting habits both at the local and global levels. Currently, the International Accounting Standards Committee (IASC) is considering a worldwide environmental accounting standard. The World Bank, UN, and IFAC's environmental recommendation documents have pressured the IASC to create an environmental standard. Also, the Federation of European Accountants (FEE) wants the IASC to tighten environmental accounting standards. A unique environmental requirement is needed, even if many of the IASC's basic criteria apply. The IASC, now the International Accounting Standards Board (IASB), is developing a worldwide standard to narrow the gap in environmental accounting practices across countries (Pramanik et al., 2009). In November 2021, the International Financial Reporting Standards (IFRS) Foundation confirmed that it would establish the International Sustainability Standards Board (ISSB) to provide a uniform set of specific sustainability disclosure criteria to meet the needs of investors worldwide. In addition, the IFRS Foundation made intentions to merge with the Value Reporting Foundation (VRF) and the Carbon Disclosure Standards Board (CDSB). The VRF and the IFRS Foundation officially merged on August 1, 2022. The ISSB will coexist with the IASB and work closely with them to synchronize the IFRS Sustainability Disclosure Standards with the IFRS Accounting Standards. Moreover, The ISSB will come up with IFRS Sustainability Disclosure Standards, which will include disclosure standards to address organizations' effects on sustainability concerns essential to measuring their value and making decisions regarding investments. The ISSB made significant progress towards this aim when it released a blueprint of two proposed standards, namely, **General Requirements for Disclosure of Sustainability-related Financial Information (IFRS S1)** and **Climate-related Disclosures (IFRS S2)**, and plans to issue around the end of Q2 2023 (IFRS,2022; IFRS,2023). Using the guidelines of these standards, businesses may report on their sustainability and environmental efforts in detail to investors worldwide and ensure conformity with regulations imposed by different governmental entities or interest groups. At present, the IASB has a core set of standards (Pramanik et al., 2009), but no one standard is dedicated to environmental concerns (Goyal, 2013; Enahoro, 2009). However, various accounting standards include several direct and indirect references to environmental issues (Pramanik et al., 2009; Goyal, 2013) and the procedure for recognizing, measuring, and disclosing environmental assets, liabilities, and costs (Barbu et al., 2014). The studies by Barbu et al. (2014), Enahoro (2009), Goyal (2013), Pramanik et al. (2009), Firoz and Ansari (2010), and Khan & Jui (2016) looked at all IAS/IFRS standards and IFRIC interpretations. Also, they discovered several current standards and interpretations closely related to environmental issues. The following is the substance of these standards (IAS/IFRS) and interpretations (IFRIC):

Table 2: Contribution of Accounting Standards and interpretations in Environmental Accounting.

IFRS/IAS Number	Title and/or Descriptions	Previously Adopted in Bangladesh as	Relevancy with Environmental Accounting
Framework	Framework for preparation & presentation of financial statements	Framework	* Environmental accounting and sustainability are under the purview of IASB and FASB's conceptual framework.
IAS 1	Presentation of financial statements	BAS 1	* Provide a minimum set of information in their comprehensive financial statements. * Present financial and non-financial (including environmental) information

IFRS/IAS Number	Title and/or Descriptions	Previously Adopted in Bangladesh as	Relevancy with Environmental Accounting
IAS 8	Accounting policies, changes in accounting estimates and errors	BAS 8	<ul style="list-style-type: none"> <li>* It indirectly helps companies choose suitable accounting policies for measuring and reporting environmental costs, liabilities, and performance.</li> <li>* It also offers a structure for changes in accounting policies and estimates related to ecological matters.</li> <li>* Its principles align with other accounting standards that seek to ensure uniformity, openness, and accuracy in environmental reporting.</li> </ul>
IAS 10	Events after the Reporting Period	BAS 10	<ul style="list-style-type: none"> <li>* Adjustments should be made for environmental events that occur at the end of the reporting period but influence decision-making, such as a large environmental incident or a substantial change in environmental regulatory requirements. However, disclosures should be made for environmental events that occur after the reporting period ends.</li> <li>* Environmental issues often involve ongoing events like regulatory changes, legal proceedings, or new environmental liabilities. Entities should carefully assess how these subsequent events may affect their financial statements and disclosures.</li> </ul>
IAS 16	Property, Plant and Equipment	BAS 16	<ul style="list-style-type: none"> <li>* It guides organizations in the recognition, measurement, and disclosure of assets with environmental significance, such as eco-friendly equipment or pollution control infrastructure.</li> <li>* The accounting and depreciation standards in IAS 16 ensure that environmental assets and their values are correctly reported in financial statements. This helps stakeholders evaluate an entity's environmental efforts and effects.</li> </ul>
IAS 20	Accounting for Government Grants and Disclosure of Government Assistance	BAS 20	<ul style="list-style-type: none"> <li>* It guides entities on accounting for grants they get for environmental projects or sustainability efforts. This makes sure that the money is recorded correctly in their financial statements.</li> <li>* The government's allowance for emission trading should be seen as a grant.</li> </ul>
IAS 27, IFRS 3, IAS 28 and SIC 12 (Superseded by IFRS 10 and 12)	Separate Financial Statements, Business Combinations, Investments in Associates and Joint Ventures, Consolidation – Special Purpose Entities	BAS 27, BFRS 3, BAS 28 and SIC 12 (Superseded by IFRS 10 and 12)	<ul style="list-style-type: none"> <li>* In the case of listed legal entities, group and consolidated statements are created. Companies, both publicly traded and unlisted, may be held liable for environmental standards violations in states where their respective divisions now operate or have in the past. This might then cause a wave of unbundling.</li> </ul>
IAS 36	Impairment of Assets	BAS 36	<ul style="list-style-type: none"> <li>* IAS 36 requires corporations to determine recoverable amounts of assets, including environmental ones like pollution control equipment and damaged property.</li> <li>* This standard ensures that potential impairments related to environmental factors, like changes in environmental regulations or contamination remediation costs, are considered and disclosed.</li> </ul>

IFRS/IAS Number	Title and/or Descriptions	Previously Adopted in Bangladesh as	Relevancy with Environmental Accounting
IAS 37	Provisions, Contingent Liabilities and Contingent Assets	BAS 37	<p>* A company may not have to clean up its environmental pollution. IAS 37 allows accounting for a constructive responsibility if a corporation is environmentally friendly. IAS 37 requires commitment from the past.</p> <p>* Thus, the corporation only has to account for past environmental harm, not future damage.</p>
IAS 38	Intangible Assets	BAS 38	<p>* It facilitates the recognition and measurement of environmental intangible assets such as patents for green technologies or intellectual property rights for sustainable products.</p> <p>* It also addresses issues like government-issued emission rights, trading in those rights, impairment, and recognition and measurement of such emission rights.</p>
IAS 32, IAS 39, IFRS 7, & IFRS 9	Financial Instruments: Presentation, Recognition and Measurement, Disclosures.	BAS 32, BAS 39, BFRS 7, & BFRS 9	<p>* These standards are relevant for disclosing past and current environmental risk(s), qualitative and quantitative descriptions of effective and ineffective hedging strategies, and fair value of carbon derivatives and other environmental assets and liabilities.</p>
IAS 41	Agriculture	BAS 41	<p>* This standard deals with a highly environmentally sensitive activity (Agriculture or Biological Assets) and prescribes the treatment, presentation and disclosure of Agricultural activity.</p>
IFRS 1	First- time Adoption of IFRS	BFRS 1	<p>* Environmental assets, liabilities, and costs may need to be revalued when organizations shift to IFRS reporting. IFRS 1 guarantees consistent and transparent recognition and assessment of environmental accounting elements during this transition.</p>
IFRS 6	Exploration for and Evaluation of Mineral Resources	BFRS 6	<p>* Extractive industries must recognize exploration and evaluation assets on their balance sheets under IFRS 6. These assets cover mineral resource exploration and feasibility studies. Exploration may occur in ecologically vulnerable locations or include environmental impact assessments.</p> <p>* A mining corporation hunting minerals must pay for drilling, geological investigations, and environmental impact assessments to meet regulatory standards and avoid ecological damage. IFRS 6 recognizes and reports all these expenditures as exploration and evaluation assets.</p>
IFRS 8	Operating Segments	BERS 8	<p>* IFRS 8 requires reporting financial and descriptive information regarding reportable or operational segments that fulfill certain requirements. Firms must also declare their goods, services, and locations.</p> <p>* IFRS 8 affects enterprises in recycling, green technology, renewable energy, and other environmental service and protection sectors.</p>

IFRS/IAS Number	Title and/or Descriptions	Previously Adopted in Bangladesh as	Relevancy with Environmental Accounting
IFRS 10	Consolidated Financial Statements	BFRS 10	<p>* Consolidated financial statements must be presented and prepared when an entity controls two or more other entities.</p> <p>* IFRS 10 promotes transparency and accountability in reporting environmental-related activities and their financial impacts by fully integrating subsidiaries or controlled entities' financial impacts into the parent company's financial statements.</p>
IFRS 11	Joint Arrangements		<p>* Where a joint operation involves environmental activities or costs, IFRS 11 can be used to determine how those costs are allocated and accounted for among the joint operators.</p> <p>* IFRS 11 guides joint ventures in the recognition, measurement, and disclosure of environmental assets and liabilities. A joint venture arrangement with a significant environmental impact or exposure to environmental hazards may be required to disclose its nature and extent, financial implications, and potential liabilities.</p>
IFRS 12	Disclosure of Interests in Other Entities		<p>* Interest in other firms with environmental activities, assets, or liabilities may be subject to disclosure requirements under this standard.</p> <p>* Businesses must disclose environmental decisions and assumptions regarding environmental risks and uncertainties, including their nature, scale, financial impacts, and management and mitigation strategies when assessing their interests in other entities.</p>
IFRS 13	Fair Value Measurement		<p>* Environmental assets, such as renewable energy facilities, water rights, or carbon credits, and liabilities, such as provisions for site remediation or environmental clean-up costs, are sometimes required to be measured in fair value to provide transparent and reliable information and assess potential financial impact.</p>
IFRS 15	Revenue from Contracts with Customers		<p>* The principles of IFRS 15 would be applied to recognizing revenue from environmental services provided by an organization, such as environmental consultancy, sustainability evaluations, or carbon offset programs.</p> <p>* Contracts must divide transaction prices between environmental and non-environmental performance requirements under IFRS 15. Revenue from environmental equipment and maintenance services should be recorded separately.</p>
IFRS 16	Leases		<p>* Under IFRS 16, a lessee's balance sheet would include environmental assets including renewable energy plants, pollution control equipment, and green infrastructure. This ensures the lessee's financial accounts accurately represent environmental asset leasing.</p> <p>* IFRS 16 alters lease accounting for lessors, notably finance leases. The standard may affect revenue recognition and financial reporting for lessors of environmental assets, including solar farms and water treatment plants.</p>

IFRS/IAS Number	Title and/or Descriptions	Previously Adopted in Bangladesh as	Relevancy with Environmental Accounting
IFRS 17	Insurance Contracts		<p>* IFRS 17 governs accounting for environmental insurance contracts. Financial statements may indicate environmental risk coverage even though the standard focuses on insurance contract financial reporting. This disclosure would reveal ecological risk management practices.</p> <p>* Insurance contracts may have environmental characteristics. A contract may incentivize environmentally-friendly practices or penalize environmentally detrimental actions. IFRS 17 may not directly address environmental accounting, but financial reporting of such elements may indirectly contribute to environmental accounting by revealing the entity's environmentally conscious practices.</p>
IFRIC 5	Rights to Interests arising from Decommissioning, Restoration and Environmental Rehabilitation Funds		<p>* IFRIC 5 covers accounting for decommissioning obligations, which may include charges for dismantling, removing, or repairing assets at the end of their useful life. Environmental duties like site cleanup or facility shutdown may cause decommissioning liabilities. IFRIC 5 helps companies meet their ecological responsibilities by advising with decommissioning liability recognition and measurement.</p>
IFRIC 6	Liabilities arising from Participating in a Specific Market—Waste Electrical and Electronic Equipment		<p>* The EU Directive on Waste Electrical and Electronic Equipment (WE&amp;EE) controls waste equipment collections, treatment, retrieval, and ecologically sound dumping, generating concerns regarding when to decommission it.</p> <p>* The Directive compels historical home equipment makers to pay for trash disposal for a time set by each Member State's legislation. The Directive makes each Member State create a method to ensure manufacturers pay expenditures proportionately.</p>
IFRS S1	General Requirements for Disclosure of Sustainability related Financial Information		<p>* This international standard encourages businesses to disclose sustainability-related threats and opportunities that may affect their short, intermediate, or long-term cash flow, financing options, or cost of capital.</p> <p>* A company must disclose its governance structure, business objectives, risk management procedures, and performance indicators under this standard.</p>
IFRS S2	Climate-related Disclosures		<p>* This Standard necessitates a business to report climate-related risks and opportunities that may influence its cash movements, credit options, or cost of capital in different terms.</p> <p>* This Standard relates to (a) the entity's climate-related physical and transition risks and (b) its climate-related opportunities.</p>

### Conclusions:

Qualitative studies dominate environmental accounting literature, and more empirical research in this area needs to be done (Farouk et al.,2012). Current accounting is inadequate to assess the industry's impact for several reasons (including but not limited to monetary dependency, capitalist orientation, commercial emphasis, reliance on neoclassical economic theory, numerical evaluation, and complex accounting practices). Therefore, a new kind of holistic accounting is required to account for the environmental effects of businesses (Jones, 2010). An

entire environmental management system may benefit from taking environmental costs and performance into account. Soon, such a system will be required of all businesses involved in international trade due to forthcoming worldwide consensus norms. (Mehedy et al., 2018). This article aimed to provide a comprehensive analysis of environmental accounting (EA) literature, shedding light on its evolution and varied approaches. It seeks to establish a strong conceptual and legal foundation for EA in Bangladesh. By delving into the ideas and theories of diverse scholars, the paper offers valuable insights, utilizing conceptual frameworks such as Michael John Jones' model, the neo-classical approach, and Simon S. Gao's innovative framework. These frameworks are poised to guide future research in the dynamic field of EA. Furthermore, this article underscores the extensive web of regulations, treaties, conventions, and standards that govern EA in Bangladesh. These legal structures are essential for steering the nation toward environmental responsibility. Undoubtedly, growing environmental awareness will have influenced the flourishing of environmental accounting as well as increased spending on environmental management and investment. However, as developing countries like Bangladesh grapple with unique environmental challenges, the choice of an appropriate environmental accounting framework becomes critical. It's evident that there's no one-size-fits-all approach, and a tailored conceptual model is needed to guide the development of environmental accounting practices that align with specific economic and environmental circumstances.

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#### **Appendix:**

1. 10 environmentally and socially sensitive sectors (Textile and Apparel, Cement Manufacturing, Tanning and Leather Finishing, Ceramic Tile and Sanitary Ware Manufacturing, Pharmaceutical, Power, Fertilizer Manufacturing, Pulp & Paper, Steel Re-Rolling, Ship Breaking).