Status of Green Accounting in Bangladesh

A Thesis Submitted in Fulfilment of the Requirements
for the Degree of Master of Philosophy

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DECLARATION

I, **Juwel Kumar Saha**, declare that the content in this thesis, **"Status of Green Accounting in Bangladesh,"** is the result of my research conducted from the date of the official commencement of the approved research activities, except for other people's work as a reference that has been duly acknowledged. I further declare that this thesis work has not been presented before to qualify for any other academic award at this University or elsewhere.

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CERTIFICATION

I certify that the thesis entitled ***"Status of Green Accounting in Bangladesh"*** submitted for the degree of Master of Philosophy by **Juwel Kumar Saha** is the record of research work carried out by him from the date of the official commencement of the approved research activities under my guidance and supervision, and that this work has not formed the basis for any other academic award at this University or elsewhere.

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ADC	Alternate Delivery Channel
ASR	Asia Sustainability Reporting
ATM	Automated Teller Machine
BB	Bangladesh Bank
BEA	Bureau of Economic Analysis
BFRS	Bangladesh Financial Reporting Standards
BIBM	Bangladesh Institute of Bank Management
BSEC	Bangladesh Securities and Exchange Commission
CSE	Chittagong Stock Exchange
CRF	Climate Risk Fund
CSR	Corporate Social Responsibility
DSE	Dhaka Stock Exchange
EAR	Environmental Accounting and Reporting
ENRAP	Environmental and Natural Resource Accounting Project
ESRR	Environmental and Social Risk Rating
FASB	Financial Accounting Standards Board
FCBs	Foreign Commercial Banks
FSS	Financial Service Sector
FY	Financial Year
GAAP	Generally Accepted Accounting Principles
GHG	Green House Gas
GRI	Global Reporting Initiative
IASC	International Accounting Standards Committee
ICAB	Institute of Chartered Accountants of Bangladesh
IFAC	International Federation of Accountants
ISO	International Organization for Standardization
ISR	Independent Sustainable Reporting
KPMG	Klynveld Peat Marwick Goerdeler
LDC	Least Developed Country

LEED	Leadership in Energy and Environmental Design
MCA	Ministry of Corporate Affairs
NAMEA	National Accounting Matrix including Environmental Accounts
NBFIs	Non-Bank Financial Institutions
NCSR	National Center for Sustainability Reporting
NRC	National Research Council
PCBs	Private Commercial Banks
PMIS	Personal Management Information System
SCBs	State-owned Commercial Banks
SDBs	State-owned Development Banks
SDGs	Sustainable Development Goals
SEEA	System of Integrated Economic and Environment Accounting
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNSD	United Nations Statistics Division
USEPA	United States Environmental Protection Agency

Abstract

The study explores the current status of Green Accounting and Reporting (GAR) practices in Bangladesh's banking sector, focusing on corporate sustainability and environmental matters. The research also aims to measure the extent of GAR practices of all thirty commercial banks listed in the stock exchanges based on GRI Standards, focusing broadly on green issues from an environmental perspective. Specifically, the research is based on three objectives to enhance the core objective by simultaneously addressing three research questions. This study used content analysis as the main method to answer the first and second research questions. Further, the survey method, mainly a questionnaire, was employed to address the third and final research question.

The first research objective explores the overall nature of GAR practices in Bangladesh's banking industry, analyzing the content of specific areas of GAR information in the annual reports of 30 selected banks listed in the stock exchanges. The results indicate a significant increase in the adoption of GAR practices in recent years. The second objective measures the extent of GAR practices by Bangladeshi banks, explicitly focusing on adherence to GRI Standards regarding the environment. The study finds that almost all sampled banks provided GAR information but needed to be fully compliant with the GRI Standards.

The third and final research objective identifies the challenges Bangladeshi banks currently face in adopting GAR practices. A questionnaire survey was conducted with 20 selected staff members of the sustainability department of the banks to identify the challenges in practice. Key challenges hindering the adoption of GAR in the banking sector include undeveloped green infrastructure, lack of awareness about green technologies, unskilled workforce, lack of consciousness about green accounts, low adoption of green initiatives, inadequate in-house green activities, lack of coordination with different stakeholders, and insufficient information about green issues.

The research results promote sustainability and environmental responsibility in the financial industry, helping banks attain ongoing improvement and nurture connections with stakeholders. This allows banks to adequately explain sustainable growth's positive and negative implications, improving transparency and accountability. The

study offers policy recommendations to encourage implementing GAR practices in Bangladesh's banking sector, aiming to inspire authorities to develop sustainable initiatives and reporting practices.

CHAPTER ONE: INTRODUCTION

Sustainability has been integrated in two primary ways. Firstly, the pursuit of environmental and social responsibility is achieved through ecological and socially responsible efforts, such as enhancing recycling programs and energy efficiency, endorsing cultural events, implementing better human resource practices, and making charitable donations. Furthermore, sustainability is achieved by incorporating environmental and social factors into the design of products, as well as the mission policies and strategies. (Sustainable Banking, BB Annual Report, 2018, p.55).

1.1 Introduction

The term 'Green Accounting', popularly known as 'Environmental Accounting', refers to incorporating the broader concept of sustainable development. Currently, global warming and climate change risks are the most devastating problems worldwide. Due to excessive carbon emissions, businesses operate in the 'Green' concept (Masud and Hossain, 2016). Organizations worldwide are interested in designing policies highlighting green issues to fasten economic sustainability. As a significant step, eco-friendly organizations refer to practices and guidelines that enable them to contribute to an environmentally sustainable economy and socially responsible funds, processes, and capacity building.

Concerning this, the banking sector shows signs of success in developing Bangladesh's national economy as one of the determinants of accelerating sustainable growth for this sector. However, the recent performance of the banking industry could have been more favorable due to following traditional financial reporting systems (Mahmud et al., 2017). Despite performing multiple research studies on CSR in Bangladesh, there needs to be more emphasis on EAR issues compared to other developing nations (Masud et al., 2017). This study aims to examine the existing status of GAR practices in Bangladesh's banking industry and explore the disclosure status of green issues according to globally recognized standards. The research findings can deliver a policy guideline for the concerned authorities in Bangladesh's

banking industry to develop the current status of green accounting and reporting and its impact.

1.2 Problem Statement

Bangladesh is ranked as the top country with the most polluted urban air, according to the World Health Organization (WHO). This statement highlights the significant danger posed to the global environment, particularly in South Asian countries (Molla, 2020). Green Accounting and Reporting (GAR) can effectively promote the adoption of sustainable practices within business organizations (Dilling, 2010) and establishes a framework that holds businesses accountable for considering environmental concerns when making business decisions. Prior to reaching a conclusion, an organization considers the influence of stakeholders and aims to establish the credibility of its positive influence on the environment as seen by society and various interest groups (Dissanayake et al., 2016). In this regard, GAR contributes to the preparation, presentation and analysis of green information for concerned parties (Rahman and Muttakin, 2005).

Companies in Bangladesh are willingly engaging in environmental reporting (Dutta and Bose, 2008; Ahmad, 2012), and extensive research has been carried out on Environmental Accounting and Reporting (EAR) practices of manufacturing companies in Bangladesh (Belal, 2000; Imam, 1999, 2000; Shil and Iqbal, 2005; Rahman and Muttakin, 2005; Hossain et al., 2006; Hossain and Chowdhury, 2014). Manufacturing firms were formerly held responsible for contributing to global warming, climate change, and carbon emissions. However, service-related enterprises were also involved in environmental and climate change issues (Hossain et al., 2016). In addition, banks and other financial institutions rely on power, petrol, gas, water, and energy to carry out their daily operations. It is worth noting that these institutions often provide funding to organizations and projects that contribute to social and global environmental pollution (Hossain et al., 2016). Given Bangladesh's susceptibility to environmental issues, the banking sector in the country commonly employs the term "environmental and corporate responsibility reporting" (Masud and Hossain, 2016).

Bangladesh encounters many environmental obstacles, encompassing air and water contamination, soil deterioration, and waste administration (Masud et al., 2017). Due to its high vulnerability to climate change, Bangladesh, like numerous other nations,

has pledged to mitigate the effects of climate hazards. It has been at the forefront of incorporating environmental and social considerations into its financing and investment activities, with a consistent effort to establish sustainable finance practices in the financial sector (Sustainable and Inclusive Banking, BB Annual Report, 2019). In addition, banking institutions in Bangladesh have actively engaged in CSR and EAR initiatives (Ullah and Rahman, 2015; Sobhani et al., 2009, 2012). Furthermore, they have received international recognition for successfully implementing extensive CSR programs (Khan et al., 2011). Since 2008, the Central Bank of Bangladesh, known as Bangladesh Bank, has made significant strides in issuing circulars about social and environmental matters (Sayaduzzaman and Masud, 2012).

In addition, BB has played a crucial role in publishing a comprehensive circular (BRPD Circular No.2/2011) that mandates financial institutions' application of green policies. This circular is the first mandatory framework in the history of Bangladesh's financial organizations. The current situation has presented a significant example of environmentally responsible reporting by banks in Bangladesh. However, the debate revolves around whether the prominent banks in Bangladesh have engaged in any actions regarding GAR, considering the nation's fragile ecological condition. Nevertheless, the study of green disclosure is constrained to recent investigations on the disclosure of environmentally friendly practices by banks that adhere to global reporting standards, with only a few considerations given to GRI (Khan et al., 2011; Khan, 2016; Masud and Hossain, 2016), CSR (Ullah and Rahman, 2015; Khan, 2010; Bose et al., 2017; Khan et al., 2009), and sustainability (Sobhani et al., 2009, 2012).

Prior research has presented varied findings regarding the disclosure of EAR by banking and non-banking companies in Bangladesh. In their study, Masud et al. (2016) investigated the nature and extent of environmental accounting concepts and reporting in the annual reports of banking companies in Bangladesh. On the other hand, another study designed by Masud et al. (2017) examined the practices of EAR in Bangladesh's banking sector by employing a model that consisted of twelve categories to assess the disclosure of EAR. Furthermore, some research has investigated the effects of green banking disclosure and green policy on Bangladeshi banks. Masud and Hossain (2016) evaluated the green banking and reporting issues in Bangladeshi commercial banks, whereas Hoque et al. (2019) investigated the current state of green banking practices of commercial banks and NBFIs in Bangladesh. As

mentioned above, the research was conducted using a restricted number of banks and secondary data sources only as quantitative approaches, with varying outcomes regarding green disclosures. In addition, several studies (Islam, 2018; Hossain et al., 2016; Chowdhury and Dey, 2016; Faruque et al., 2016; Rahman and Perves, 2016) were conducted just after the inception of BB's green reporting guideline in 2011. These studies focused on the nature of green banking reporting practices and relied solely on secondary sources of green data.

However, in recent decades, Global Reporting Initiative (GRI) has significantly enhanced guidelines for preparing sustainability reports (Mahmud et al., 2017). A limited number of studies were undertaken using the GRI reporting framework on the green disclosure practices in Bangladeshi banks. Khan et al. (2011) examined the trend of sustainability reporting by the leading commercial banks in Bangladesh. They utilized the GRI G3 Guidelines and the GRI FSS-specific performance indicators to assess sustainability in five key areas: environment, society, labor practices, human rights, decent work, and product responsibility. Islam and Chowdhury (2016) conducted a study to assess the sustainability disclosure practices in Bangladesh's banking sector, specifically focusing on adherence to the GRI G4 guidelines, whereas another study by Masud and Hossain (2016) examined the green banking and reporting practices of Bangladeshi commercial banks, with a specific emphasis on environmental issues and compliance with the GRI G4 guidelines. Furthermore, Mahmud et al. (2017) conducted a significant study examining the current trends and practices of sustainability reporting in Bangladesh's banking sector, focusing on the GRI guidelines. The study provided recommendations for the relevant authorities in Bangladesh's banking industry to foster a culture of sustainable reporting. Similarly, Islam (2020) investigated the same phenomena concerning the environment but limited the study to three banks.

Therefore, Bangladesh allocates less emphasis on green disclosure research than other developing nations (Masud et al., 2017) and requires more extraordinary dedication from organizations toward stakeholders involved in societal activities (Masud and Kabir, 2016). Furthermore, previous research has evaluated the green disclosures of Bangladeshi banks by focusing on a small number of banks and relying solely on secondary sources of information by employing quantitative methods. Therefore, additional research is focused on addressing the deficiency in this field. This study

provides a detailed analysis of the green activities carried out by Bangladeshi banks, including all the commercial banks listed in the Dhaka Stock Exchange (DSE). Furthermore, this research is the first known study to comprehensively analyze the sustainability indicators of Bangladeshi banks using the current GRI reporting framework, specifically focusing on the green element as outlined in the GRI Standards. Therefore, this study would be distinctive and contribute a new dimension to Bangladesh's existing body of green accounting literature.

1.3 Research Objectives and Questions

The research's core objective is to explore the existing status of GAR practices and their problems in Bangladesh's banking sector. To achieve this core objective, all thirty commercial banks listed in the DSE are considered over the period 2015-2019. The research is also based on the latest GRI reporting framework GRI Standards, focusing broadly on the sampled bank's reporting on green issues from an environmental perspective. More precisely, three research objectives are focused on enhancing the core objective. Concurrently, three research questions are formulated to guide and concentrate the study to accomplish the three research objectives.

The first objective of the research is to explore the nature of GAR practices in Bangladesh's banking sector. To achieve this objective, the research question is utilized as follows:

Research Question 1: What are the GAR practices areas of the Bangladeshi listed banks?

The research's second objective is to measure the extent of GAR practices of the Bangladeshi banks, specifically focusing on their adherence to GRI Standards in the environmental aspect. To accomplish this objective, the following research question is posed:

Research Question 2: How are the disclosure status of the Bangladeshi banks in line with GRI Standards regarding the environment?

The research's third objective aims to identify the challenges faced in adopting the GAR practices in Bangladesh's banking sector. To accomplish this objective, the following research question has been formulated:

Research Question 3: What challenges do Bangladeshi banks face in introducing and implementing the GAR practices?

1.4 Research Design

The study is descriptive and exploratory, utilizing secondary and primary data sources to collect the needed data. The research analyzed the annual reports as the main information sources to explore the status of GAR practices in Bangladesh's banking sector. The annual reports from 2015 to 2019 of all thirty commercial banks listed in the DSE have been reviewed. As the primary data source, the study utilized a survey based on a questionnaire to get expert opinions on perceptions related to several areas of GAR practices.

The study is carried out by formulating three research questions derived from the three research objectives discussed in the preceding section. Content analysis and survey research methods are employed to investigate three research questions. This study utilized content analysis as the main approach to address the first and second research questions, as it is a regularly used research method for evaluating firms' social and environmental information disclosures (Milne and Adler, 1999). Further, the survey method, mainly a questionnaire, is employed to address the third and final research question. Questionnaires are chosen due to their cost-effectiveness, the minimal effort required from the questioner compared to verbal or telephone surveys, and the presence of standardized answers that facilitate data compilation (OECD, 2019).

The first research objective explores the overall nature of GAR practices in Bangladesh's banking industry, focusing on the green initiatives adopted by all the listed banks. Regarding this, the study analyzed the content of the specific areas of GAR information in the annual reports of the selected banks that were publicly disclosed under titles such as 'Sustainability Reporting', 'Sustainable Finance', 'Green Report Card', or 'Green Banking' to explore the level of disclosure of various green issues.

The research's second objective, as the study's main focus, is to determine and measure the extent of GAR practices by Bangladeshi banks, explicitly focusing on adherence to GRI Standards regarding the environment. The study analyzed the content of selected banks' annual reports over five consecutive years (2015-2019) to

identify the eight major areas of GAR information disclosed under the heading of 'Sustainability Reporting' or 'Sustainable Finance' or 'Green Report Card' or 'Green Banking.' As the first known study, the research explored the sustainability factors of the sampled banks within the framework of GRI Standards, focusing on the environmental aspect by incorporating 15 standards for reporting purposes. The approach entails developing a green disclosure index according to the GRI Standards that includes eight areas for disclosing environmental information: materials, energy, water and effluents, biodiversity, emissions, effluents and waste, environmental compliance, and supplier environmental assessment. However, some principles have yet to be considered because they are not comprised of the research area and objectives (detailed in Chapter Three).

As the maiden scope of employing the primary research method, the third and final research objective focuses on identifying the challenges Bangladeshi banks currently face in adopting GAR practices within Bangladesh's banking sector. This is achieved by selecting purposive samples from ten banks, considering each bank's GAR status. An extensive survey is conducted to gather experts' diverse perceptions of GAR practices. This is accomplished by administering a questionnaire that comprises fourteen close-ended statements. A total of twenty respondents are selected, with two respondents taken from each sample bank. As described in Chapter Three, these respondents are officials specifically involved in GAR or sustainability reporting.

1.5 Expected Contribution of the Research

The study's three objectives contribute to enhancing the understanding of the existing status of GAR practices in Bangladesh's banking sector. This understanding will facilitate the development of corporate images that address sustainability concerns for both society and stakeholders. In addition, there are multiple contributions to each objective of the study.

- The contribution offered by the first research objective lies in its large sample size in the current context. As it aims to explore the existing status of GAR practices in Bangladesh's banking sector, this study provides a detailed analysis of the green initiatives carried out by the banks in Bangladesh, specifically focusing on all the commercial banks listed in the DSE throughout recent years. Hence, the research findings have the potential to foster

sustainability and environmental accountability in the financial sector, as well as instigate beneficial transformations within both the industry and the broader national economy.

- The study's main focus is on the second research objective, which is the first known investigation into the disclosure practices of Bangladeshi banks following the latest GRI reporting framework, specifically focusing on environmental issues. The findings can assist organizations in enhancing transparency and accountability regarding the sustainability impacts on stakeholders. This, in turn, can bolster public trust and confidence in the organization's dedication to innovation and change. Ultimately, these efforts contribute to a more sustainable and resilient future for the organization and society.
- Most importantly, the third and final objective of the study contributes to investigating the challenges of GAR practices in Bangladesh's banking industry. This study represents the first opportunity to utilize the primary research technique to identify the challenges Bangladeshi banks currently face in introducing and implementing GAR practices. This approach would be highly compelling in this field of investigation. The study identified challenges that, if addressed, might enable Bangladeshi banks to enhance their environmental responsibility and establish a strong position for long-term success and competitiveness in an increasingly sustainability-focused and responsible finance-oriented world.
- The study offers a chance to utilize several analytical approaches to explore GAR practices in Bangladesh's banking industry. Furthermore, utilizing various methodological procedures improves the strength of the research and raises the study's reliability and validity more efficiently. This approach is especially convincing considering the growing emphasis on this research field in recent years.
- Furthermore, this research provides detailed guidance for the appropriate authorities in Bangladesh's banking sector to implement green initiatives and sustainable reporting practices. The study's findings may serve as a powerful incentive for BB officials due to their practical consequences in sustainability reporting. Moreover, this study holds significance for policymakers in

Bangladesh's government, particularly concerning non-performing environmental laws and other regulatory bodies in Bangladesh, such as the Securities Exchange Commission of Bangladesh (the regulator of listed firms in Bangladesh) and professional accounting organizations. Therefore, the research would be distinctive and contribute a novel aspect to Bangladesh's existing body of green accounting literature.

1.6 Research Organization

This study consists of five chapters. Table 1.1 displays the objectives of each chapter and provides a summary of how this research is structured. The upcoming chapter will present a comprehensive overview of GAR practices and examine previous scholarly works on this subject by highlighting the areas where further research is needed.

Table 1.1 Outline of the Research

Chapter's Number	Chapter's Title	Purpose
One	Introduction	To offer a brief overview of the study
Two	Green Accounting Issues and Review of Related Literature	To gain a general understanding of GAR practices and review prior literature on the study by identifying the research gaps in this respect.
Three	Research Methodology	To outline and explain the research methodology, including population, sample size, data collection techniques, and analysis procedures.
Four	Results and Findings	To present the results of the findings and discussions of the study.
Five	Conclusions and Recommendations	To present a concise overview and conclusions on the thesis by revisiting the study topics, discussing the policy recommendations, highlighting the original contributions, and acknowledging the limitations of the research.

CHAPTER TWO: GREEN ACCOUNTING ISSUES AND REVIEW OF RELATED LITERATURE

2.1 Introduction

The primary objective of this chapter is to provide a comprehensive understanding of GAR practices, with a specific focus on the definition and origin of GAR. The core objective of the chapter is to present a comprehensive summary of the prior studies conducted about GAR. This discussion will provide a brief overview of recent research on GAR practices of organizations in developing countries, specifically focusing on Bangladesh. In addition, this chapter will primarily examine the previous studies conducted on GAR practices and green reporting using GRI in Bangladesh's banking industry. Finally, this research will identify some key gaps in green accounting concerning research on developing countries' contexts and Bangladesh's banking sector.

2.2 Green Accounting as a Conceptual Analysis

Green accounting, also known as Environmental Accounting, is a developing field under sustainable accounting that focuses on applying the concept of sustainable development and quantifying the financial value of environmentally friendly actions for organizations. Hecht (2005) explains environmental accounting as:

> *the process of identifying, evaluating, and allocating environmental costs and these costs are then integrated into the decision-making process of a company and the resulting information is communicated to the company's stakeholders.*

In compliance with IFAC (2005), environmental accounting is a broad term that is used in various contexts, including:

- Evaluating and disclosing financial information related to the environment within the framework of financial accounting and reporting.
- Evaluating and utilizing physical and monetary information related to the environment within the framework of environmental management accounting.
- Assesses the external environmental effects and expenses using full cost accounting principles.

- Tracks and evaluates the quantities and values of natural resources in both physical and monetary terms through Natural Resources Accounting.
- Combines and presents accounting data at the organizational level, including natural resources accounting information, for national accounting purposes.
- Analyzes environmental-related physical and monetary information within the wider framework of sustainability accounting.

Hence, green accounting pertains to the provision of environment-related information to both internal and external stakeholders of an organization. Furthermore, green accounting encompasses three distinct contexts: national income accounting, financial accounting, and management accounting (USEPA, 1995). The application of this can be extended to corporate, national, and international contexts (Bennett and James, 2000; Deegan, 2003; USEPA, 1995; Gupta, 2011). This study has specifically concentrated on corporate-level environmental accounting. There are several and diverse definitions associated with environmental accounting. Table 2.1 presents alternative definitions of green accounting that are commonly utilized.

Table 2.1 Overview of Green Accounting Definitions

Source	Definition
Ministry of the Environment, Japan (2005, p. 3)	The objective of environmental accounting is to promote sustainable development, foster positive relationships with stakeholders, and engage in proactive ecological conservation efforts that enable a company to accurately assess the costs of environmental protection within its regular business operations, evaluate the benefits derived from these activities, employ quantitative measurement methods, and effectively communicate the outcomes.
USEPA	Environmental accounting can arise in three unique contexts: national income accounting, financial accounting, and managerial accounting. Within the framework of national income accounting, environmental accounting, also known as natural resource accounting, quantifies the utilization of a nation's renewable and non-renewable natural resources using

(1995, p. 4)	either physical or monetary measurements. Environmental accounting involves the estimation and disclosure of environmental liabilities and the financial aspects of environmental expenses, following GAAP in the context of financial accounting. Environmental Accounting involves the collection and analysis of information regarding the costs and performance of environmental factors in order to make informed business decisions and manage operations within the field of management accounting.
Gray and Bebbington (2001, p. 7)	Environmental accounting involves • accounting for potential liabilities or risks related to the environment, • reassessing the value of assets and estimating capital, • analyzing energy costs, • managing waste, and • addressing important aspects of environmental protection. It also includes evaluating investments based on environmental factors and developing comprehensive accounting and information systems that cover all aspects of environmental performance. Additionally, it entails estimating the costs and benefits of environmental improvement programs and developing accounting strategies that consider assets, liabilities, and expenses in an environmental context.
Deegan (2003, p. 10)	Environmental accounting involves the provision of information about the environment to stakeholders, both internal and external to a company, that can be used at the corporate, national, and international levels.
Gauthier et al. (1997, p. 1)	Environmental accounting is a branch of accounting that focuses on addressing environmental issues and utilizing information systems to ensure responsibility for data collection and analysis, monitoring performance, making decisions, and managing environmental costs and risks.

Graff et al. (1998, p. 3)	Environmental accounting involves the integration of environmental expenses and information into several accounting procedures.
Schaltegger and Burritt (2000, p. 30)	Environmental accounting is a distinct field of accounting that focuses on assessing the financial consequences of environmental factors and the influence of a particular economic system on the environment.
Bennett and James (2000, p. 30)	Environmental accounting encompasses accounting activities at both the national and corporate levels. It involves the management of financial and non-financial information, as well as the calculation and utilization of monetized costs associated with external damages and internal expenses within the firm.

Although there may be variations, most definitions highlight key aspects of green accounting, including the connection between financial and environmental performance, the use of quantitative measures for financial and physical units, consideration of both internal and external costs, a focus on stakeholders, and the requirement for a green accounting information system. These factors are crucial in the ongoing advancement of green accounting. In this study, green accounting refers to the comprehensive provision of environmental performance data to both internal and external stakeholders at the corporate level. In the subsequent section, green accounting and reporting will be defined as a subset of green accounting.

2.3 Green Accounting and Reporting

Green accounting and reporting, a subset of green accounting, is associated with the organization's estimation and exposure of environment-related information in monetary terms to inform external stakeholders. Gray (2005) defines environmental reporting as:

> *the process of gathering, organizing, and sharing information on a company's interactions with the natural environment.*

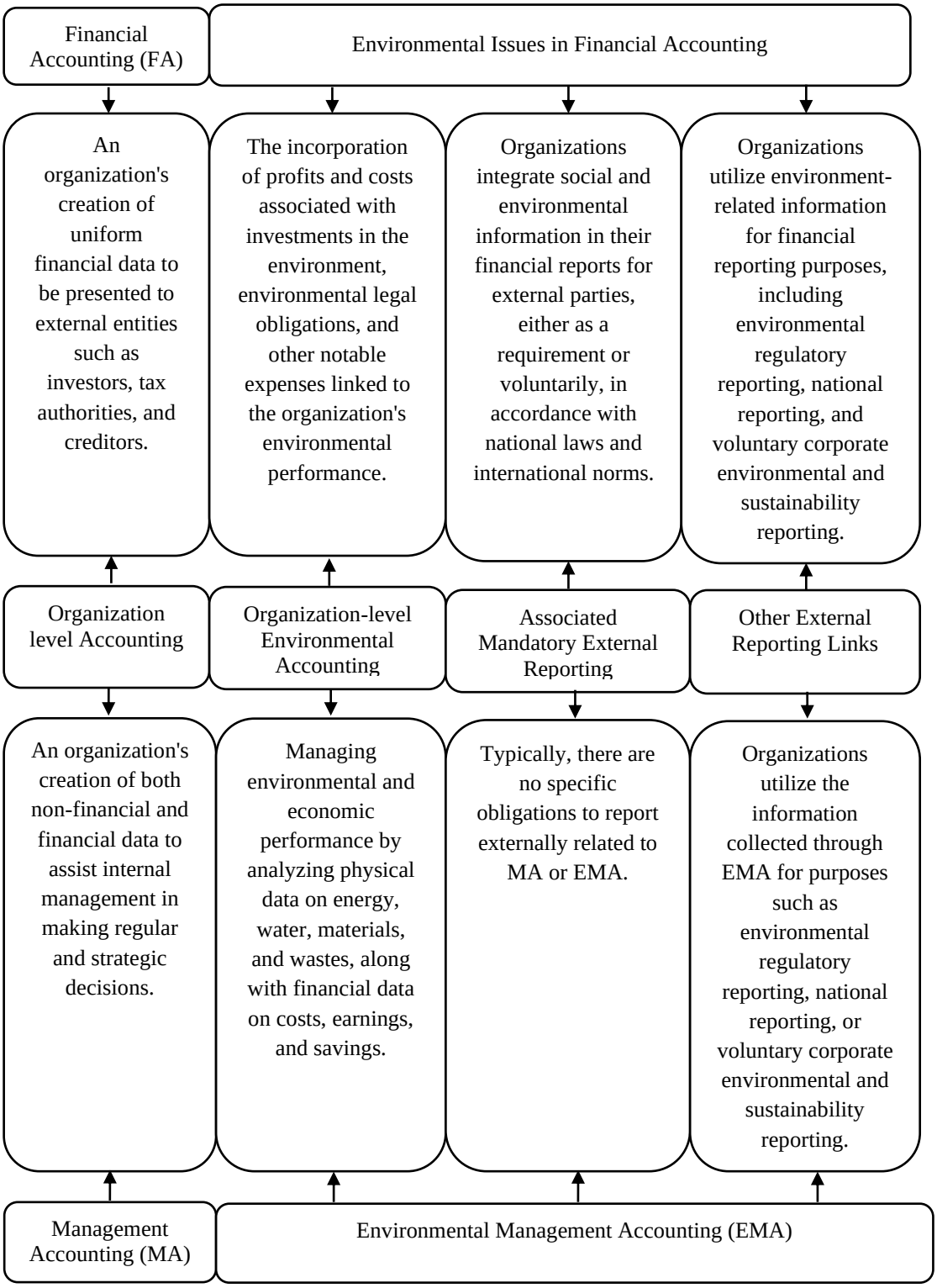
As stated by the Japan Ministry of the Environment (2005), the disclosure of environmental accounting data allows stakeholders to use this information to get

insight into a company's environmental protection efforts and its explicit management of ecological concerns.

Environmental accounting can be categorized into three main types: Global Environmental Accounting, National Environmental Accounting, and Corporate Environmental Accounting. Corporate Environmental Accounting can be further divided into two subcategories: Environmental Management Accounting and Environmental Reporting (Coopers and Lybrand, 1998). The limitations of the traditional accounting system and the growing emphasis on environmental responsibility have led to the emergence of EAR as a distinct field of accounting. The EAR tool is a new method for presenting ecological costs and other environment-related data to stakeholders. Its purpose is to assist in identifying strategies to minimize or prevent these environmental costs and hazards, thereby promoting sustainable development (Khan and Jui, 2016). In addition, the act of providing information connected to the environment is a responsibility of an organization towards its stakeholders or a reaction to the expectations of stakeholders (Deegan, 2007; Gray et al., 1995a; Mathews, 1995). Increased disclosure of EAR information in companies' annual reports is believed to enhance environmental awareness (Mehedy et al., 2018).

The organization benefits from the ability to share green reports from both internal and external perspectives. This allows the organization to inform policymakers about their strategic plans, increase awareness of potential environmental advantages and opportunities, and reduce future environmental risks and liabilities (Masud et al., 2016). Figure 2.1 illustrates a concise comparison between the environmental scope of financial and management accounting and their respective connection to external reporting.

Figure 2.1 Organization-level Accounting and Reporting



Source: Modified from IFAC, 2005

EAR is a widespread practice in various types of organizations, including financial and nonfinancial, manufacturing and merchandising, national and multinational, and large, medium, or small organizations (Masud and Hossain, 2016) and such green

information, which can be either monetary or nonmonetary, is a crucial component of EAR. However, accountants are currently working on converting qualitative green information into quantitative data (SIGMA, 2003). Green exposure can have either a positive or negative connotation, indicating whether a business is environmentally friendly or not (Rahman and Muttakin, 2005; Bose, 2006), and nonmonetary information regarding economic, social, and environmental performance helps to enhance the comprehension of stakeholder management responsibilities (Savage, 1994). Furthermore, implementing EAR and corporate sustainability practices enhances an organization's reputation in the market and motivates top-level executives to improve the ecological environment (Elijido-Ten, 2011; Dissanayake et al., 2016). In addition, the overall performance of an organization is contingent upon its financial influence and contribution to the preservation and enhancement of the environment (Belal et al., 2015). Consequently, EAR problems in the publicly available annual report play a crucial role in evaluating investment risks by investors and creditors (Masud et al., 2016; Gupta, 2011).

While the previous discussion on GAR does not specify whether green reporting is voluntary or mandated, it is predominantly a voluntary practice adopted by corporations (Deegan, 2002; Mathews, 1995). Thus, in this study context, GAR encompasses a broader idea of the voluntary disclosure of information regarding the efficiency of environmental measures at the corporate level.

2.4 Emergence of Green Accounting

The growing importance and acknowledgment of environmental accounting can be attributed to the influence of stakeholders and the efforts of academic institutions to promote its development. The construction of ecological accounts was initiated independently in many European countries. Norway was among the pioneers in implementing environmental reports throughout the 1970s, which were inspired by the influential work of Limits to Growth (Meadows et al., 1972). Subsequently, other nations gradually embraced them (Shil and Iqbal, 2005). In subsequent years, several countries, including the United Kingdom, the United States, Canada, Japan, and others, conducted extensive research on environmental accounting data and implemented significant measures to safeguard the environment (Zhang et al., 2009). In their study conducted in 1983, Shane and Spicer examined the environmental performances of corporations in four industries between 1970 and 1975. Their

findings revealed that larger organizations had a considerable increase in the disclosure of environmental information. The Netherlands played a leading role in the development and implementation of environmental accounting, which was initiated by *Roefie Hueting*, who aimed to create a system for measuring sustainable national income that considers the degradation and depletion of environmental resources caused by business activities.

France was the third primary adopter of the concept of environmental accounting. In the 1980s, they implemented a system called *Comptes du Patrimoine*, or patrimony accounts, which consisted of three interconnected units of analysis. Initially, it was necessary to conduct physical measurements of natural, cultural, and historical resources and accurately quantify their stock and flow. Secondly, it was essential to organize locations based on geographical calculations, offering biological information regarding resources categorized by their specific area, as well as taking into account environmental and land characteristics. Thirdly, it was necessary to describe persons and organizations in terms of their physical and financial attributes within agent accounts by establishing connections to data that detailed how and where each agent made use of the resources. Specific components of this system were formed, particularly those that precisely identified trees and water. However, the system's diverse array of parts posed challenges in executing it comprehensively. Table 2.2 provides the ways to consider green issues in accounting by different countries.

Table 2.2 Adopting Green Accounting by Different Countries

Name of the country	Ways to Consider Green Issues in Accounting
Norway	Norway compiled data on energy sources, fisheries, forests, and minerals to create the first environmental account, with the aim of addressing the issue of insufficient resources. Later, the country included air pollutant emissions data in its environmental account, and Norwegian policymakers assessed the energy implications of alternative growth strategies after nourishing environmental accounting data for the national economy.
	Since 1993, the Philippines ENRAP has been engaged in the development of environmental accounts, recognizing the

Philippines	environment as a significant sector of the economy. This involves incorporating the evaluation of pollution impacts, non-marketable goods and services, and other economic aspects of the environment into conventional accounts. Philippine government agencies and researchers receive substantial quantities of data from their accounts for policymaking and analysis. However, it is essential to note that this environmental accounting approach is distinct from SEEA.
Namibia	In Namibia, the SEEA technique of environmental accounting is being increasingly applied to key natural resource sectors. Its purpose is to address essential inquiries, such as the optimal allocation of water for competitive purposes and the impact of soil erosion on rangeland production.
Netherlands	In the Netherlands, NAMEA is constructed as part of a regular procedure that tracks pollution emissions by the economic sector and evaluates the country's achievement of environmental protection goals.
Chile	The central bank in Chile has undertaken efforts to establish environmental accounts that focus on the forest and mineral sectors. This is in response to concerns that the country's plan for development based on forests may not be justifiable and may not lead to the necessary reforms for sustainable development.
USA	The United States has not become a pioneer in environmental accounting endeavors. Early in the Clinton administration, the BEA launched a campaign to clear environmental accounts in the mineral industry. Opponency from the mining sector and political arguments stood in the way of operational zing environmental accounting. The government then requested the NRC to form a blue-ribbon panel to think about what the country should do on the ecological accounting aspects.
	The Ministry of Environment of Japan released a thorough

Japan	guideline in March 2002 called 'Environmental Accounting Guidelines-2002'. This guideline provides detailed information on the definition, functions, role, basic dimensions, and structural elements of environmental accounting. As to the recommendations, environmental accounting consists of three primary elements: • Environmental protection costs (measured in monetary value). • Environmental benefits (measured in physical units). • Economic advantages associated with environmental protection operations (measured in monetary value). The rules specify that the costs of environmental protection are quantified, considering the economic advantages linked to environmental protection operations. The environmental report must include both physical and monetary units of environmental accounting information, which should be made available to both management and the general public.

Source: Compiled by the researcher

During the 1990s, there was a notable increase in interest and significant progress in the field of environmental accounting (Mathews, 1997). Various theories, including stakeholder theory, political economy theory, and legitimacy theory, were applied intriguingly to elucidate social and environmental accounting and reporting procedures rather than providing a strict definition (Owen, 2008). In the early 1990s, the World Bank published a comprehensive report on environmental accounting. This report reviewed which countries had implemented environmental accounting, the methods used to develop environmental accounting, and the scope of its contents (Peskin and Lutz, 1990). Subsequently, environmental accounting has been acknowledged as a potent economic instrument that has prompted extensive endeavors in both wealthy and developing nations (Shil and Iqbal, 2005). Neu et al. (1998) conducted a study from 1982 to 1991 where they examined the environmental information disclosed in the annual reports of Canadian public companies operating in the mineral extraction, forestry, oil and gas, and chemical industries. The study specifically looked at the impact of external pressure on environmental disclosures in

annual reports, the characteristics of environmental disclosure in relation to other social exposures, and the relationship between environmental disclosure and successful implementation.

Several studies, including Cooper and Owen (2007), Belal and Owen (2007), Deegan and Blomquist (2006), O'Dwyer and Owen (2005), O'Dwyer (2005), and Deegan et al. (2002), have made significant contributions to the field of social and environmental accounting research. These studies have proposed promising future avenues for the field. Furthermore, numerous national and international corporate entities collaborate with governments, industry organizations, international organizations, and the accounting profession to create publications pertaining to social and environmental accounting standards and organizations (Deegan, 2002). Some examples of national and international groups or organizations that fall under this category are GRI, the World Business Council for Sustainable Development, the Institute for Social and Ethical Accountability, and the Council on Economic Priorities. Moreover, numerous researchers have been attracted to studying the influence of specific stakeholder groups on corporate accountability and disclosure practices due to the increased involvement of a broader range of stakeholders in various social and environmental accountability issues. Examples of such studies include Tilt (1994), Deegan and Blomquist (2006), and Islam and Deegan (2008).

As discussed above, the growing involvement of scholarly studies and concerned parties signifies that GAR practices have remained relatively high, as they must be checked thoroughly to determine the underlying rationale for such practices. The following part will examine several aspects of green accounting research in developing countries such as Bangladesh.

2.5 Green Accounting in Bangladesh: The Context

In Bangladesh, environmental abuse has become a regular phenomenon over the past several decades, and the present ecological condition is no equilibrium. The country's major rivers are at risk, and the Buriganga River in the capital city of Dhaka is severely polluted (Belal et al., 2015). Extreme water, air, and noise pollution threaten public health, the ecosystem and Bangladesh's economic expansion. Poverty, overpopulation and inadequate knowledge on this issue are also causing environmental deterioration in Bangladesh. It is demonstrated by deforestation,

wetland demolition, soil erosion and natural disasters (Ullah et al., 2014). In a study by Belal et al. (2015), the primary factors contributing to the country's vulnerability to environmental issues were governmental and corporate resistance, corruption, and insufficient human resources within the relevant agencies. A concise analysis of the legal standing of GAR practices in Bangladesh and the main discoveries from previous studies on GAR practices of organizations such as Bangladesh are provided below.

2.5.1 Legal Status of GAR in Bangladesh

As discussed earlier, the inclusion of diverse environmental data in company annual reports commenced in the 1970s and extended into the 1990s (Kukobo et al., 2002). Before 1990, there was no definitive evidence that the annual reports of companies listed in the DSE included environmental information (Shil and Iqbal, 2005). Following the foundation of the Ministry of Environment and Forests in Bangladesh in 1989, the government prioritized environmental matters due to the influence exerted by various stakeholders, including national and international organizations (Belal, 2000). In the 1990s, the UNDP initiated its support for a National Environmental Management Action Plan, and as a result, the Bangladesh Environmental Conservation Act was passed. The legislation mandates that newly established enterprises obtain environmental approvals from the Department of the Environment. Additionally, corporations may be obligated to disclose environmental information as and when requested (Rahman and Muttakin, 2005; Belal, 2000; Imam, 1999). In addition, Bangladesh's EAR is motivated by other laws, as presented in Table 2.3.

Moreover, the legislative framework in Bangladesh incorporates several conventions. Some are obligatory, and some appear as recommendations. The mandatory regulations consist of the Companies Act (1994), Banking Companies Act (1991), Insurance Act (1938), Income Tax Ordinance (1984), Securities and Exchange Ordinance (1969), Securities and Exchange Rules (1987), Stock Exchange Listing Rules, and a distinct set of laws governing public enterprises. The non-compulsory regulations typically encompass the accounting principles implemented by ICAB (Belal, 1999). Nevertheless, Bangladesh has no obligatory regulations that include legal requirements for disclosing business environmental information (Belal, 2000; Imam, 1999; Khan et al., 2009; Pramanik et al., 2009). In Bangladesh, the only

mandatory environmental disclosure is the disclosure of energy consumption expenditure. The financial statements include a separate " expenditure " section where the total amount spent on energy is displayed. This requirement is outlined in the Companies Act 1994 (Schedule XI, Part-II) and the Securities and Exchange Rules, 1987 (Schedule Part-II) (Dutta and Bose, 2008). Table 2.3 enumerates several environmental conservation laws of Bangladesh.

Table 2.3 Legal status of EAR in Bangladesh

SL No.	EAR Legal Status in Bangladesh
1.	Bank Companies Act, 1991
2.	National Environment Policy, 1992
3.	Financial Institutions Act, 1993
4.	Securities and Exchange Commission Act, 1993
5.	Financial Institutions Act, 1993
6.	Companies Act, 1994
7.	National Environmental Management Action Plan, 1995
8.	Environmental Conversion Act, 1995
9.	Environmental Conversion Rules, 1997
10.	Bankruptcy Act, 1997
11.	Ozone Depleting Substances Rules, 2004
12.	Environmental Court Act, 2010
13.	Climate Change Trust Act, 2010
14.	Credit Risk Management Industry Best Practices by BB, 2010
15.	Environmental Risk Management Guidelines, 2011
16.	Policy Guidelines for Green Banking, 2011
17.	Finance Act (changes from time to time)
18.	Bangladesh Biodiversity Act, 2012
19.	Securities and Exchange Rules
20.	Bangladesh Bank Rules
21.	Ministry of Environment and Forests
22.	Forest Department
23.	Department of Environment
24.	Planning Commission

25.	Tax Ordinances
26.	IASC guidelines
27.	FASB guidelines
28.	BFRS guidelines

Source: Adapted from Masud et al. (2017)

Bangladesh has a strong legislative foundation for environmental issues, yet it is necessary to submit green data to regulatory authorities, as shown in Table 2.3. According to BB's green report rules, it is necessary to include green information in the annual report. Below is a concise overview of past research on the implementation of green reporting by companies operating in developing countries.

2.5.2 Green Accounting Research in Developing Countries' Context

Despite the upward trend of the EAR, several researchers have investigated various aspects such as sustainability, corporate social responsibility, corporate environmental reporting, corporate human disclosure, and corporate social reporting in developing countries. These studies include the works of Belal et al. (2015), Khan et al. (2011), Sobhani et al. (2009, 2012), Belal (2000), Imam (1999), Masud and Hossain (2012), Sahay (2004), Azim et al. (2009), Belal and Owen (2007), Hoque et al. (2016), and Meena (2013). In their study, Teoh et al. (2016) investigated the relationship between environmental disclosure and financial performance among listed companies in Singapore. They found that companies with more significant environmental exposures tend to have better financial performance. Additionally, they observed a strong correlation between environmental disclosure and financial performance levels, suggesting that firms with a history of strong financial performance place even greater importance on making subsequent environmental disclosures. In a study by Fifka (2012), an analysis was made of the overall research conducted on social and environmental reporting in different developing nations. It was observed that there has been a rise in the amount of research conducted on this topic in the last ten years, driven mainly by the growing public awareness of corporate social responsibility, environmental issues, and sustainability. Moreover, providing information on social and environmental aspects has increased in developed and developing nations (Kabir and Akinnusi, 2012; Ullah and Rahman, 2015; KPMG, 2017). According to KPMG's

(2017) report, corporate, environmental, and corporate social responsibility are widely adopted company practices globally.

In contrast, some studies indicate that environmental, social, CSR and sustainability reporting are not widely used in most Asian countries. These reporting practices are primarily limited to the oil, chemicals, and steel industries (Fifka, 2012; Rahman and Muttakin, 2005; Choi, 2000). South Asian countries such as India, Pakistan, Sri Lanka, and Bangladesh have a limited number of firms that provide information about their environmental and social practices (Dissanayake et al., 2016; Jamali and Mishak, 2007). According to Raman (2006), environmental reporting was commonly practiced by oil, mineral, pharmaceutical, automotive, and cement firms in South Asia. In Gupta's (2011) study, the annual reports of twenty-three Indian-listed businesses were examined. It was discovered that a few companies choose to disclose environmental issues in their annual reports without being required. In addition, he determined that the need for more legislation about the environment is the cause for the inadequate environmental disclosures found in firms' annual reports. This finding is supported by the research conducted by Islam and Arafin (2017), Moid (2016), Islam et al. (2015), Belal (2000), and Imam (1999). Goswami (2014) did a study that focused on the advancements of environmental accounting issues at the business level in India. He said that the Government of India's initiative, led by the Ministry of Corporate Affairs (MCA), to release national voluntary guidelines on businesses' social, environmental, and economic responsibilities is still in its early stages. The study found that the lack of clear guidelines from accounting regulatory bodies, such as the accounting standard board and MCA, regarding environmental costs, assets, and liabilities hinders the development of stakeholders' expectations. This includes the recognition and measurement of these costs, assets, and liabilities and the disclosure requirements. In Malaysia, CSR or environmental reporting development is in progress (Sawani et al., 2010). In their study, Dissanayake et al. (2016) examined sixty listed businesses in Sri Lanka and concluded that environmental reporting played a significant role for more giant corporations. The study additionally discovered that corporations provide more comprehensive social information than environmental information.

Bangladesh significantly lags in adopting green accounting ideas and producing reports. However, due to demand from stakeholders, firms need to make more efforts to include some information in their annual reports (Masud et al., 2016). Ullah and

Rahman (2015), Nurunnabi (2015), Hossain and Chowdhury (2014), Dutta and Bose (2008), Shil and Iqbal (2005), and Rahman and Muttakin (2005) researched Bangladeshi companies listed in the DSE and CSE. They found that these companies were including social information in their annual reports, specifically related to environmental, public welfare, and human resource aspects. However, the inclusion of this information was found to be disorganized and lacking a systematic approach. Bangladesh considers climate change a significant concern in light of global warming. In this respect, Nurunnabi (2015) did experimental research to examine the level of climate change disclosure across Bangladeshi companies. The findings revealed a minimal amount of climate change information in the annual reports, with only 2.23% of companies including such information.

Bangladeshi oil and gas corporations provide only a restricted amount of environmental information in their yearly reports. In a study undertaken by Sultana (2017), the fossil fuel sector in Bangladesh was examined through a case study. The focus was on several companies within Petrobangla and their practices in the field of environmental accounting. She discovered that Petrobangla firms only reveal qualitative and descriptive environmental data concerning environmental preservation, pollution control, and planting rather than quantitative data. The study observed that environmental accounting is at an early stage of development in Bangladesh. Ullah et al. (2014) did a study focusing on environmental exposure in the Bangladeshi textile sector. Selecting 29 of the 31 textile companies listed in the DSE and CSE, the study found that some textile companies reported sufficient information on environmental facts. However, the leading textile companies should have released or published better information about environmental areas.

Belal et al. (2015) did a study on various aspects of vulnerability and corporate environmental responsibility in Bangladesh. Researchers discovered significant negligence in Bangladesh, particularly concerning environmental practices and pollution. They also argued that Bangladesh has faced significant air and water pollution, impacting human health, depleting subsurface water levels, and causing river erosion, leading to people losing their jobs. Khan and Jui (2016) conducted a study to assess the environmental reporting practices of fifteen Bangladeshi manufacturing companies listed in DSE. The selected companies' environmental reporting practices are unmonitored due to their failure to comply with specific

accounting requirements and another regulation of the BSEC. They argued that companies have no constant or organized norms for disclosing such information and that practically green information is published on an explanatory base. However, the so-called portion is monetary.

Islam et al. (2015) conducted a study, followed by Islam and Arafin (2017), that investigated the extent and nature of EAR practices in Bangladesh's corporate sector. The objective was to identify the factors that drive companies to adopt these practices. An analysis of the annual reports of the top fifty companies listed in the DSE in Bangladesh observed that a small number of Bangladeshi companies are voluntarily revealing environmental concerns in their annual reports. The study revealed that specific characteristics such as high polluting industry, company size, high debt-to-equity ratio and environmental performance positively affect environmental disclosure. They further argued that with a rigid accounting declaration from ICAB and rules to be published by the regulatory authority, companies usually furnish only statutory, qualitative and positive information on the environment.

In addition, Kumar (2017) examined the impact of eleven factors that are essential for attaining sustainable growth in Bangladeshi companies. The study asserted that the sustainable growth of companies in Bangladesh relies on their environmental, social, and economic performance, which is the primary and most crucial aspect. The study encompassed all manufacturing companies listed in DSE, CSE, and public limited companies regulated by the Companies Act XVIII of 1994. It also found that a noteworthy number of Bangladeshi companies included voluntary environmental data in their annual reports, while almost all Bangladeshi corporations published qualitative data. Furthermore, it was discovered that various factors such as quantitative environmental reporting, the level of environmental exposure, voluntary environmental disclosure, standardized procedures, legal obligations, company size, material flow analysis, and lifecycle evaluation acted as catalysts for enhancing the economic, social, and environmental performance of Bangladeshi companies in order to achieve sustainable development. Mehedy et al. (2018) conducted a study on the environmental accounting disclosure of manufacturing companies in Bangladesh. The findings revealed that while some companies provide comprehensive information about environmental issues, a significant number of companies either need to disclose or provide relevant information regarding environmental perspectives. The study

found a direct correlation between the extent of environmental accounting disclosure practices and the features of the organization, particularly the total assets, total revenue, and earnings per share of corporations. Conversely, an inverse correlation exists between the implementation of environmental accounting disclosure and the age of the company.

From the review above, GAR practices are nothing new nowadays. However, it is essential to create corporate images on sustainability issues for society and stakeholders. Various study fields provide distinct contributions to the green accounting literature. More recent research on corporate green disclosure practices in developing nations such as Bangladesh needs to be conducted. The following section will provide a previous research review on GAR practices and green reporting with GRI in Bangladesh's banking sector.

2.6 Green Accounting Issues and the Banking Sector of Bangladesh

A bank is a non-productive financial institution. Due to their connection and impact on environmental matters, banks have a significant role in providing financial support to both manufacturing and non-manufacturing enterprises. In addition, banks bear significant responsibility for environmental conservation and are actively undertaking CSR programs to ensure environmental safety. Currently, the primary focus of banks is on CSR and environmental reporting. This section primarily provides a previous research overview of GAR practices and green reporting with GRI in Bangladesh’s banking sector.

2.6.1 Motivations for Considering the Banking Sector of Bangladesh

Bangladesh has met three criteria for transitioning from LDCs to developing countries (The World Bank, 2018). Its economy is mainly mixed up with the manufacturing and financial sectors. The banking industry, as financial intermediaries, is involved in addressing environmental issues through funding for both manufacturing and non-manufacturing enterprises in the country. This industry provides significant financial support to manufacturing companies like steel, cement, paper, fertilizers, chemicals, electricity, and textiles, which are major contributors to carbon emissions. Banks seek to fund green technologies and plans that mitigate the impacts of environmental unfairness and ensure long-term economic sustainability by the issuance of related rules and regulations to reduce external carbon emissions.

Bangladesh's banking sector is considered to operate within an environmentally sustainable business in terms of carbon emissions and pollutants. Nevertheless, the banks' environmental tasks are not concerned with the activities of the customers themselves but their activities. The industry has emerged as a crucial investment source for many industrial purposes, with vital economic activities driving economic growth and encouraging investment, along with ecologically acceptable practices (Khan, 2018). Thus, the sector can contribute as intermediaries in improving sustaining economic development and ecological safeguards, which helps promote eco-friendly, sustainable and socially responsible investments. Keeping this in mind, BB implemented a green banking policy in 2011, making it the first country in South Asia to encourage banks and financial institutions to adopt risk management strategies to protect against unavoidable environmental affairs. Millat et al. (2012) stated that Bangladeshi banks replied earnestly to the BB green banking guidelines. It is mentionable that Prime Bank Ltd. has been awarded *'Platinum' and 'Gold'* rank for Sustainability Report-2018 and Sustainability Report-2017, respectively (Prime Bank Annual Report, 2019 and 2018). In contrast, Islami Bank Bangladesh Ltd. was granted *'Gold'* rank for Sustainability Report-2018 (Islami Bank Annual Report, 2019) in ASR rating by NCSR, Indonesia.

On the other hand, the United Nation's SDGs attainment has become a plan of paramount importance across the globe. In line with this global endeavor, our government also fully emphasizes achieving the SDGs at the national level. In respect of this, banks, along with other financial institutions, have contributed a lot to the economy's vitality, and green accounting is considered one of the fundamental issues of sustainable development.

Therefore, a bank, acting as a financier, significantly influences the projects chosen by the industry. GAR can have a significant impact on responsible behavior towards other businesses (Bihari and Pandey, 2015). Moreover, Bangladeshi banks are leading in disclosing corporate activities of social, environmental, and sustainability reporting (Dissanayake et al., 2016; Ullah and Rahman, 2015). Further, the banks usually prioritize disclosing standard reporting for various stakeholders and complying with statutory requirements in recent years with the directives of BB in promoting CSR and green reporting (Ullah and Rahman, 2015). Thus, the green disclosures of Bangladesh’s banking sector are the key focus of the study. An overview of the

previous research on GAR practices in Bangladesh's banking sector is provided in the following section.

2.6.2 Green Accounting Research in Bangladesh's Banking Sector

Although social and environmental reporting practices have made great strides, it is an emerging topic for Bangladeshi financial institutions (Bose et al., 2017; Sobhani et al., 2009, 2011). As a country with an emerging economy, Bangladesh is making strenuous efforts to change its banking strategy by prioritizing green banking strategies worldwide. Considering the adverse effects of climate change, BB has shown keen interest and commitment to building a green world by adopting green activities (Masukujjaman and Aktar, 2014). In pursuit of this objective, as previously mentioned, the Central Bank of Bangladesh introduced a green banking guideline in 2011. In accordance with the BB Green Banking Policy, a green bank incorporates social and environmental considerations into its regular banking operations and implements supplementary measures to protect the global ecosystem. These measures encompass various financial products and services such as green finance, green mortgages, green loans, green credit cards, green savings accounts, green checking accounts, green money market accounts, online banking, mobile banking, remote deposit, roof gardening, waste management, ethical banking, and sustainable banking.

As an ethically concerned organization, Citibank has accepted the green banking concept and adopted the motto 'Go Green; Think Green and Act Green' in line with the commitment to adopting international best practices while ensuring compliance with BB guidelines in its policies and activities to become a genuinely green bank (City Bank Annual Report, 2016). In this regard, Khan (2012) noted that the green banking activities performed by the banks are an ethical commitment to keeping safe human beings. He further persuaded lenders to think about *'Go Green'* and *'Think Green'* ideas. In addition, banks can adopt environmentally sustainable practices by implementing changes in six key areas of their banking activities. These areas include modifications in deposit management, investment management, recruitment processes and human capital development, housekeeping practices, corporate social responsibility (CSR) initiatives, and raising awareness among clients and the general public (Rahman et al., 2013).

In a study conducted by Masud et al. (2017), the practices of EAR in Bangladesh's banking industry were examined. The study found that Bangladeshi banks actively promoted numerous environmentally friendly activities around the country and contributed financially towards the improvement of society and the environment. The study entailed examining the annual reports of twenty Bangladeshi banks listed in DSE from 2010 to 2014. The objective was to explore the manner in which environmental information is reported. This was achieved by utilizing a model with twelve categories as a quantitative approach for grading the EAR disclosure scheme. It revealed that the banks are unveiling green banking and renewable energy at the best level, ranking least in waste management and environmental recognition. There is hope that EAR status has increased from 16% to 83% during the 2010-2014 period. The BB's sustainability reporting guidelines can be reasoned as a significant factor behind this expansion.

Similarly, another study was designed by Masud et al. (2016) to investigate the scope and characteristics of environmental accounting concepts and to analyze the performance of twelve scheduled private commercial banks in Bangladesh from 2010 to 2014. The study relied on secondary sources of green data and focused on banks listed in the DSE. They disclosed that EAR practices of the financial companies in Bangladesh are deemed adequate and improving. All of the banks included in the study provided environmental data, and more than 90% of them disclosed both qualitative and quantitative information in their annual reports. The analysis indicated that the government exerted pressure on the banks to disclose mandatory environmental exposures in their annual reports.

The study also analyzed the correlation between the disclosure of green banking practices and the value of firms operating under regulatory conditions in Bangladeshi banks. It discovered a favorable connection between the disclosure of green banking practices and the performance of banks. The recent studies by Bose et al. (2020) and Khan et al. (2021) focused on the connection between green banking disclosure and firm value. They explored whether combining green disclosure offers more understanding of the positive relationship between green disclosure and firm value in the regulatory context of the banking industry in Bangladesh. Both research demonstrated a positive correlation between green banking transparency and a bank's financial success. In addition, Khan et al. (2021) demonstrated the correlation by

integrating green disclosure with other contextual factors, such as non-performing loans (NPLs). They discovered that while green banking disclosure has a positive impact on bank performance, the extent of NPLs in banks has a negative moderating effect on the connection between the level of green disclosure and the overall value of banks. Conversely, Bose et al. (2020) proposed that the primary factor influencing this relationship is cost efficiency.

Moreover, this study investigated the influence of green banking disclosure and green policy on banks in Bangladesh. Bose et al. (2017) discovered an increasing trend in disclosure and a favorable correlation between green banking policy and data disclosure. Furthermore, different research has presented contrasting findings on the disclosure of EAR by banking and non-banking companies in Bangladesh (Nurunnabi, 2015; Bose et al., 2017). The research conducted by Hoque et al. (2019) investigated the current state of green banking practices among commercial banks and NBFIs in Bangladesh. The study utilized quantitative green information and found that the majority of banks and NBFIs only engage in green banking to a limited extent. Additionally, these institutions disclose their green banking data in a semi-structured manner through both annual reports and corporate websites. In contrast, Masud and Hossain (2016) conducted a study on green banking and reporting practices across ten commercial banks in Bangladesh. They discovered that most banks disclose information regarding energy usage, emissions, biodiversity, effluents and waste management, expenditure, and investment, as well as details about their products and services.

Since the introduction of BB's Green Banking Guidelines in 2011, numerous scholars have assessed the green banking activities of banking institutions in developing nations like Bangladesh. Notable publications include Islam (2018), Hossain et al. (2016), Chowdhury and Dey (2016), Faruque et al. (2016), Rahman et al. (2013), and Millat et al. (2012). After evaluating the annual reports content as secondary data sources of ten sample banks for 2011-2013, Hossain et al. (2016) revealed that Bangladeshi banks report green banking issues even without any specific reporting guidelines. The researchers arrived at this conclusion by analyzing the content of the reports, which they considered as secondary data sources, from a sample of ten banks. The study also examined the characteristics of green banking reporting through qualitative analysis of disclosed information based on the language used. It revealed

that following the introduction of BB's green banking guideline in 2011, banks began reporting their efforts in green banking. This disclosure trend continued until 2013. The study concluded that while banks have begun reporting on the issue, there needs to be more uniformity in their reporting due to the absence of a standardized reporting framework.

In contrast, Chowdhury and Dey (2016) conducted a comprehensive analysis of all scheduled banks using quantitative green data. Their findings indicated that most banks have implemented a green banking policy, and nearly all banks have established a dedicated green banking unit. Additionally, they demonstrated that BB formulated policy objectives and allocated resources to commercial banks in support of environmentally friendly initiatives, resulting in a progressive rise in the utilization of these budgets for diverse projects. Millat et al. (2012) observed that Bangladeshi banks responded enthusiastically to the green banking rules set by the BB. They made efforts to provide eco-friendly funding, which had a significant influence on environmental practices in the real economy.

In addition, Masukuzzaman and Akhtar (2014) did a study using secondary data to examine the green banking operations of commercial banks in Bangladesh in comparison to global efforts. The study found that Bangladesh significantly trails behind developed countries in this regard. Nevertheless, the scenario demonstrated a methodical green banking transformation for most banks. The report also proposed that banks enhance sustainability and contribute to a more environmentally friendly world for the community by improving their infrastructure and expediting their ongoing green initiatives. Furthermore, Ullah (2013) recognized green finance as an integral component of worldwide initiatives aimed at environmental preservation and climate conservation. The survey also found that state-owned commercial and social development banks are not heavily involved in this matter.

As part of the popularity of the green banking concept in the financial sector, some studies (Islam, 2018; Faruque et al., 2016; Rahman and Perves, 2016) have been conducted on green banking practices by Bangladeshi banks while keeping in mind global advancement and the hostility of global warming. Covering all the scheduled banks mainly based on secondary sources of green data, these studies found that Bangladesh's green banking practices need to be adequate. In addition, Islam (2018) and Rahman and Perves (2016) conducted research to investigate the challenges faced

in implementing green banking practices, specifically focusing on the disclosure of green issues by banks in Bangladesh. Their findings revealed common challenges in this specific area. On the other hand, Ashiq and Shahir (2019) conducted a study to identify the significant challenges of green banking practices in Bangladesh through interviews with various specialists. The study found numerous internal barriers impeding the expansion of green banking in Bangladesh, focusing solely on green loan lenders.

From the detailed discussion above, it is evident that much research has been carried out on green accounting practices in Bangladesh's banking industry, revealing diverse findings regarding the disclosure of GAR by Bangladeshi banks. Further, prior studies evaluated the green disclosures of Bangladeshi banks by considering limited banks and secondary sources of information as quantitative approaches only. In fact, research has yet to utilize a mixed approach to investigate GAR practices in Bangladesh's banking sector. Most significantly, the evaluation needs to include primary research on the challenges of green accounting practices in Bangladesh's banking sector. Hence, an initiative has been undertaken to focus on the issues. The following section will overview the prior research on green reporting with GRI from a Bangladesh perspective.

2.6.3 Green Reporting with GRI in Bangladesh Perspective

Green Reporting is an effective method of presenting environmental costs and other relevant environmental information to stakeholders. Its purpose is to find strategies for minimizing or preventing these costs and hazards, with the goal of promoting sustainable development. Organizations are required to disclose their environmental performance statistics to a global standard due to the increasing demand from various stakeholder groups. In the field of business green reporting, numerous national and international organizations are working diligently to provide precise conceptual and legal frameworks. These include UNSD, UNEP, UNCTAD, USEPA, KPMG Sustainability, and the European Commission FASB's Emerging Issues Task Force. Among others, GRI is a highly efficient and forward-thinking practice in the field of environmentally conscious reporting (Khan and Jui, 2016).

The GRI, founded in 1997, is an international non-profit organization with a network structure and a UNEP Collaboration Center. Its primary objective is to enhance and advocate for the global adoption of sustainability reporting criteria. As a leading organization in sustainability, it aids enterprises, governments, and other organizations in comprehending and conveying the influence of business on crucial sustainable matters, including climate change, human rights, corruption, and others. GRI advises organizations to use sustainable reporting as a means to enhance their sustainability and demonstrate their commitment to sustainable development (GRI, 2020a). The initial iteration of GRI referred to as G1, was released in 2000, establishing the inaugural worldwide structure for reporting on sustainability. The G2, which was the first update of the GRI principles, was unveiled at the World Summit on Sustainable Development in Johannesburg in 2002. The rules were enhanced and refined in response to the increasing demand for GRI reporting from diverse companies. The third version, referred to as G3, was released in 2006 and subsequently revised in 2011 to G3.1. This update included the addition of principles pertaining to local community orientations, human rights, and gender considerations. The G4, launched by GRI in 2010, refers to the fourth-generation recommendations. In 2016, GRI introduced the most recent iteration, called the GRI Standard, which offers directives for establishing the inaugural worldwide benchmarks for sustainability reporting. Nevertheless, the GRI standards are susceptible to ongoing updates and the inclusion of new regulations, such as the introduction of subject standards pertaining to Taxes (2019) and Waste (2020) (GRI, 2020b).

This study focuses on implementing GAR in Bangladesh's banking industry, specifically using the current GRI reporting framework known as GRI Standards. Several research studies have been carried out on the disclosure of green practices in banks in Bangladesh using the GRI reporting framework. Notable research in this category includes Mahmud et al. (2017), Masud and Hossain (2016), Islam and Chowdhury (2016), and Khan et al. (2011). The GRI Reporting Framework is widely recognized as the predominant and commonly used framework for analyzing, presenting, and reporting sustainability factors in developed and developing countries. While there are other guidelines and frameworks, such as GRI, ISO 14001, and ISO 26000, the GRI Reporting Framework is considered the traditional and most frequently utilized one (Khan et al., 2011; Willis, 2003). In addition, GRI establishes

the basis for the Triple Bottom Line (People, Planet, and Profit) to assert and provide an accurate and reliable account of social and environmental accounting to implement sustainability (Elkinton, 1997). The GRI promotes sustainability by establishing global standards for reporting through volunteer efforts in various areas like construction, transportation, finance, and others (Masud and Hossain, 2016).

Moreover, the examination of the sustainability report reveals that most corporations submitting statements utilize GRI, and its prevalence has experienced rapid and significant growth within a brief period (Hohnen, 2012). GRI facilitates the utilization of well-established international sustainability reporting and disclosure criteria. This enables corporations, governments, and other organizations to make informed decisions using GRI data. GRI has a broad reach, with thousands of reporters in over 90 countries (GRI, 2020a). Ninety-three percent of the top 250 firms worldwide declared their sustainability performance, with 82% utilizing GRI criteria (Haldar, 2015).

Sustainability reporting is a fundamental practice in financial institutions globally; however, most Bangladeshi banks are not involved in the ISR reporting framework. Each bank is required to provide its reports in accordance with the GRI international guidelines. Nevertheless, only a tiny minority adhere to the guidelines. The banking sector faces significant challenges in addressing the lack of sustainable reporting practices in accordance with GRI principles (Mohammad, 2019). The Daily Sun (2017) produced an article titled 'Banks neglecting sustainability reporting.' The report highlighted the findings of a recent study conducted by BIBM, which presented data at a seminar on 'Sustainability Reporting Practice in Bangladeshi Banks' and 'Fund Transfer Pricing in Commercial Banks in Bangladesh.' According to the poll, just three out of the 59 scheduled banks released the sustainability report independently, following the GRI requirements. The banks mentioned are Bank Asia, Mutual Trust Bank, and Prime Bank. The survey revealed that around 96 percent of multidisciplinary transactions are processed manually through transfer processing. By contrast, a mere 4 percent of transactions are conducted using online calculators, while 58 percent of multidisciplinary transactions are carried out without adhering to any criteria. In a report titled 'New Look of GRI: Setting New Standards for Sustainability,' Khan (2020) revealed that only 12% of banks adhered to the GRI reporting guidelines by clearly disclosing sustainability reports in their annual reports.

However, 39% of banks reported sustainability separately in their annual reports but still need to follow the GRI guidelines. Additionally, 49% of banks did not disclose individual sustainable yearly reports, suggesting a consistent trend of non-disclosure across all stages.

Furthermore, the Bangladesh Bank (BRPD Circular No. 2 dated 27.02.2011) instructed all banks to implement a thorough green banking policy in a systematic and regulated manner, in line with international standards, in order to protect the environment and promote sustainable banking practices. As per BB's direction, green banking consists of three stages. Banks should prepare sustainability reports based on international standards with robust external verification under the GRI guidelines by December 2013. Only seven banks followed the BB's instructions, and three independently completed the sustainability reporting in 2015. Remarkably, Prime Bank Limited has demonstrated its commitment to sustainability by becoming the first in the Bangladeshi banking sector to submit the inaugural G4 sustainable report in March 2015. This bank has achieved the 'Material Disclosure Service' and has been granted authorization for the first time in Bangladesh to receive the 'Material Disclosure Service Icon' from GRI, Netherlands (Khan, 2018).

In their study, Khan et al. (2011) examined the practice of sustainability reporting among Bangladesh's central commercial banks. They utilized the GRI G3 guidelines and the GRI FSS-specific performance indicators for their analysis. The bank's sustainability reporting was analyzed across five key areas: environment, society, labor practices, human rights, decent work, and product responsibility. It was shown that most banks showed a preference for providing more content in the 'social' section. Additionally, it was discovered that the level of social reporting by central banks in Bangladesh, as measured by GRI indicators, was relatively low. The investigated banks only released seven out of the sixteen FSS-specific GRIs. This study adds to the existing body of knowledge on social reporting, specifically in the banking sector in developing nations. It provides data supporting the adoption of social exposure practices in accordance with GRI. In a separate investigation conducted by Masud and Hossain (2016), the focus was on analyzing the green banking practices and reporting issues of Bangladeshi commercial banks. The study specifically concentrated on adherence to the GRI G4 criteria in relation to environmental concerns. The survey revealed that a limited number of banks adhered to the GRI G4 principles for green

banking and sustainable reporting. However, many Bangladeshi commercial banks adhered to conventional reporting practices, which needed to meet the acceptable reporting standards outlined by BB's green banking principles.

However, corporate environmental, social, and administrative notifications have recently earned much attention as additional reports of voluntary information. Considering the importance of sustainability reporting, Islam and Chowdhury (2016) conducted a study evaluating the sustainability disclosure practices in Bangladesh's banking sector following GRI G4 guidelines. By analyzing the annual reports of thirty listed banks for the year 2014, the study determined that the banking sector is disclosing a higher percentage of general information (66%) compared to specific details (17%). The overall disclosure status of the GRI G4 criteria for sustainability is now at a low level, with only 36% compliance. The study recommended that the banking sector implement G4 procedures and enhance reporting standards in accordance with the GRI framework.

In a study conducted by Mahmud et al. (2017), the sustainability reporting trends and practices in Bangladesh's banking sector were examined. The study focused on adherence to GRI guidelines and provided recommendations for the authorities in the banking industry to foster a culture of sustainable reporting. The study deliberately examined all thirty banks listed in the DSE and CSE in Bangladesh and found that only eight banks released sustainability reports in accordance with the GRI reporting framework. However, these reports only included sustainability information in their annual reports, which was insufficient. Furthermore, it was discovered that the sustainability reporting material needed to meet the criteria set by the GRI guidelines, which aligns with the conclusions made in Islam's (2020) study. However, it is essential to note that the study only examined a small sample of three banks. The study prescribed that sustainability reporting practices can assist stakeholders at various levels in finding the affairs and areas that can be focused on in formulating a plan to create a sustainable reporting culture within Bangladesh's banking sector perspective to make the world more sustainable.

The above review demonstrates that GRI guidelines are essential for continuous improvement and stakeholder relationships that support organizations in conveying their positive and negative implications on sustainable development to enhance transparency. However, studies have yet to be carried out on green disclosures in

Bangladeshi banks based on the GRI reporting framework. No study has been conducted on green exposures following the release of the current edition of the GRI reporting framework, GRI Standards. Additionally, over the past few decades, GRI has played a starring role in improving guidelines for preparing sustainability reports (Mahmud et al., 2017). That is why GRI's standard approach has been considered in this study. In addition, this research contributes some comprehensive guidelines for the relevant authorities of Bangladesh's banking sector to develop green initiatives and sustainable reporting practices.

The discussions in this chapter provide some highly useful contributions to the research gaps in the green accounting literature. Some significant research gaps that the thesis will address are identified in the next section.

2.7 Critic and Research Gap

This chapter's broader discussions acknowledge the following shortcomings of the study of the green accounting literature in Bangladesh:

- The study demonstrates a maiden opportunity to explore the overall GAR practices in Bangladesh's banking sector by utilizing a large sample size in the current context. This study comprehensively addresses the green initiatives performed by Bangladeshi banks, covering all the commercial banks listed in the DSE.
- This study is the first documented attempt to explore the extent to which Bangladeshi banks disclose information following the current GRI reporting framework, GRI Standards. This research will specifically examine the sustainability indicators of Bangladeshi banks, focusing solely on the environmental aspect in the context of the GRI Standards.
- Most importantly, the study utilizes the primary research method to identify the challenges of GAR practices in Bangladesh's banking industry. Consequently, the research will possess distinctiveness and contribute an additional aspect to Bangladesh's existing literature on green accounting.
- The study offers a chance to utilize several analytical approaches to explore GAR practices in Bangladesh's banking industry. Furthermore, utilizing various methodological procedures improves the strength of the research and

raises the study's reliability and validity more efficiently. This approach is especially convincing considering the growing emphasis on this research field in recent years.

- This research also provides detailed suggestions for the relevant authorities in Bangladesh's banking sector to enhance their green activities and sustainable reporting practices.

This study was initiated to address the deficiencies by enhancing the existing knowledge of corporate green accounting disclosure practices of listed banks in Bangladesh. Hence, the study will be a significant endeavor in investigating the scope of green accounting practices in Bangladesh.

2.8 Conclusion

This chapter aims to elucidate and consolidate the entirety of green accounting research. The focus of the research discussion was to provide a conceptual understanding of the essential concepts. An overview of the development and key focus areas of green accounting was offered, followed by a discussion on research conducted in a developing nation such as Bangladesh. In addition, the study primarily examined the implementation of GAR practices, as well as the adoption of green reporting using the GRI framework in Bangladesh's banking sector. The study identified research gaps in the field of green accounting literature in developing countries, specifically in Bangladesh's banking industry. The upcoming chapter will elucidate the means by which the three objectives of this study can be achieved through the implementation of an appropriate research methodology and research methods design.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter will provide a comprehensive overview and elucidation of the research methodology employed in this study. Initially, it explains the research design, which includes details about the population and sample size, research objectives, and questions, as well as the research approach that outlines how the study will be carried out under the three objectives. The following section elucidates the data collection techniques that encompass the sources of information to acquire both secondary and primary data. Subsequently, the focus shifts to the data analysis techniques, which extensively explain how data will be analyzed for each objective.

3.2 Research Design

The study is descriptive and exploratory, drawing on data from secondary and primary sources. The upcoming sections will detail the population and sample size, research objectives and questions, and the research method that will guide the study's execution under the three objectives.

3.2.1 Population and Sample Size

The study focuses on Bangladesh, explicitly emphasizing the country's banking sector. The researcher chose Bangladesh for two main reasons. Firstly, the researcher had access to Bangladeshi annual reports. Secondly, studying GAR in Bangladesh will provide insights into GAR in developing countries, especially South Asian countries.

Bangladesh's banking system comprises 59 scheduled banks as of December 31, 2019. This includes six state-owned commercial banks, three specialized banks, 41 private commercial banks, and nine foreign commercial banks. As the study focused on the listed banking companies in Bangladesh, all thirty commercial banks, which comprise 100% of the population and were listed on the DSE until December 31, 2019, were included in the study. Banks included in the study list can be found in Appendix A. The main reason behind choosing the banking sector as the sample is to disclose their sustainability performance by BB's green reporting guidelines while upholding global standards to enhance their credibility and reputation as responsible and transparent entities, which has become an essential aspect of their business in

recent years (detailed in Chapter Two). Furthermore, many sampled banks typically prioritize publishing high-quality reports for various stakeholders and ensuring compliance with legal obligations (Masud et al., 2017).

3.2.2 Research Objectives and Questions

Based on the problem statement and an extensive review of relevant literature outlined in Chapter Two, the core objective of research is to explore the existing status of GAR practices in Bangladesh's banking sector from 2015 to 2019. Specifically, the research relies on the most recent GRI reporting framework, GRI Standard, which focuses on the sampled bank's reporting on green issues in the aspect of the environment. Thus, the subsequent specific sub-objectives are fixed to enlarge the core objective:

- To explore the nature of GAR practices in Bangladesh's banking sector.
- To measure the extent of GAR practices of the Bangladeshi banks in line with GRI Standards in the environmental aspect.
- To identify the challenges faced in adopting the GAR practices in Bangladesh's banking sector.

Concurrently, three research questions are formulated to accomplish three study objectives. The research questions serve the function of directing the study and providing guidance for collecting data. The research questions are enumerated as follows:

Research Question 1: What are the GAR practices areas of the Bangladeshi listed banks?

Research Question 2: How are the disclosure status of the Bangladeshi banks in line with GRI Standards regarding the environment?

Research Question 3: What challenges do Bangladeshi banks face in introducing and implementing the GAR practices?

3.2.3 Research Methods

The study employed content analysis and survey research methods to investigate three research questions, outlining the methodology for each question in the subsequent sections.

3.2.3.1 Content Analysis as the Main Method

The study utilized content analysis as the main research method to examine the annual reports and identify the frequency of GAR practices inside banks in Bangladesh. In this regard, the sampled banks that provide green disclosures were thoroughly analyzed by evaluating all sections of the annual report related to green initiatives to identify and measure the categories of GAR practices.

Content analysis is applied as the approach for data collection in this study. Kolbe and Burnett (1991) state that this method is highly beneficial for exploratory research as it eliminates the necessity of generalizing or adhering to a specific set of theoretical viewpoints. Neuendorf defines content analysis as a message-centered scientific research process as follows:

> *Content analysis is a quantitative analysis of messages that uses the scientific method and is not restricted in terms of the variables that may be assessed or the context in which the messages are produced or delivered (2002, p. 10).*

Weber (1990) and Krippendorff (2004) defined content analysis as a scientific method to draw reproducible and accurate conclusions from data based on their context. Berelson (1952) demonstrated that content analysis is used to methodically, quantitatively, and objectively describe the visible content of communication.

Moreover, the content analysis technique involves a thorough, careful, and systematic investigation of specific material to identify and interpret themes, patterns, meanings, and biases (Berg and Lune, 2012; Krippendorf, 2004; Weber, 1990). This method has been extensively applied in many CSR disclosure research projects (e.g., Kabir and Akinnusi, 2012; Raman, 2006; Gray et al., 1995b; Guthrie and Mathews, 1985; Ernst & Ernst, 1978). Many academics rely on using the content analysis method to reveal social and environmental reports due to its extensive adoption (Bose et al., 2017; Ullah and Rahman, 2015; Khan et al., 2011; Krippendorf, 2004; Hossain et al., 1994; Ahmed and Nicholls, 1994). Thus, this study employed content analysis tools to identify and assess the content included in annual reports systematically.

Content analysis practices and ideologies differ throughout academic disciplines. The methods all need a structured examination of texts or objects given labels (codes) to show the existence of significant and meaningful content (Hodder, 1994; Tipaldo,

2014). Researchers can evaluate text content trends by labeling them methodically and then applying statistical methods for quantitative analysis or qualitative approaches to understand the texts' meanings. This study concentrated on summarizing significant patterns or themes rather than providing complete specifics about a text. Counts of key themes were conducted to show the relative significance of the principal themes found.

This study used content analysis method to answer the first two research questions. The first research question explores the GAR practice areas in Bangladesh's banking industry, focusing on the green initiatives adopted by the selected banks. This necessitates analyzing the content of the specific regions of GAR information to explore the level of disclosure of various green issues in the annual reports of the selected banks. The second research question measures the extent of GAR practices by Bangladeshi banks, explicitly focusing on adherence to GRI Standards regarding the environment. This also necessitates the analysis of the content of eight major areas of GAR information. The approach entails developing a green disclosure index according to the GRI Standards to determine and measure the extent of green disclosures in the annual reports of the selected banks.

3.2.3.2 Survey Method Using Questionnaire

This study also employed the survey as the primary research method to address the third and final research question. This approach is used to gather diverse perceptions of GAR practices from experts, and the focus is on exploring the challenges related to GAR in Bangladesh's banking sector. This is done through a questionnaire to identify the challenges Bangladeshi banks currently face in adopting GAR practices within Bangladesh's banking sector.

Kumar (2012) defined *the survey research method* as the study of sampling individual units from a population and related survey data collection techniques focusing on human research surveys and including questionnaire construction and methods to enhance the quantity and precision of survey responses. This research type enables several techniques to enlist people, gather data, and employ various instrumentation approaches. Surveys are commonly utilized in social and psychological research to describe and investigate human behavior (Singleton and Straits, 2009).

Survey research employs many data collection methods, with questionnaires and interviews being the most prevalent. The survey method, mainly a questionnaire, is applied for data collection in this study. Questionnaires offer advantages over other survey methods due to their cost-effectiveness, less work required from the questionnaire compared to verbal or telephone surveys, and standardized answers that facilitate data compilation (OECD, 2019). Questionnaires can be self-administered or administered by a professional, individually or in a group, and usually consist of items that align with the study objectives (Ponto, 2015). Authors should provide a detailed description of the survey questionnaire contents to assist readers in assessing the validity and reliability errors, as suggested by Buerhaus et al. (2012). In this study, a questionnaire was created for self-administration, which was constructed based on a thorough investigation of the banks' annual reports as described in the data analysis section.

The data were gathered by visiting the respondents' banks, with a few opting to participate via email. Questionnaires can be distributed in paper form through mail, electronically via email or an Internet-based platform, or a combination of both, allowing participants to select their preferred mode (Ponto et al., 2010). Employing various survey administration methods can improve sample coverage, ensuring that all individuals can be included, thereby minimizing coverage error (Dillman et al., 2014; Singleton and Straits, 2009). For example, if a researcher solely relies on an internet-delivered questionnaire, persons with computer access could participate. Table 3.1 outlines the research questions and methods.

Table 3.1 Research Questions and Respective Methods

Research Questions	Research Method
Research Question 1: What are the GAR practices areas of the Bangladeshi listed banks?	Content analysis to measure the specific categories of GAR information found in the annual reports of the sampled banks (detailed in data analysis section).
Research Question 2: How are the disclosure status of the Bangladeshi banks in line with	Content analysis to measure the eight areas of GAR information found in the annual reports of the sampled

GRI Standards regarding the environment?	banks (detailed in data analysis section).
Research Question 3: What challenges do Bangladeshi banks face in introducing and implementing the GAR practices?	Surveys of the respondents directly involved in GAR or sustainability reporting based on a questionnaire (detailed in data analysis section).

Hence, the study offers a chance to utilize several analytical approaches to investigate GAR practices in Bangladesh's banking industry. Furthermore, utilizing various methodological procedures improves the strength of the research and raises the study's reliability and validity more efficiently. This approach is especially convincing considering the growing emphasis on this research field in recent years. The following section will detail the data collection strategies that provide sources for gathering both secondary and primary data.

3.3 Data Collection

The study utilized diverse data sources simultaneously to achieve the three research objectives. Therefore, secondary and primary sources of information have been used to collect the data needed for this study.

3.3.1 Secondary Data Collection

The study used the annual reports of the sampled banks as the main sources of information to address the first two research objectives. The annual report is commonly used as a means of communication with stakeholders and is widely regarded as credible (Hoque et al., 2016; Fifka, 2012; Khan et al., 2009; Khan, 2010; Islam and Deegan, 2008; Raman, 2006; Adams, 2004; Gray et al., 1995a; Guthrie and Parker, 1990; Singh and Ahuja, 1983). Belal (2000) stated that the annual report is the most prevalent and popular document regularly generated by firms. Pratten and Mashat (2009) also shown that the annual report is a significant source of information regarding corporate disclosures for different user groups.

This study gathered secondary data from published and unpublished sources to identify and assess GAR practices in Bangladesh's banking sector. In order to address the first two research questions, the official annual reports of all selected banks over five consecutive years (2015-2019) have been examined, taking into account the banks' green initiatives. Specifically, the focus was on the sustainability factors of the

banks in line with the GRI Standards in the environmental aspect to address the second research question. In addition, the study used many sources of information, such as research papers, authoritative publications, official reports, reputable websites, newspapers, stock exchanges, and the Securities and Exchange Commission. These sources were utilized to enhance the existing literature of the study (Khan et al., 2011; Adams et al., 1998; Guthrie and Parker, 1990).

3.3.2 Primary Data Collection

The study collected primary data by administering a survey questionnaire to address the third and final research question. The questionnaire is used to get expert opinions on perceptions of various GAR areas to identify the challenges Bangladeshi banks face in introducing and implementing GAR practices.

The study purposefully chose ten banks (see Appendix B) among thirty sampled banks for primary data collection based on their green reporting status. An examination of the published annual reports of selected banks found that certain banks provide distinct disclosure of green concerns. These disclosures include detailed quantitative data on green initiatives by BB's green reporting criteria and global reporting framework. In addition, several banks include green concerns in their yearly published reports, providing thorough green information by BB's green reporting rules, but they must adhere to global standards. Furthermore, many banks need more information regarding their environmental impact. In contrast, only a few banks disclose their green practices without including quantitative green data. Consequently, these ten banks have been selected based on the green reporting pattern for gathering primary data, ensuring that the study's results are unbiased and comprehensive.

Twenty respondents were selected, with two individuals chosen from each bank. Officials directly engaged in GAR or sustainability reporting were requested to give their opinions on the challenges Bangladeshi banks face in adopting GAR practices. The officials consist of several officers specified in Chapter Four who possess expertise and knowledge about the bank's sustainability status, green concerns, and future policy on GAR. The officials' key responsibilities relating to GAR are outlined in Appendix D.

The respondents were notified that primary data would be gathered via a questionnaire and might be kept anonymous upon request, and all respondents desired

anonymity. The respondents were also informed that they could abstain from providing opinions during the data collection, and no one chose to abstain. The data were acquired by visiting the respondents' banks, with two out of twenty respondents requesting to provide the data via email.

3.3.3 Data Collection Period

The data should be current to ensure the study is contemporary and up to date (Mehedy et al., 2018). The current status of green reporting by Bangladeshi banks is remarkable, as each bank is required to submit its green initiatives periodically according to BB's guidelines. In addition, banks have recently disclosed their sustainability performance according to international benchmarks to enhance their credibility and reputation as accountable and transparent institutions for various stakeholders. Furthermore, due to the country's fragile ecological condition, it is still being determined if Bangladeshi banks have been involved in any actions associated with GAR. However, the analysis of green disclosure is limited to the latest studies on the environmental impact of banks that adhere to international reporting requirements, with just a few considerations regarding the GRI (Khan et al., 2011; Khan, 2016; Masud and Hossain, 2016; Mahmud et al., 2017).

Notably, studies have not been undertaken on green exposures in Bangladesh's banking sector since the introduction of the latest GRI reporting standard, GRI Standard, in 2018. Hence, this research has considered the annual reports of thirty selected banks over five years from 2015 to 2019. It is crucial to acknowledge that the most recent annual report for this study is from 2019. A total of 150 observations from the mentioned 30 banks have been considered during the research period. The subsequent section will elucidate the data analysis methodologies employed in the study.

3.4 Data Analysis

Different methodologies might be utilized within a single study based on the approach needed to investigate the research questions. This study employed content analysis and survey methods to accomplish three research questions, detailing the data analysis process for each question.

3.4.1 Content Analysis of Annual Reports

This study analyzed annual reports using content analysis to identify and quantify the information disclosed in each bank's GAR. Various criteria are utilized in content analysis to evaluate the effectiveness of firms' social and environmental information disclosures in various CSR reporting studies. However, standardized measuring approaches have yet to be established in the literature (Unerman, 2000). The study adheres to the three processes for content analysis outlined by Gray et al. (1995a), which were also utilized by Raman (2006) and Kabir and Akinnusi (2012), as they are deemed most suitable for this study's objectives.

The initial stage of content analysis involves choosing appropriate documents. This study selected Corporate annual reports as the primary focus of reporting and the most significant source of information for social and environmental reporting. The chosen annual reports for analysis align with other previous research, such as Islam and Deegan (2007), Adams et al. (1998), Grey et al. (1995a), Guthrie and Parker (1990), and Kabir and Akinnusi (2012). In addition to annual reports, other documents, such as separate sustainability reports, were included in the content analysis. The validity of each annual report on green issues was assessed by analyzing specific sections related to green reporting, such as sustainable Finance, green report card, and green banking, as well as the directors' report, chairman's report, and auditor's report.

In the second step of content analysis, themes or categories related to GAR issues are selected and identified for this study. The study's themes were derived from the content of specific categories of GAR information found in the annual reports. Further, the study used the content of the eight major GAR information areas outlined in the subsequent section, which align with GRI standards. These areas include materials, energy, water and effluents, biodiversity, emissions, effluents and waste, environmental compliance, and supplier environmental evaluation. The study employed these major categories to assess the GAR performance of the sampled banks. The chosen areas have been regarded as integral parts of banking firms' environmental perspectives, given that the banking industry is at the forefront of revealing corporate endeavors through social, environmental, and sustainability reporting (Dissanayake et al., 2016; Ullah and Rahman, 2015).

In this study, the final part of the content analysis approach involves measuring the themes of GAR, which serve as the unit of analysis and are essential for assessing social disclosure. Two common ways in literature for determining the unit of measurement for content are based on the number or the volume of disclosures. (Gray et al., 1995b). The study focuses on the number of GAR themes to establish the measurement unit for assessing the content. By including multiple GAR disclosures in the study, the dataset becomes more comprehensive and effectively represents the number of disclosures in different circumstances (Grey et al., 1995b). Researchers have employed many measures to quantify the extent of disclosures. For instance, Hackston and Milne (1996) employed the measure of sentence count, Gray et al. (1995a) utilized the measure of page count, Raman (2006) employed line count, Kabir and Akinnusi (2012) utilized word count, and Ullah and Rahman (2015) considered the number of lines, sentences, tables, graphs, and charts. Previous research has indicated that the CSR literature lacks specific guidance for the use of a measure for content analysis (Hackston and Milne, 1996; Milne and Adler, 1999; Unerman, 2000; Khan, 2010; Kabir and Akinnusi, 2012; Masud et al., 2017). Nevertheless, this study comprehensively reviewed the content of specific categories of GAR information found in the annual reports. The methods and content employed in this study are consistent with the previous research conducted by Kabir and Akinnusi (2012), Ullah and Rahman (2015), and Masud et al. (2017).

Moreover, the study analyzed GAR disclosures to discover how information about GAR practices is presented and whether it is communicated through monetary or non-monetary forms. Different research has utilized this method to assess the number and nature of the information disclosed (Masud et al., 2017; Hoque et al., 2016; Killic et al., 2015; Kabir and Akinnusi, 2012; Khan et al., 2009; Unerman, 2000; Grey et al., 1995a). The following section outlines the coding procedure for creating a green disclosure index to analyze the information disclosed in annual reports.

3.4.2 Green Disclosure Index

In order to employ the content analysis technique, it is crucial to create a suitable system of categorization or a disclosure index for determining the environmental disclosures found in annual reports (Khan and Jui, 2016; Hossain et al., 2006). The study primarily investigated the sustainability factors of the selected banks, specifically concerning the GRI Standards, with a specific focus on the environmental

aspect. GRI is designed to facilitate the adoption of sustainable reporting methods across many sectors, including manufacturing, non-manufacturing, and businesses of different sizes. The GRI Standards have established three distinct series, namely 200 (Economic), 300 (Environmental), and 400 (Social), each encompassing a specific set of information.

This study only focuses on environmental topics, encompassing eight categories of divulging data on environmental aspects: materials, energy, water and effluents, biodiversity, emissions, effluents and waste, environmental compliance, and supplier environmental assessment. The areas are utilized to assess the GAR performance of the sampled banks for precisely accomplishing the second research question. The GRI Standards have formulated thirty-two principles about environmental topics for sustainability reporting. For reporting purposes, this study has considered fifteen principles (see Appendix C) that address environmental issues in the sampled banks. Among the remaining seventeen principles (see also Appendix C), fourteen have not been assessed due to their lack of relevance to the research area and objectives. Additionally, three principles (301-3, 305-3, 308-2) have been disregarded due to unavailability of information. The following section describes the coding system employed to explore the extent of GAR disclosures in the annual reports.

3.4.3 Research Coding Method

The research incorporated a scoring system to explore the extent of GAR practices in the annual reports of the sampled banks, utilizing the green disclosure index. This assessment focused on the content of the eight major GAR information areas outlined in the preceding section to address the second research question. The Green Accounting and Reporting Disclosure Score Index (GARS) of a selected bank was utilized, following the technique of Mehedy et al. (2018), Masud et al. (2017), Khan and Jui (2016), Ullah and Rahman (2015), and Cooke (1992). Each of the eight areas is given similar importance by assessing if a bank includes information on green issues in its corporate annual report. A bank is awarded a value of '1' if it includes a green area in its annual report and '0' if it does not, following the dichotomous approach suggested by Clarkson et al. (2008). GARS is the total of eight areas calculated for each bank annually to determine the number of banks that disclose GAR information. The formula utilized in this study to compute the reporting score is as follows:

$$GARS = \sum_{i=1}^{8} di$$

Where, GARS = Green Accounting and Reporting Score for each bank each year,

di = 1 if the area is reported, and 0 if it is not reported.

Moreover, the study used conventional mathematical approaches and descriptive statistics, such as averages, percentages, tables, bar charts, pie charts, and diagrams, to analyze the study findings and make them more meaningful and easily realizable.

3.4.4 Questionnaire Survey

The study acquired primary data by administering a survey questionnaire designed to explore various perspectives on GAR practices. The questionnaire, detailed in Appendix E, consisted of two sections: open-ended questions regarding general information and close-ended statements for specific information. Fourteen statements were included to collect expert opinions on perceptions related to various aspects of GAR practices, aimed at identifying the challenges Bangladeshi banks face in adopting GAR within Bangladesh's banking sector. The questionnaire statements were mainly derived from the third and final research question to gather data from individuals directly engaged in GAR or sustainability reporting.

The survey statements were formulated after thoroughly reviewing the banks' annual reports about adopting GAR practices as outlined in Chapter Four. Moreover, before gathering the primary data, the questionnaire was provided to the identical officials to evaluate the questionnaire's reliability and validity. Additionally, the content validity of the questionnaire was assessed, and the respondents individually rated it on a scale of ten. In order to assess the reliability of the questionnaire, the ratings given by the respondents were compared, resulting in an inter-rater reliability score of 8.0, which indicates a high level of agreement among the respondents, suggesting that the questionnaire is both valid and reliable. Nevertheless, following slight revisions and adjustments, the questionnaire was approved for utilization with the study's sample.

The study included primary data analysis and interpretation to substantiate the findings obtained from the questionnaire. Nevertheless, the data obtained from the surveys were manually coded and analyzed, and computer tools, specifically Microsoft Excel, were utilized. The data was analyzed using several statistical charts, including bar charts and pie charts.

3.5 Conclusion

The chapter outlined the research methods employed to accomplish the three research objectives of the study. The research mainly uses a variety of approaches, including content analysis and surveys, using both secondary and primary data sources. As the main source of information, this study analyzed annual reports using content analysis to explore the GAR practice areas in Bangladesh's banking industry, focusing on the green initiatives adopted by the selected banks. Moreover, as the main focus of the study, the research explored the sustainability factors of GAR practices by Bangladeshi banks in line with GRI Standards in the environmental aspect. In addition, the study collected primary data by administering a survey questionnaire to get expert opinions on perceptions of various GAR areas to identify the challenges Bangladeshi banks face in adopting GAR practices. The upcoming chapter will detail the research results and their findings.

CHAPTER FOUR: FINDINGS

4.1 Introduction

The chapter will outline the results and findings of the study. Based on the three research objectives, firstly, it explores the nature of GAR practices in Bangladesh's banking sector. Secondly, the chapter measures the extent of GAR practices of all the commercial banks listed in the DSE of Bangladesh based on GRI Standards, focusing on the sampled bank's reporting on green issues regarding the environment. Lastly, it identifies the challenges of adopting GAR practices in the Bangladesh banking sector.

4.2 Findings for the First Research Objective

The first objective of the research is to explore the nature of GAR practices in Bangladesh's banking sector. To achieve this objective, the green initiatives adopted by all the banks listed on the DSE have been considered. For that, the study analyzed the content of selected banks' annual reports from 2015 to 2019 categorized under 'Sustainability Reporting', 'Sustainable Finance', 'Green Report Card', or 'Green Banking'. This study has compiled several green initiatives implemented by Bangladeshi banks to assess the country's environmental preservation efforts in the following areas.

4.2.1 Green Establishment

Out of the 30 listed banks, it has been found that almost all have engaged in green finance activities within the framework of green banking. The banks stated in their annual reports that they provided funding for numerous projects to establish environmentally sustainable businesses and transition existing traditional industries into more environmentally friendly ones. In addition, they provided financial support to enterprises to manufacture environmentally sustainable products that are both ecologically responsible and economically viable. Concerning this, Trust Bank believes:

> *"Green growth is dependent on green investment and transitioning from fossil fuels to green energy is essential for changing economic growth trajectories".* (Trust Bank Limited Annual Report, 2019, p.147)

It was also found that a gradual upward trend was noted in the total disbursement amount by banks for direct green funding. The gradual rise in green project finance demonstrates a notable environmental impact by the banks. Islami Bank Bangladesh stated:

> *"The green investment disbursement in 2017 was Tk. 3,884.00 million, and in 2018, it increased to Tk. 10,226.28 million, showing a growth of 163.29% in 2018".* (Islami Bank Bangladesh Limited Annual Report, 2018, p.204)

As part of its commitment to green efforts, Prime Bank financed BDT 190.02 crore in green projects in 2019. This included BDT 161.14 crore for a green building, BDT 21.81 crore for an ETP installation, BDT 1.00 crore for a CETP installation, BDT 4.80 crore for a waste heat recovery project, and BDT 1.27 crore for an LED Bulb/Tube Assembly Plant (Prime Bank Limited Annual Report, 2019, p.73). Mutual Trust Bank reported:

> *"MTB has constructed its two corporate office buildings, "MTB Centre" and "MTB Tower," as green structures with a motion sensor lighting system. A solar power system has been constructed on the rooftops of the buildings. Both facilities are designed to drastically decrease energy usage and establish MTB as an environmentally friendly and sustainable bank".* (Mutual Trust Bank Limited Annual Report, 2018, p.229)

4.2.2 Climate Risk Fund

Under BB's requirement, the bank must contribute at least 10% of its annual CSR budget as CRF. This allocation is considered part of the bank's CSR activities. It has been found that most banks have included CSR initiatives, such as CRF, into their eco-friendly banking practices to address environmental concerns such as pollution, climate change, carbon emissions, and disaster management. Regarding this matter, Islami Bank Bangladesh Limited provided the following information:

> *"IBBL experienced a significant increase of 105.75% in utilizing its CRF, which accounted for 23.87% of its total CSR activities. This exceeds the minimum threshold of 10% of IBBL's annual CSR budget*

as mandated by Bangladesh Bank for the CRF". (Islami Bank Bangladesh Annual Report, 2018, p.204)

Southeast Bank has shown global commitment to climate issues by providing the following information.

> *"SEBL is proud of its relationship with GCPF, managed by Respoos Ability AG of Switzerland. In 2017, we were able to access the third installment of USD 10.00 million after effectively using USD 10.00 million in 2015 and 2016. In addition, SEBL is the sole bank approved by NDA for this UNFCCC money. The bank will request $100.00 million from the fund for renewable energy and energy efficiency initiatives in 2018".* (Southeast Bank Annual Report, 2017, p.214)

4.2.3 Automation towards Green Initiatives

It is noted that all banks have a minimum of one online branch, and the majority offer internet banking services. Most banks are highly automated, guaranteeing online banking services at every branch. Furthermore, further features and upgrades are consistently incorporated into online banking services. Regarding this, Dutch Bangla Bank provided the following information:

> *"Dutch-Bangla Bank is the pioneer in Bangladesh to achieve full automation and use Electronic Banking. Additional features are consistently being added and improved".* (Dutch-Bangla Bank Annual Report, 2018, p.263)

City Bank has released the following information along with its sustainability slogan: 'Go Green, Think Green, Act Green.'

> *"City Bank introduced its Internet banking platform, **'CityTouch,'** on October 11, 2013, to offer its clients enhanced, immediate, and paperless banking services".* (City Bank Annual Report, 2019, p.161)

4.2.4 In-house Green Management

It is revealed that almost all the listed banks have implemented eco-friendly practices to manage their operations internally, aiming to lower their carbon footprint through green initiatives for both head offices and branch offices. This study has compiled these environmentally friendly activities into the following distinct categories:

4.2.4.1 Utility Consumption Management

The study reveals that all the banks prioritize effectively utilizing gas, fuel, electricity, and water to decrease carbon emissions. In order to conserve energy and safeguard the environment, offices are employing energy-efficient technology such as eco-friendly light bulbs. Additionally, they are implementing a glass facade system to maximize the utilization of sunshine. AB Bank, operating as the 'Green Monitor,' provides a report on electricity consumption to ensure optimal usage:

> *"ABBL has implemented Earth Hour throughout all branches and at the main office. This involves turning off air coolers and unnecessary lights for one hour every Sunday, namely from 3:00 p.m. to 4:00 p.m."* (AB Bank Limited Annual Report, 2018, p.250)

In addition, Pubali Bank Limited mentioned:

> *"We have substituted nearly all the CRT monitors with LED monitors, resulting in a collective reduction of 70% in power consumption by personal computers".* (Pubali Bank Annual Report, 2018, p.191).

Additionally, some banks intend to install a water harvesting system on the rooftops of buildings to collect rainwater and alleviate strain on groundwater and surface water sources. As an environmentally responsible bank, Mutual Trust Bank reported:

> *"MTB Tower has rainwater harvesting and an eco-friendly wool carpet, a natural fibre treated without chemical treatment. The cutting-edge rainwater gathering facility can hold up to 10,000 litres".* (Mutual Trust Bank Limited Annual Report, 2018, p.229)

4.2.4.2 Paper Consumption Management

It is found that most banks have distributed green printing instructions to their staff as part of green office standards to promote environmental management and encourage green banking. Several banks have digitally archived customer documents to minimize paper consumption and facilitate electronic retrieval. In addition, internal communications are conducted via email, SMS, and video conferencing systems. Customer communications are conducted by SMS, emails, or ATM displays, and electronic statements are sent instead of physical copies where suitable. In addition, the banks have implemented the usage of printers equipped with duplex printing

capabilities to minimize paper consumption and waste. Alternatively, single-sided sheets are utilized for printing draft copies of office tasks. Bank Asia Limited reported the following:

> *"Both sides of the papers are utilized, and any discarded papers are gathered in bins after being shredded."* (Bank Asia Limited Annual Report, 2018, p.168)

In addition, PMIS software for Human Resources Management and the Bangladesh Electronic Fund Transfer Network has been implemented to reduce reliance on paper transactions. Furthermore, the banks implemented eco-friendly printing using eco-font, utilized biometric attendance sheets, established an e-payment gateway, and conducted paperless meetings consistently. Dutch-Bangla Bank Limited stated as part of the concern:

> *"DBBL introduced an e-payment gateway for the first bank in Bangladesh."* (Dutch-Bangla Bank Annual Report, 2019, p.247)

Further, Eastern Bank Limited reported:

> *"EBL is dedicated to reducing the negative effects of its operations on the environment. In 2017, we decreased our office paper consumption by 2.35% per full-time employee. We are generally progressing as planned to achieve our set goals."* (Eastern Bank Annual Report, 2017, p.142)

In addition, United Commercial Bank mentioned:

> *"The implementation of a Bio-metric attendance system at UCB's head office has resulted in a reduction in paper usage and the promotion of green banking efforts by the bank."* (United Commercial Bank Limited Annual Report 2017, p.78)

4.2.4.3 Waste Management

The study discovered that several banks prioritize the implementation of the 3R strategy (Reduce, Reuse, and Recycle) to minimize waste generated from their resources. They stated that they utilize e-tendering to collect and safely dispose of both electronic trash and other solid garbage from all operational units in a centralized

manner, ensuring environmental friendliness and safety. With the implementation of sustainable waste management procedures, Mercantile Bank reported:

> *"Since its beginning, we have greatly decreased the garbage sent to landfills from the main office and additional buildings."* (Mercantile Bank Limited Annual Report, 2019, p.171)

Moreover, Islami Bank Bangladesh mentioned:

> *"In 2018, the Bank generated a revenue of Tk. 3.45 million by selling its electronic garbage."* (Islami Bank Bangladesh Limited Annual Report, 2018, p.205)

4.2.4.4 Renewable Energy

The study found that most listed banks have begun installing solar panels at various branches, including their head offices, ATM booths, fast tracks, and agent stores, demonstrating a firm dedication to renewable energy sources. The installation of solar panels in various locations, as shown in Figure 4.1, is gradually increasing. It has been discovered that over half of the thirty listed banks have implemented solar panels at their head offices and multiple branches. The installation of solar panels at some branches is still ongoing. One-fifth of the ATM booths are now powered by solar energy. However, a small percentage (10%) of the banks have equipped their agent outlets with solar panels.

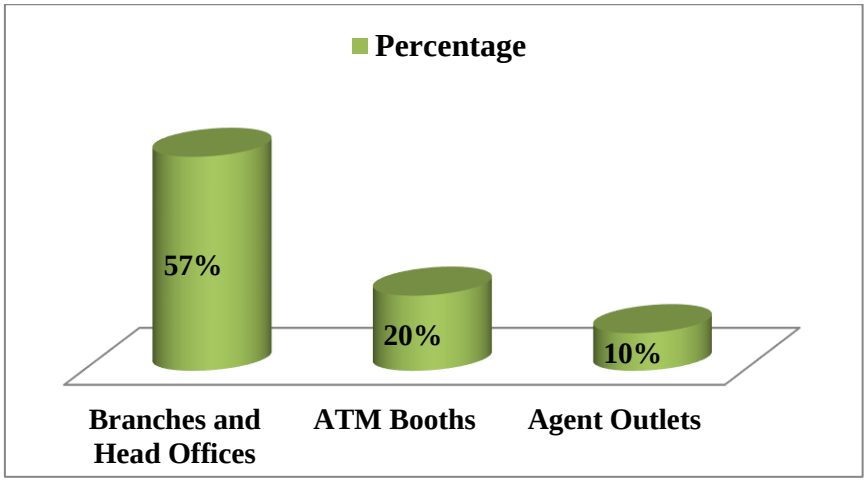


Figure 4.1 Installation of Solar Panels in Different Areas up to 2019

As part of its ongoing commitment to green banking efforts, Mutual Trust Bank provided the following information:

> *"MTB has placed solar power panels at its Corporate Head Office, branches, and ATM booths. In 2018, the bank added 44.6 kilowatts of solar panels, which decreased its overall power use."* (Mutual Trust Bank Limited Annual Report, 2018, p.230)

Al-Arafah Islami Bank mentioned:

> *"By December 2019, 63 out of 182 branches of AIBL had implemented solar power systems and energy-efficient products like LED bulbs to reduce reliance on electricity and utilize natural light and solar energy."* (Al-Arafah Islami Bank Limited Annual Report, 2019, p.57)

4.2.4.5 Green Travel

It is revealed that only some banks always promote green travel practices for their employees, such as using public transit, participating in carpool programmes, and using eco-friendly energy for private vehicles. For instance, Islami Bank Bangladesh reported:

> *"IBBL consistently promotes eco-friendly transportation for personal and work travel, providing hybrid vehicles and a carpooling system for its staff."* (Islami Bank Bangladesh Limited Annual Report, 2017, p.196)

Southeast Bank, an environmentally concerned institution that promotes carpooling, stated that by avoiding 10 miles of driving every week, around 500 pounds of carbon dioxide emissions might be eliminated annually (Southeast Bank Limited Annual Report, 2019, p.261).

4.2.4.6 Ethical Banking

Some banks engage in ethically dubious activities without causing harm to society or the environment. However, this practice is not found widely. The banks strive to optimize social welfare and reduce environmental harm while facing allegations of non-compliance. Mercantile Bank stated its commitment to ethical responsibilities by ensuring compliance with environmental regulations to uphold ecological and social equilibrium and protect the planet for all living creatures and future generations (Mercantile Bank Limited Annual Report, 2017, p.217). Bank Asia stated:

> *"Bank Asia constantly avoids environmentally harmful financing businesses. The bank will not provide funding to businesses involved in tobacco, weapons, gambling, casinos, pornography, or alcoholic beverages. Additionally, all bank offices are designated as smoke-free areas."* (Bank Asia Limited Annual Report, 2019, p.175)

Primarily, Premier Bank always avoids funding businesses that are harmful to the environment and reported:

> *"Smoking is prohibited in all bank offices. Using environmental due diligence checklists, we integrated environmental and climate change risks into the current credit risk assessment process."* (Bank Asia Limited Annual Report, 2019, p.175)

4.2.5 Green Training and Capacity Building

In order to promote environmentally conscious banking, the study reveals that numerous listed banks consistently hold necessary educational training programs on a regular basis to enhance the skills of their officials. These programs take the form of green events such as seminars, symposiums, and discussion meetings. Additionally, the banks also conduct workshops on sustainable or green banking matters, as well as environmental and social risk management, in accordance with the environmental risk management guidelines set by the BB. Regarding this, Shahjalal Islami Bank stated:

> *"SJIBL Training Center has regularly conducted 12 training sessions and workshops on Green Banking and environmental awareness, training 360 staff. SJIBL Training Academy organized 01 ESRM Workshop for executives of the Bank in July 2018, conducted by Bangladesh Bank, out of 12 workshops."* (Shahjalal Islami Bank Limited Annual Report, 2018, p.185)

The banks have also claimed that its personnel periodically engage in various training programs focused on sustainable or green banking matters, in response to invitations from other institutions. As an example, Mercantile Bank provides the following information:

> *"Mercantile Bank Training Institute now includes employee training on environmental and social risks, pertinent concerns, and green banking components as a standard component of their regular training*

> *programs. Bank officials also received training and attended workshops organized by such organizations as BB, BIBM, and BAB."* (Mercantile Bank Limited Annual Report, 2017, p.216).

Furthermore, Jamuna Bank Limited stated that JBL is consistently organizing supportive programs like workshops and training on green banking to educate the staff about the vital issues of green banking. The workshops and training programs are created based on the green banking policy guidelines and environmental risk management recommendations provided by BB (Jamuna Bank Limited Annual Report, 2019, p.303). City Bank also reported:

> *"GCPF organized a regional workshop on sustainable banking in Bangkok, Thailand. The training lasted for three days and involved three participants from City Bank."* (City Bank Limited Annual Report, 2019, p.161)

4.2.6 Green Marketing and Awareness Development

The study finds that most banks included various green activities in their marketing strategies to attract potential clients, such as green projects, environmentally friendly product design, engineering, advertising modifications, new product development, and changes to production processes and packaging. Various banks' green disclosures and annual reports focus on the following steps.

4.2.6.1 Motivation

The study found that clients are motivated to make their products, productions, and packaging processes environmentally friendly. It also encouraged borrowers to choose for green loans offered by most banks. The banks also promote environmental awareness among their officials. As part of awareness creation, Southeast Bank reported:

> *"Southeast Bank has introduced Green Awards to recognize individuals and organizations actively protecting the environment and addressing climate change risks through environmentally friendly practices, community investment, and knowledge management."* (Southeast Bank Limited Annual Report, 2018, p.243).

As promoting the green concept through stakeholder communications, Rupali Bank Limited reported:

> *"RBL has been utilizing slogans on its envelopes, gift boxes, and baskets to promote awareness of its environmentally friendly products. Examples of such slogans are "Plant trees, save the environment", "Supporting sustainable initiatives through funding", "Bankers must fulfil social, environmental, and economic duties", "We consider sustainable development while avoiding environmental harm, with profit the inevitable outcome", "Make online payments for your invoices", "Practice reducing, reusing, and recycling", "Go paperless", "Digitize oneself", "Disconnect electronic devices when not in use" etc.* (Rupali Bank Annual Report, 2019, p.180-181).

4.2.6.2 Advertisements

Most banks promote their environmentally friendly initiatives and goods through print and electronic media and online platforms. Additionally, they have utilized their official websites to advertise new ecologically friendly items and highlight the features of existing green products to attract potential clients and expand their market reach. Mutual Trust Bank provides information on this matter:

> *"MTB is actively promoting environmentally friendly products and services, such as debit cards, credit cards, internet banking, mobile internet recharge, SWIFT, call center services, online banking, and SMS banking. These offerings are being advertised extensively through electronic and print media and virtual communication channels. The bank also utilizes brochures, pamphlets, banners, flags, hard boards, festoons, danglers, billboards, and similar advertising methods to promote its environmentally friendly products."* (Mutual Trust Bank Sustainability Report, 2017, p.82)

4.2.6.3 Publications

The study demonstrates that some banks disseminate various green and sustainable banking events, concerns, and products. The banks publish and distribute a calendar centered around green banking. This calendar aims to promote the advantages of green banking to its clients. Additionally, the banks sponsor the publication or re-

publication of books and articles related to sustainable development, the green environment, and the green economy. Furthermore, the banks compile and disseminate the green brochure to all clients across all branches to promote the 51 environmentally friendly products across eight categories of BB. Regarding this matter, Islami Bank Bangladesh provides the following information:

> *"The bank released a range of publications solely focused on green banking goods and matters."* (Islami Bank Bangladesh Limited Annual Report, 2018, p.205)

4.2.6.4 Green Events

The study discovered that several banks organized multiple environmentally friendly activities for the public. Banks participate in World Environment Day and Earth Day by implementing practical and significant activities like tree planting programs. Prime Bank Limited stated as part of the concern:

> *"PBL organized the Green Carnival to raise awareness among selected esteemed consumers by offering them a unique, such as Pot Bonsai. In addition, the bank performed on-site visits, held discussions with current and potential entrepreneurs, and met with Central Bank officials to investigate opportunities in projects that promote environmental sustainability."* (Prime Bank Annual Report, 2018, p.195)

Moreover, Al-Arafah Islami Bank Limited reported:

> *"The Tree Plantation Programme 2017 was successfully conducted across our rural branches throughout Bangladesh to create a sustainable environment. Approximately 29,000 tree saplings have been distributed among the general public. The expenditure for tree plantation programs amounted to roughly 1.66 million."* (Al-Arafah Islami Bank Limited Annual Report, 2017, p.45)

4.2.7 Green Strategic Planning

The study found that certain listed banks strategically plan and allocate funds to achieve annual green targets, aiming to create social and corporate value for the country. Annually, they establish attainable environmental goals and tactics, which

they then reveal in their yearly reports and websites. These objectives are accomplished by executing diverse initiatives, monitoring, oversight, performance assessment, promotion, and training or awareness campaigns. Some banks have been regularly disclosing their environmentally friendly initiatives to BB every quarter. Following BB's mandate to develop an ecologically conscious strategic plan, the report from National Bank Limited included the following details:

> *"The bank's strategic plan outlined specific objectives, assigned responsibilities, established start and finish dates, and included a midpoint review period. Furthermore, the strategy outlines the necessary measures to achieve the goals."* (National Bank Limited Annual Report, 2019, p.91)

Moreover, the banks disclose all the relevant areas of green issues with particular focus by pursuing upcoming green initiatives such as disbursement of 5% of total disbursed funded investments in direct green investments, designing a proper environmental management system to minimize environmental risks and achieve maximum benefits from eco-friendly investment, expansion of i-Banking and ADC products coverage, use of on-net communication, lesser use of paper, water, electricity, gas, fuel and other materials to reduce own carbon footprint as well as cost, minimization of GHG emission, E-tendering and E-recruitment, green finance in 51 products under BB re-financing scheme, creating more awareness about green banking among general people, clients, bank officials and business people, categorizing all the transactions based on environmental and social risk, monitoring the clients' environmental and social performance, managing the clients' non-compliance with banks environmental and social standards etc. Regarding this matter, United Commercial Bank Limited disclosed:

> *"Green Strategic Planning has implemented and established goals for in-house environmental management. Some measures include a 5% decrease in energy, gas, and fuel usage, a 10% decrease in paper consumption, a 5% decrease in greenhouse gas emissions, and a 5% decrease in electronic billing."* (United Commercial Bank Limited Annual Report 2018, p.96)

4.2.8 Green Products

This study reveals that certain publicly listed banks have delineated their extensive range of environmentally friendly products by endorsing a total of 51 green products across eight distinct categories within the BB re-financing scheme. These categories encompass renewable energy, energy efficiency, alternative energy, waste management, recycling, environment-friendly brick production, green building or industry, and miscellaneous. Brac Bank Limited stated the following:

> *"BBL has launched an innovative, environmentally-friendly product called Planet Solution, which provides customized green products to fulfill the specific requirements of consumers who want to embrace green technologies."* (Brac Bank Annual Report, 2019, p.351)

Moreover, Mutual Trust Bank reported:

> *"MTB is now marketing 52 environmentally friendly products from Bangladesh Bank and ADB Refinance Scheme. These products aim to enhance efficiency through green finance."* (Mutual Trust Bank Limited, 2018, p.229)

The following section will focus on the second research objective of the study, which is to explore the disclosure status of Bangladeshi banks according to GRI Standards. Specifically, it will analyze the extent to which these banks handle environmental issues, particularly those related to sustainability.

4.3 Findings for the Second Research Objective

The second objective of the research is to explore the extent of GAR practices of all thirty commercial banks listed in the DSE of Bangladesh according to GRI Standards, specifically focusing on environmental aspects. This study analyzed the content of annual reports from selected banks over five years (2015-2019) to identify green initiatives disclosed under headings like 'Sustainability Reporting,' 'Sustainable Finance,' 'Green Report Card,' or 'Green Banking.' The research also investigated the sustainability elements of the sampled banks within the framework of GRI Standards in the environment, being the first known study to do so. According to GRI Standards, a green disclosure index has been created, consisting of eight areas for disclosing environmental information: materials, energy, water and effluents, biodiversity,

emissions, effluents & waste, environmental compliance, and supplier environmental assessment. This index includes 15 standards for reporting, as outlined in Chapter Three.

The discussion is structured into three main sections to fulfill the second research objective. The initial section presents the GRI status of the selected banks for the period spanning from 2015 to 2019. The second section examines the disclosure status of Bangladeshi banks according to GRI Standards, focusing on environmental issues related to sustainability. The final section details how environmental information was revealed by the selected banks from 2015 to 2019.

4.3.1 GRI Status of Sampled Banks

Bangladeshi banking companies are now preparing their green or sustainability reporting under GRI and BB's green reporting guidelines. Table 4.1 presents the GRI status of the sampled banks throughout 2015-2019, showing that among the thirty sampled banks, only four banks (13%) are following GRI guidelines, whereas most of the sampled banks (87%) are not. GRI's following banks are Bank Asia, Mutual Trust Bank, Prime Bank, and Southeast Bank.

Table 4.1 GRI Status of Sampled Banks 2015-2019

No. of Sampled Banks	Following GRI		Not Following GRI	
	No. of Banks	Percentage	No. of Banks	Percentage
30	4	13	26	87

Source: Annual Reports of Sampled Banks

Table 4.2 presents yearly GRI following banks and found that all four banks followed GRI G4 guidelines from 2015 to 2017 and the latest GRI reporting framework GRI Standards in 2018 and 2019. In contrast, Mutual Trust Bank and Southeast Bank followed GRI Standards from 2017, although this guideline came into sight in 2018.

Table 4.2 Yearly GRI Following Banks

Name of Bank	Year				
	2015	2016	2017	2018	2019
Bank Asia	GRI G4	GRI G4	GRI G4	GRI Standard	GRI Standard
Mutual Trust Bank	GRI G4	GRI G4	GRI Standard	GRI Standard	GRI Standard
Prime Bank	GRI G4	GRI G4	GRI G4	GRI Standard	GRI Standard
Southeast Bank	GRI G4	GRI G4	GRI Standard	GRI Standard	GRI Standard

Source: Annual Reports of Sampled Banks

Table 4.3 illustrates the green disclosure patterns of the sampled banks and indicates whether they correspond with the GRI reporting standard. It is observed that GRI following four banks, as mentioned earlier, disclose green information separately as a part of sustainability reporting with comprehensive quantitative green data based on GRI along with BB's green reporting guidelines, and the remaining twenty-six banks present green information as part of published annual reports based on BB's green reporting guidelines only without following GRI. Among the banks that do not follow the GRI, most of the banks show green issues with limited quantitative green disclosures. In contrast, eight banks report the green information with little quantitative data. Moreover, three banks prepared the green disclosures report without quantitative green data. However, using BB's green reporting guidelines, only two banks disclose the green issues with comprehensive quantitative data.

Table 4.3 Green Disclosure Pattern of GRI Following and Not Following Banks

Name of the Banks	Green Disclosure Pattern
GRI Following Banks	
Bank Asia, Mutual Trust Bank Prime Bank, Southeast Bank	Separated as a part of sustainability reporting with comprehensive quantitative disclosures
GRI Not Following Banks	
Dutch-Bangla Bank, Islami Bank Bangladesh	Part of the annual report with comprehensive quantitative disclosures
Al-Arafah Islami Bank, BRAC Bank, City Bank, Dhaka Bank, Eastern Bank, Jamuna Bank, Mercantile Bank, National Bank, Rupali Bank, Social Islami Bank, Standard Bank, Trust Bank, Uttara Bank	Part of the annual report with limited quantitative disclosures
EXIM Bank, IFIC Bank, NCC Bank, One Bank, Premier Bank, Pubali Bank, Shahjalal Islami Bank, United Commercial Bank	Part of the annual report with very low quantitative disclosures
AB Bank, First Security Islami Bank, ICB Islamic Bank	Part of the annual report with no quantitative disclosures

Source: Annual Reports of Sampled Banks

4.3.2 GAR Disclosure Status of Sampled Banks

The research explores the extent of GAR practices of the selected banks following GRI Standards. The study area is constrained solely by the environmental aspect of GRI Standards. Table 4.4 indicates that 93% of the banks studied revealed at least one environmental issue in their annual reports from 2015 to 2019.

Table 4.4 GAR Disclosures of Sampled Banks 2015-2019

Area	No. of Sampled Banks	No. of Disclosing Banks	Percentage of Disclosing Banks
Environment	30	28	93

Source: Annual Reports of Sampled Banks

Based on GRI Standards, a green disclosure index has been developed comprising major eight areas of disclosing information in the environment. Table 4.5 detects area-wise disclosures of green information of the sampled banks on average throughout 2015-2019, showing that Energy scored the highest per cent (93%). This finding affirms the better in-house environmental management performance of the banks. In this respect, as corporate identities and commitment toward the environment, Prime Bank reports:

> *"One of our head offices has met the requirements to be LEED-certified as a Green Building, demonstrating highly efficient utility, energy, and resource systems."* (Prime Bank Limited Annual Report, 2019, p.73)

The findings also indicated that 50% of the banks provided information regarding Effluents and Waste, while Materials and Emissions received a score of 40%. In addition, the banks offered little details on Biodiversity (37%), with Water and Effluents receiving even less disclosure (33%). However, the banks offered limited information on Environmental Compliance, representing just 17% and Supplier Environmental Assessment obtained the lowest percentage, at 7%. The results suggest that the surveyed banks have yet to make adequate progress on environmental issues, except for a few banks.

Table 4.5 Area Wise GAR Disclosures of Sampled Banks 2015-2019

Environmental Aspects	Average Percentage (%) of Disclosing Banks (n=30)
Materials	40
Energy	93
Water and Effluents	33
Biodiversity	37
Emissions	40
Effluents and Waste	50
Environmental Compliance	17
Supplier Environmental Assessment	7

Source: Developed by the researcher

Table 4.6 displays the annual environmental data supplied by the selected banks. Between 2015 and 2019, banks consistently reported green information each year, with the highest amount disclosed in 2019 (35%) and the lowest in 2017 and 2018 (33%). The analysis revealed that financial organizations provided only a small amount of information each year during the research period. Furthermore, the study's outcome will prompt banks to consider implementing new strategies for addressing environmental challenges in alignment with internationally accepted standards and BB's green reporting rules.

Table 4.6 Yearly GAR Disclosures of Sampled Banks

Environmental Aspects	2015	2016	2017	2018	2019
Materials	10	10	10	10	9
Energy	26	27	26	24	25
Water and Effluents	8	8	8	8	7
Biodiversity	11	10	10	10	11
Emissions	12	12	12	12	12
Effluents and Waste	10	10	10	11	14
Environmental Compliance	4	3	3	3	4
Supplier Environmental Assessment	1	1	1	2	2

Total Disclosing Banks	82	81	80	80	84
Percentage (%) of Disclosing Banks (n=240)	34	34	33	33	35

Source: Developed by the researcher

4.3.3 Mode of Disclosing GAR Information

According to BB's green reporting rules, it is mandatory to include monetary information. Figure 4.2 illustrates the method used by the sampled banks to disclose green data in their annual reports during the study period. The figure indicates that the banks adhere to the established practice of presenting green information qualitatively. All the sampled banks provided qualitative information (100%), whereas most banks provided qualitative and quantitative data (90%). Nevertheless, certain banks have revealed comprehensive data regarding their efforts in environmental conservation, presenting it in the form of charts and tables (Masud et al., 2017). This information has been conveyed both qualitatively and quantitatively and visually using diagrams, graphs, and tables (Ullah and Rahman, 2015). Furthermore, several banks have sufficiently revealed quantitative green data in annual reports. In addition, these banks ensure consistency in the annual disclosure of environmentally friendly information.

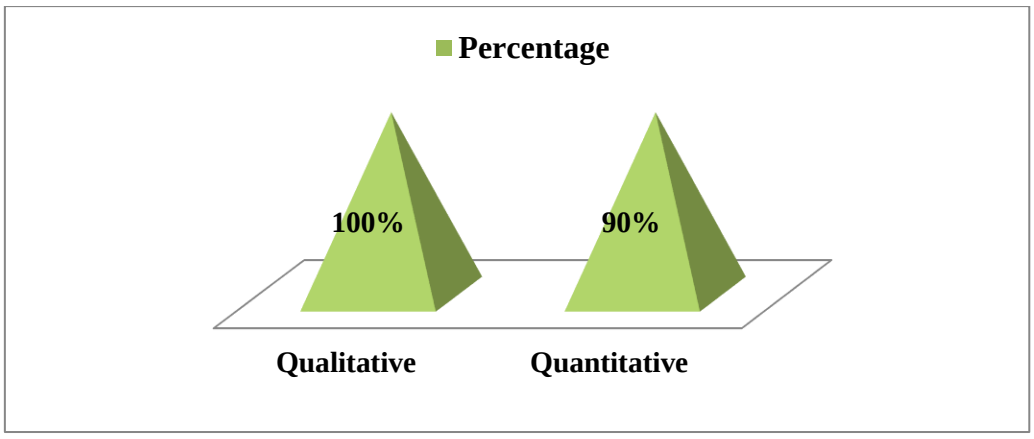
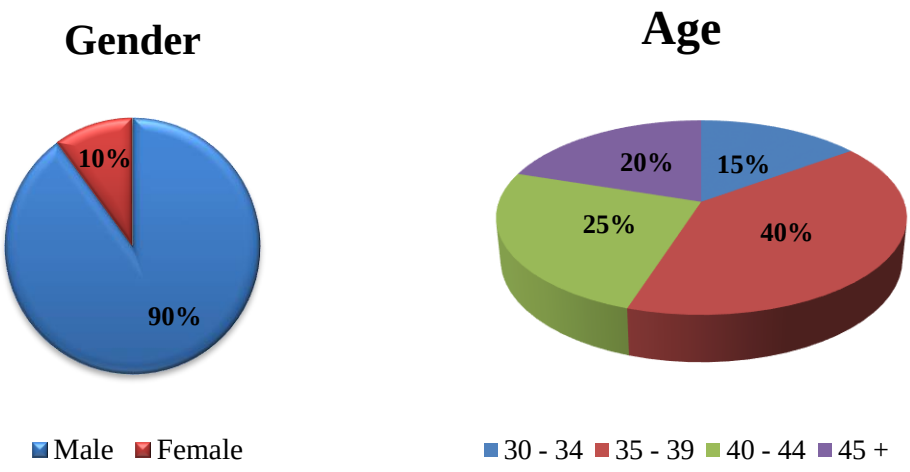


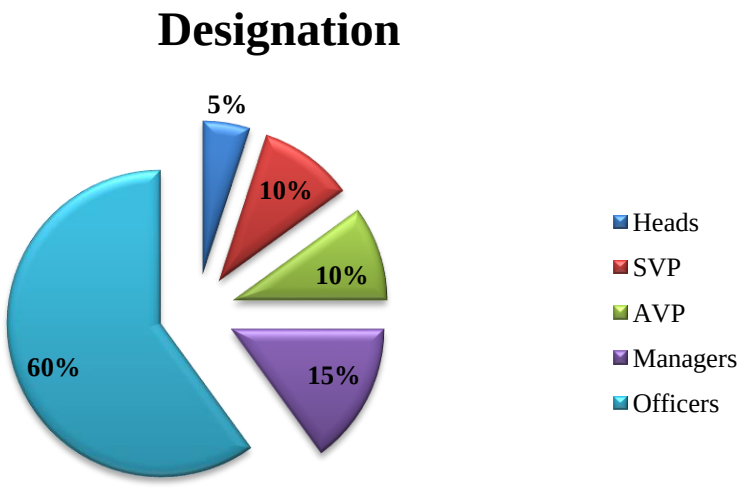
Figure 4.2 Mode of Disclosing GAR Information of Sampled Banks

4.4 Findings for the Third Research Objective

This study's third and final research objective is to identify the current challenges in implementing GAR practices in Bangladesh's banking sector. Ten banks were purposefully picked based on their green reporting status to achieve the objective. A questionnaire was used to gather primary data based on various perspectives of GAR

practices. Fourteen closed-ended statements were provided to collect expert opinions on perceptions related to different areas of GAR in Bangladeshi banks. Twenty respondents were chosen, with two from each sample bank comprising officials engaged in GAR or sustainability reporting. 90% of the responders were male, whereas 10% were female. Most respondents are between the age range of 35 to 39 and 40 to 44. Moreover, 45% of the respondents work as Officers of various ranks (Principal Officer, Executive Officer, Senior Officer, Officer), while Senior Vice Presidents (SVP) and Assistant Vice Presidents (AVP) each account for 15%. However, 20% of the respondents work as Managers (Associate Manager, Senior Manager, Manager), while the remaining 5% work as Heads of specific departments.





To fulfill the third research objective, this study utilizes the primary research technique to identify the challenges in adopting GAR practices in Bangladesh's

banking sector. The following discussion is divided into two main sections to address this objective. The first section provides the general problems of GAR practices in Bangladesh's banking sector context. The second section identifies Bangladeshi banks' challenges in introducing and implementing GAR practices. Moreover, this objective provides policy recommendations for the smooth expansion of green accounting and reporting practices within Bangladesh's banking sector perspective, which will be discussed in the next chapter.

4.4.1 General Problems of GAR practices: Bangladesh’s Banking Sector Context

The GAR practices in Bangladesh are still in an early stage despite being adopted in 2011. People are discussing green finance instead of engaging in it. Efforts to achieve sustainable development in Bangladesh are primarily at the stages of contemplation, discussion, drafting, or raising awareness. Green banking in Bangladesh provides financial support to environmentally friendly businesses and energy-efficient sectors. Banks only support and fund environmental infrastructure projects like renewable energy, clean water supply, wastewater treatment, solid and hazardous waste disposal, biogas, and bio-fertilizer plants.

Extensive analysis of the banks' annual reports reveals that the banks need help implementing the GAR practices, impeding their expansion as profit-driven organizations. Green banks restrict their business transactions to companies that pass their screening process. Having a fixed number of clients will provide them with a little foundation for assistance. Focusing their credits on specific industries makes companies more vulnerable to financial fluctuations. Moreover, green banks demand specialized, skilled, experienced staff to deliver quality customer service. Skilled loan officers must have a background in working with green firms and customers. Employees offer consumers breaks by providing cheaper borrowing rates, which benefits their profit margins.

If banks participate in large initiatives that harm the environment, they are likely to suffer reputational damage. Financing environmentally and ethically dubious ventures has reputation concerns. In a few instances, implementing an environmental management system has led to cost savings and increased bond value. On the other hand, credit risks occur when offering proposals to clients whose organizations are

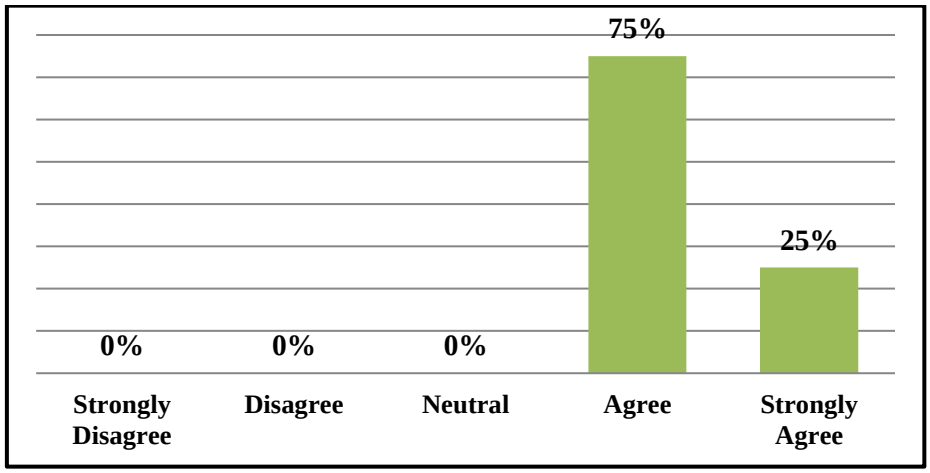
impacted by pollution costs, shifts in environmental regulations, and new production level constraints. The increased likelihood of customer default is due to unforeseen expenses related to capital interest, ongoing facilities, market share loss, and third-party claims. Additionally, many banks in the green industry are new and in the initial stages of development. Typically, it takes 3 to 4 years for a bank to become profitable, although it does not assist banks during periods of inflation.

4.4.2 Perceptions of Respondents as to Challenges of GAR Practices in Bangladesh's Banking Sector

Several problems exist in introducing and implementing GAR practices in Bangladeshi banking. It is crucial to identify problems in advance to reduce or overcome them effectively to enhance efficiency. This study aims to identify and address the challenges Bangladeshi banks face through the following aspects.

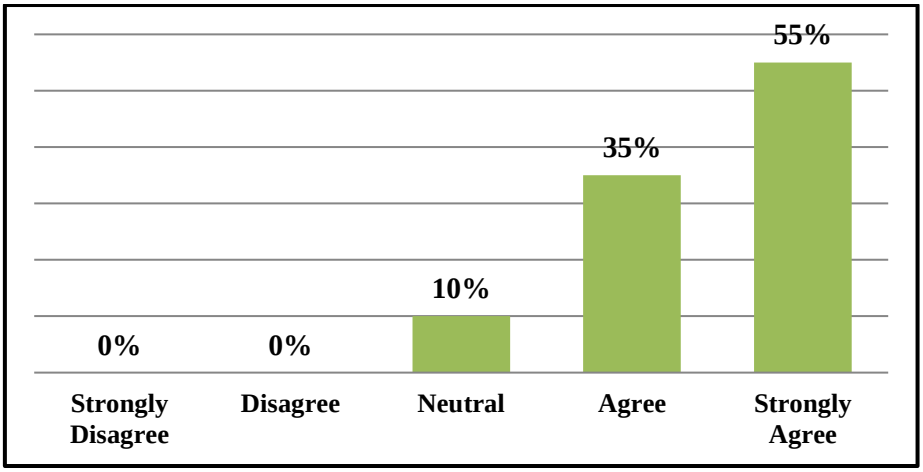
i) Undeveloped green infrastructure

Banking companies utilize numerous properties for their office spaces and residential accommodations. It is imperative to adhere to a robust construction protocol to preserve the environment and safeguard public health near the site. However, the banks have not made any progress in establishing and adopting GAR practices to support their green infrastructure. The participants were asked to provide their viewpoints on this challenge. Observations indicate that 75% of the participants agreed with this statement, while 25% expressed strong agreement. Furthermore, there was unanimous agreement among all respondents about this remark.



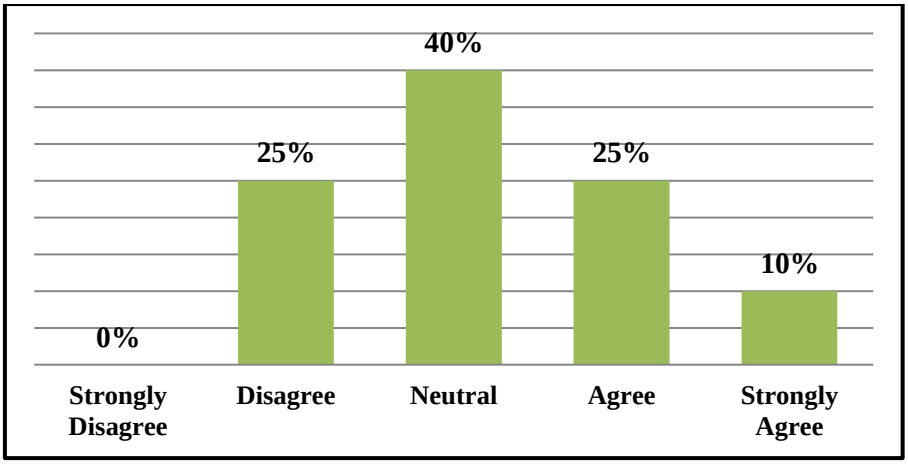
ii) Lack of awareness about the need of green technologies

Green technology is a viable method for mitigating the detrimental effects of technology on the environment. However, a notable obstacle in developing cutting-edge technology for environmentally friendly financial institutions is the limited knowledge and understanding of the importance of such technologies. The respondents were asked to provide their views on this statement. Among the respondents, 55% strongly agreed with this statement, while 35% considered it a considerable challenge. In addition, 10% of the participants had a neutral opinion, while none expressed disagreement with this remark.



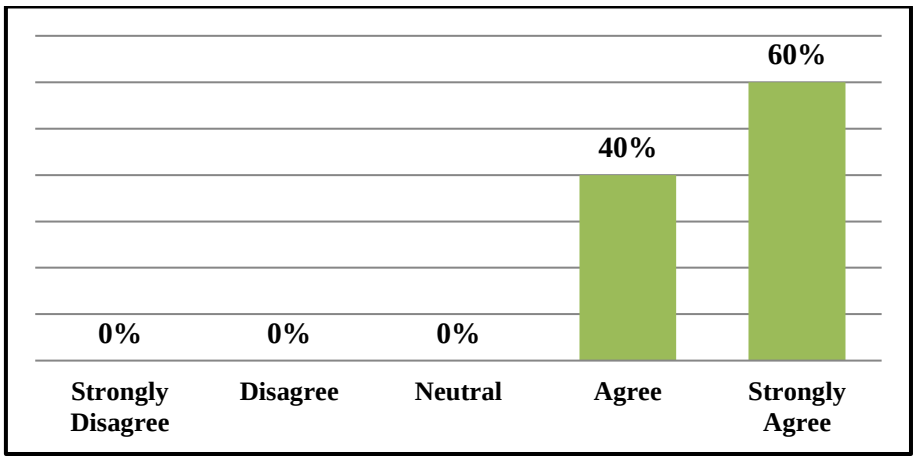
iii) High cost of compliance

Implementing GAR will necessitate additional allocation of human resources and incur other expenses. The issue of incurring supplementary costs may be a challenge while implementing GAR practices. Thus, the cost issue is considered a difficulty that requires examination. Approximately 40% of the participants had a neutral stance towards this remark. In addition, 25% of the participants concurred with this remark, while 10% strongly concurred. However, a quarter of the participants expressed their disagreement with this remark.



iv) Unskilled workforce

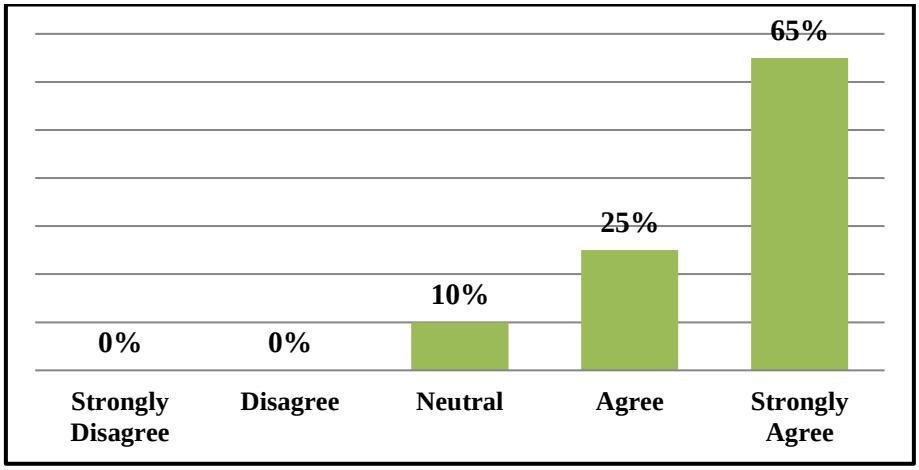
The banking business needs the presence of proficient, adept, and seasoned professionals with a supplementary background and expertise in addressing environmental concerns. However, lacking competent workers hinders the efficient adoption of green accounting techniques. The participants were asked to provide their perspectives on the statement. The data reveals that 60% of the respondents strongly agreed with this statement, while 40% agreed. Nevertheless, there was unanimous agreement among the respondents, indicating highly significant support for the statement.



v) Lack of consciousness about green accounts

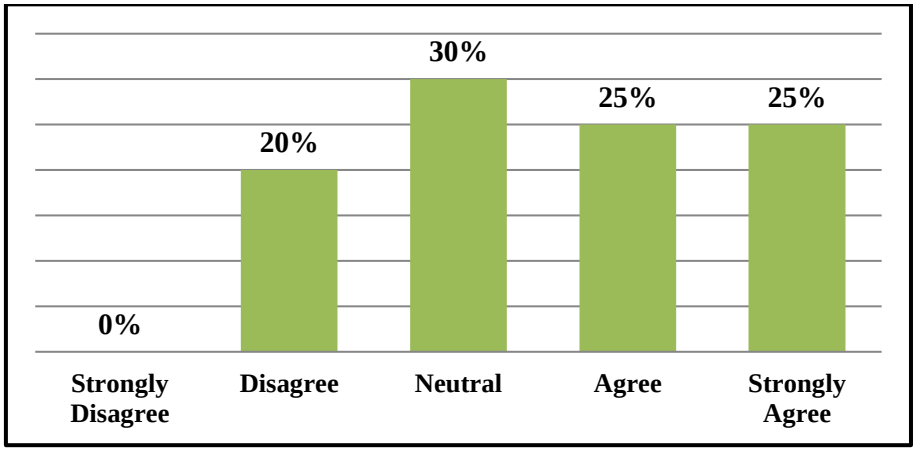
Banking institutions inaccurately document the various green accounting accounts. The respondents were asked to provide their perspective on how the lack of awareness regarding green accounts negatively impacts the adoption of green accounting. The statement poses a substantial difficulty, with 65% of the respondents expressing

strong agreement and 25% agreeing. In addition, 10% of the participants voiced neutrality, while no one expressed disagreement with the statement.



vi) Strict terms and conditions about green issues

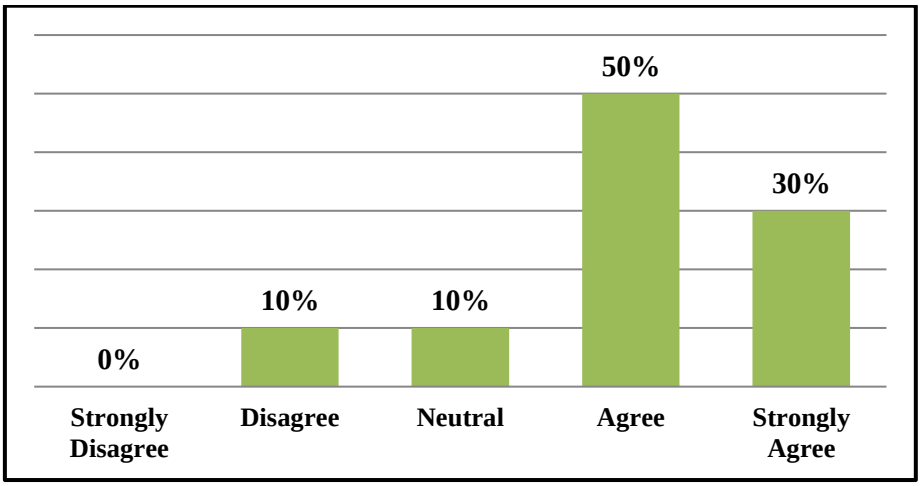
The respondents were asked whether stringent terms and restrictions related to environmental issues impact the proper execution of GAR practices. 25% of the total respondents agreed with the assertion, while the same strongly agreed, posing a substantial challenge to it. However, 30% of the participants were neutral towards the statement, and 20% disagreed.



vii) Low adoption of green initiatives

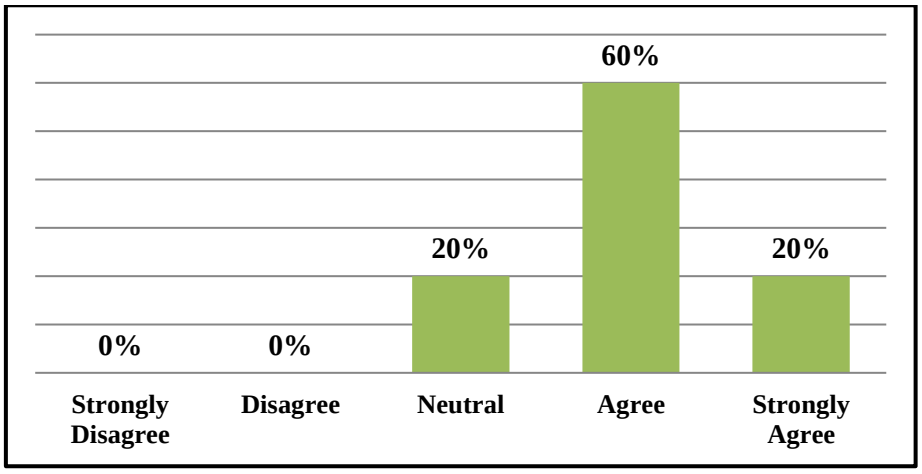
Banks are responsible for establishing attainable environmental goals and strategies for various industries susceptible to ecological concerns. However, the limited acceptance and implementation of environmentally friendly activities, such as green targets, strategic plans, and budgeting, provide a substantial obstacle to effectively implementing GAR practices. The participants were asked to provide their subjective interpretations of this statement. 50% of the respondents agreed with the statement,

while 30% strongly agreed. This poses a significant obstacle to green accounting. However, 10% of the respondents expressed neutrality, while an equal percentage disagreed with this statement.



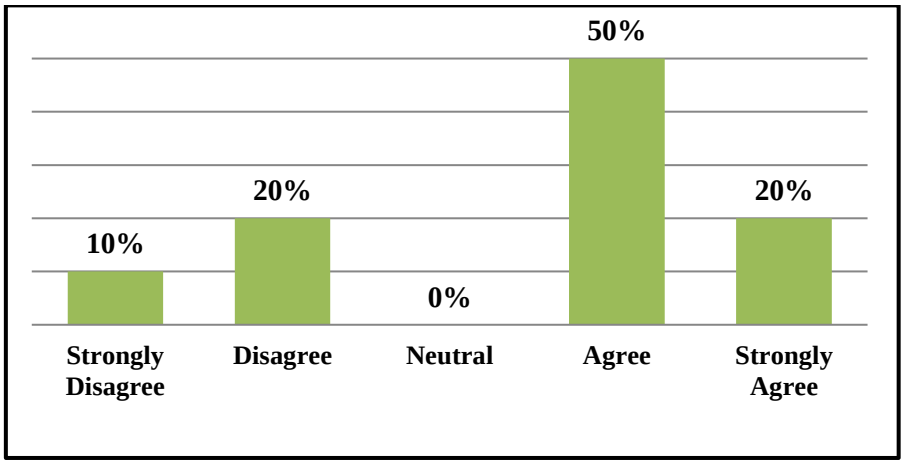
viii) Inadequate in-house green activities

Banking institutions must adopt environmentally sustainable practices to minimize carbon emissions by implementing eco-friendly initiatives for their headquarters and branch offices. The participants were questioned regarding insufficient internal green initiatives that negatively impact the effective execution of green accounting standards. Many respondents (60%) agreed with the assertion, although a minority (20%) strongly agreed, indicating a substantial challenge to this statement. Nevertheless, 20% of the participants had a neutral opinion, while no one disagreed with the remark.



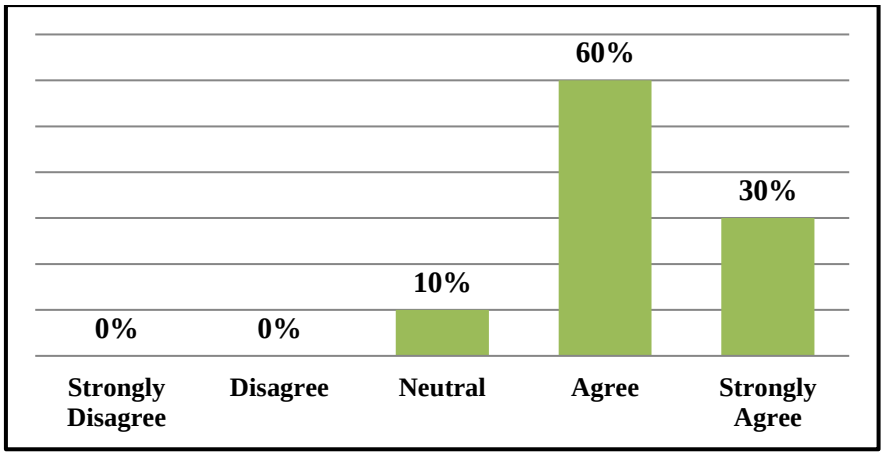
ix) Involvement of various risks on green loans

Banks face several risks, including credit, legal, and reputational concerns, which discourage green loans in the context of GAR practices. The participants were asked to provide their views on this statement. The results showed that 50% of the participants agreed, while 20% strongly agreed. This indicates a noteworthy challenge to the validity of the assertion. Nevertheless, 20% of the participants expressed disagreement, while 10% strongly expressed disagreement with this statement.



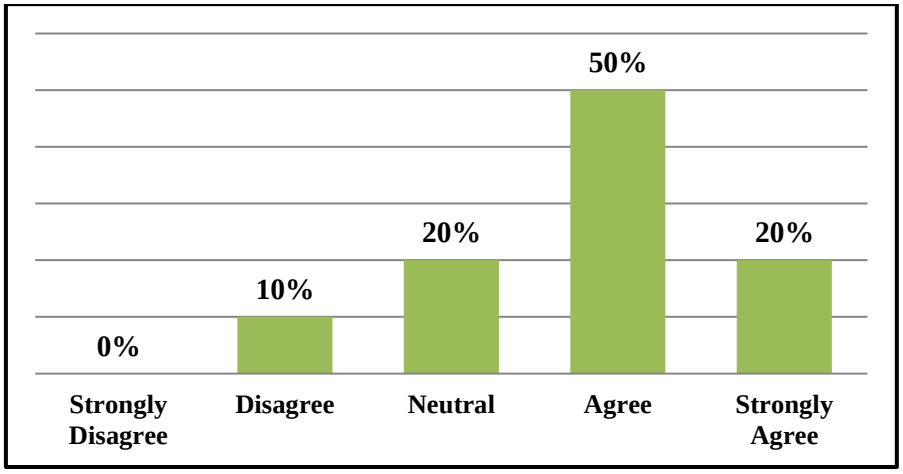
x) Lack of co-ordination with different stakeholders

Banking companies have numerous internal and external stakeholders. Regrettably, a failure to coordinate with various stakeholders on environmental concerns harms the effective implementation of GAR practices. The participants were asked to provide their viewpoints on this statement. Among the respondents, 60% agreed with this assertion, while 30% strongly agreed, suggesting a notable obstacle to the validity of this statement. In addition, 10% of the participants had a neutral opinion, while no one disagreed with the statement.



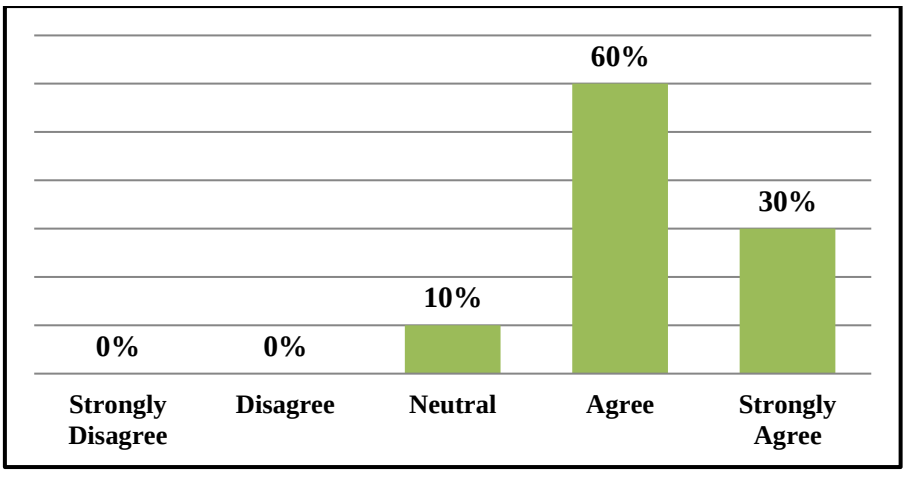
xi) Institutional constraints on green accounting adoption

Banks may face institutional limitations when implementing essential GAR practices. 50% of respondents found institutional limits to be significant hurdles in adopting green accounting procedures, while 20% strongly agreed with this assertion. 20% of the respondents were neutral, whereas 10% disagreed with this assertion.



xii) Insufficient information about green issues

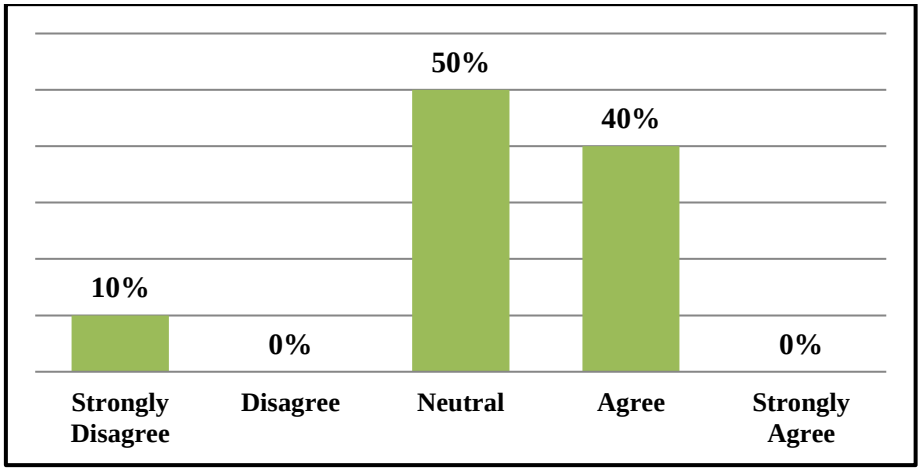
Banking institutions struggle to manage environmentally friendly accounts effectively because of insufficient knowledge about environmental issues, which hinders the successful adoption of GAR practices. The respondents were asked to provide their perception of this remark. 60% of respondents agreed with the statement, while 30% strongly agreed. 10% of the respondents expressed neutrality towards this statement.



xiii) Uneven competition about green issues

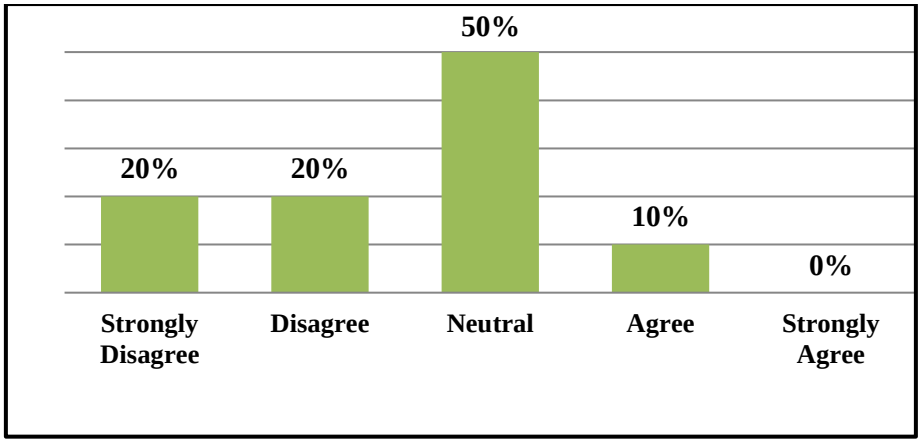
Some banks implementing GAR practices consider themselves pioneers in their industry and do not feel pressured by competitors to address environmental issues.

Unequal competitiveness over environmental matters leads to limited implementation of green accounting techniques. The respondents were asked to provide their views on this statement. 50% of the respondents expressed neutrality towards this statement, may be due to a lack of clarification. 40% of the respondents agreed, whereas 10% strongly disagreed with this statement.



xiv) Slack role of Bangladesh Bank in monitoring green issues

The banking companies must adhere to thorough green reporting procedures in a formal and structured way, aligning with global standards and meeting regulatory requirements under the guidance of BB. The lax oversight function of BB in monitoring environmental issues by banks hinders the seamless growth of green and responsible operations. The respondents were asked to provide their views on this statement. 10% of the total respondents agreed, whereas 20% opposed, and an equal percentage strongly disagreed with the statement. Nevertheless, 50% of the participants remained impartial towards the assertion because of regulatory compliance, ethical behavior, or hesitancy to reveal details regarding BB's oversight of GAR activities.



4.5 Conclusion

This chapter presents the existing status of GAR practices in Bangladesh, focusing on the banking industry. Firstly, it explored the overall nature of Bangladeshi banks' GAR practices based on three research objectives. Then, the study assesses the level of GAR practices of the banks using the GRI Standards, focusing on the environmental aspect. Finally, the chapter identified the challenges of GAR practices in the Bangladeshi banking sector, and fourteen key problems were found in potentially introducing and implementing GAR practices. The challenges hindering the adoption of GAR practices in Bangladesh's banking sector include undeveloped green infrastructure, lack of awareness about green technologies, unskilled workforce, lack of consciousness about green accounts, low adoption of green initiatives, inadequate in-house green activities, lack of coordination with stakeholders, and insufficient information about green issues.

In conclusion, the final chapter of this thesis will provide a comprehensive summary, conclusion, and policy suggestions based on the findings and discussion about the three research objectives of this study. The study's limitations and recommended areas for future investigation will also be presented.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Having presented the findings and discussions concerning the three research objectives, this chapter will summarize the findings, draw conclusions, and propose policy recommendations for the study. The chapter commences by revisiting the study. The subsequent section summarizes the study's results and original contributions, followed by comprehensive guidelines for developing green initiatives and sustainable reporting practices in Bangladesh's banking sector. The remaining sections of this chapter will discuss the research limitations, propose future research fields, and provide final thoughts on this thesis.

5.2 Revisiting the Research

The study is descriptive and exploratory, utilizing both secondary and primary data sources. The research analyzed the annual reports as the main sources of information to explore the existing status of GAR practices in Bangladesh's banking sector. The annual reports from 2015 to 2019 of all thirty commercial banks listed in the DSE have been reviewed. As the primary data source, the study utilized a survey based on a questionnaire to get expert opinions on perceptions related to several areas of GAR practices.

The research aims to explore the current status of GAR practices among all thirty commercial banks listed in the DSE of Bangladesh over the period 2015 to 2019. Moreover, the study relies on the most recent GRI reporting framework, specifically the GRI Standards. It focuses explicitly on the sampled bank's reporting on green issues from an environmental perspective. Thus, as stated in Chapters One and Three, the three specific research objectives aim to enhance the main objective by simultaneously addressing three research questions. The study employed content analysis and survey research methods to investigate three research questions. This study used the content analysis as the main method to answer the first and second research questions. Further, the survey method, mainly a questionnaire, was employed to address the third and final research question.

The first research objective explored the overall nature of GAR practices in Bangladesh's banking industry, focusing on the green initiatives adopted by all the listed banks. Regarding this, the study analyzed the content of the specific areas of

GAR information in the annual reports of the selected banks that were publicly disclosed under titles such as 'Sustainability Reporting', 'Sustainable Finance', 'Green Report Card', or 'Green Banking' to explore the level of disclosure of various green issues. The results of the first research objective indicated a significant increase in the adoption of GAR practices in recent years.

The second objective of the research, as the main focus of the study, was to determine and measure the extent of GAR practices by Bangladeshi banks, explicitly focusing on adherence to GRI Standards regarding the environment. The study analyzed the content of selected banks' annual reports over five consecutive years (2015-2019) to identify the eight major areas of GAR information disclosed under the heading of 'Sustainability Reporting' or 'Sustainable Finance' or 'Green Report Card' or 'Green Banking.' As the first known study, the research explored the sustainability factors of the sampled banks within the framework of GRI Standards, focusing on the environmental aspect by incorporating 15 standards for reporting purposes. The approach entails developing a green disclosure index according to the GRI Standards that includes eight areas for disclosing environmental information: materials, energy, water and effluents, biodiversity, emissions, effluents and waste, environmental compliance, and supplier environmental assessment. Aligned with the second research objective, the results indicated a positive sign that almost all sampled banks provided GAR information but were not fully compliant with GRI Standards.

As the maiden scope to embrace the primary research method, the third and final research objective focused on identifying the challenges Bangladeshi banks currently face in adopting GAR practices within Bangladesh's banking sector. This was achieved by selecting purposive samples from ten banks, taking into account the GAR status of each bank. A survey was undertaken to gather diverse perceptions of GAR practices from experts. This is done through a questionnaire that consists of fourteen close-ended statements. A total of twenty respondents were chosen, with two respondents taken from each sample bank. The individuals responsible for GAR or sustainability reporting were taken into account in this regard. However, fourteen potential key challenges were found in adopting GAR practices such as *undeveloped green infrastructure, lack of awareness about the need for green technologies, unskilled workforce, lack of consciousness about green accounts, low adoption of green initiatives, inadequate in-house green activities, lack of coordination with*

different stakeholders, insufficient information about green issues. In addition, this study provides some policy recommendations for the smooth expansion of GAR practices within Bangladesh's banking sector perspective, which will be discussed later in this chapter.

5.3 Evidence of the Study

As previously said, the research is founded upon three objectives. The core research objective is to explore the existing status of GAR practices in Bangladesh's banking sector. However, as discussed in Chapter Four, the results of the three research objectives are condensed in the subsequent analysis.

The first research objective is to explore the overall nature of GAR practices in Bangladesh's banking sector from 2015 to 2019, including the green initiatives of all thirty commercial banks listed in DSE. Below are the outcomes of this objective:

- The study reveals that the overall GAR practices in Bangladesh's banking industry are seeing an upward trend. The analysis indicates that almost all the banks, as stated in their annual reports, provided funding for numerous projects aimed at establishing an environmentally sustainable industry and transitioning conventional industries into eco-friendly ones. In addition, the banks made investments in enterprises that generate ecologically sustainable and economically viable green products. Further, the study reveals a notable increase in the banks' direct participation in various green projects in recent years, demonstrating their strong commitment to environmental preservation and their substantial contribution to sustainable financing. These findings align with previous research conducted by Hoque et al. (2019), Masud et al. (2016), and Chowdhury and Dey (2016) but contradict the results of studies undertaken by Hoque et al. (2019), Islam (2018), Faruque et al. (2016), and Rahman and Perves (2016).
- The study asserts that a majority of listed banks are increasingly adopting green efforts to save the environment. In accordance with BB's mandate, banks use CRF as a component of their CSR initiatives in order to address climate change risks and facilitate disaster management nationwide as part of their eco-friendly banking practices. Furthermore, the online banking situation appears to be favorable. The results suggest that the banks have made

significant progress on these matters, as evidenced by prior research conducted by Hoque et al. (2019), Chowdhury and Dey (2016), and Faruque et al. (2016).

- Banking companies employ eco-friendly in-house practices to mitigate carbon emissions and reduce their carbon footprint. These programs include managing utility consumption, paper usage, and waste disposal. The study reveals that almost all listed banks have extensive in-house green management practices, which effectively ensures superior oversight of environmental concerns. Consistent with the research conducted by Chowdhury and Dey (2016), the internal environmentally friendly procedures are comparable across all types of banks. In contrast, the study indicates that the installation of solar panels at different areas such as branches, ATM booths, and agent outlets is still in its early stages but gradually expanding, demonstrating a positive implementation of environmentally friendly activities. In addition, a few listed banks promote the adoption of green travel and engage in ethical banking practices that aim to minimize any adverse effects on society or the environment. However, this approach is not universally prevalent.
- It has been found that many listed banks regularly conduct academic training programs to enhance the skills and knowledge of their officials in the form of green events such as seminars, symposiums, and discussion meetings. Additionally, the banks also organize workshops on sustainable or green banking issues, as well as environmental and social risk management. Further, some publicly traded banks engage in green marketing and awareness initiatives by implementing diverse activities to inspire customers to adopt environmentally friendly practices in their products, manufacturing processes, and packaging. These banks also promote the use of green loans among borrowers. In addition, banks promote their new or established environmentally friendly goods through print and electronic media to attract clients. They also release publications about events, topics, and products related to green and sustainable banking, intending to reach potential new customers. Furthermore, the banks organize environmentally focused events such as World Environment Day and Earth Day, implementing impactful activities such as nationwide tree plantation projects.

- The study reveals that banks establish attainable environmental objectives each year through strategic planning, allocate the required funds, and publicly disclose these targets in their annual reports and websites. They achieve these goals by implementing various activities, monitoring progress, providing oversight, evaluating performance, promoting initiatives, and conducting training or awareness programs. These efforts aim to create both social and corporate value for the country. In addition, the banks present a detailed description of their extensive environmentally friendly offerings, encompassing 51 green products across eight categories within the BB refinancing scheme. These categories include renewable energy, energy efficiency, alternative energy, waste management, recycling, environment-friendly brick production, green building, green industry, and miscellaneous.

The second objective of the research is to investigate the GAR practices of all the commercial banks listed in the DSE, using the GRI Standards. This research aims to measure the extent of these practices, specifically in relation to environmental issues. The outcomes of this objective are as stated below:

- The study demonstrates that Bangladeshi banking companies prioritize environmental issues and create green or sustainability reporting following GRI and BB's green reporting criteria. Most selected banks adhere to traditional reporting methods and BB's green reporting requirements, although a standardized reporting standard needs to be. The findings are corroborated by the outcomes of Masud and Hossain (2016). The study also reveals that out of the thirty banks selected, only four (13%) adhere to GRI criteria, whereas most of the sampled banks (87%) do not. The banks following GRI guidelines are Bank Asia, Mutual Trust Bank, Prime Bank, and Southeast Bank.
- It is observed that GRI following four banks (Bank Asia, Mutual Trust Bank, Prime Bank, Southeast Bank) disclose green information separately as a part of sustainability reporting with comprehensive quantitative green data based on GRI along with BB guidelines, and the remaining twenty-six banks present green information as part of published annual reports based on BB guidelines only without following GRI. Among the banks that do not follow the GRI, most of the banks show green issues with limited quantitative green disclosures. In contrast, eight banks (EXIM Bank, IFIC Bank, NCC Bank, One

Bank, Premier Bank, Pubali Bank, Shahjalal Islami Bank, United Commercial Bank) report the green information with little quantitative data. Moreover, three banks **(**AB Bank, First Security Islami Bank, ICB Islamic Bank) prepared the green disclosures report without quantitative green data. However, using BB's green reporting guidelines, only two banks (Dutch-Bangla Bank, Islami Bank Bangladesh) disclose the green issues with comprehensive quantitative data. The study's results will encourage banks to adopt a new transparent environmental effort based on internationally recognized standards and BB requirements.

- The study finds a positive sign that most sampled banks (93%) disclosed at least one area of environmental information in their published annual reports during the study period. However, these disclosures needed to be fully aligned with the standards set by GRI. In contrast, the GRI Standards outlined eight specific areas in the environmental aspect. Among these eight areas, many Bangladeshi listed banks addressed nearly all areas specified by the GRI Standards in the environmental aspect. This indicates a favorable trend in Bangladesh's banking industry.
- It is revealed that out of the eight areas covered by the GRI Standard's environmental area, most banks (93%) give information, specifically on energy. This information confirms that the banks strongly focus on managing their environmental impact internally. The findings also indicated that 50% of the banks provided information regarding Effluents and Waste, while Materials and Emissions received a score of 40%. In addition, the banks offered little details on Biodiversity (37%), with Water and Effluents receiving even less disclosure (33%). However, the banks offered limited information on Environmental Compliance, representing just 17%, and Supplier Environmental Assessment obtained the lowest percentage, at 7%. The results suggest that the surveyed banks have yet to make adequate progress on environmental issues, except for a few banks. The analysis yielded findings that align with the prior research conducted by Masud et al. (2017) and Bose et al. (2017). Furthermore, the findings help to pinpoint the deficiency in environmentally friendly initiatives in eight specific areas, as well as the strengths and weaknesses of the banks in this study.

- The study reveals that banks consistently share green information at a similar rate each year, with the highest disclosure occurring in 2019 (35%) and the lowest in 2017 and 2018 (33%). The data suggest that the banks provide relatively little information each year throughout the study period. Furthermore, the study's findings will prompt banks to consider implementing a new transparent environmental initiative following internationally accepted criteria.
- The study demonstrates that Bangladeshi banks include qualitative and quantitative green information in annual reports. All banks in the sample provide qualitative information (100%) as a routine procedure. In contrast, most of the sampled banks (90%) reveal both qualitative and quantitative data, which is acceptable. In addition, some banks provide comprehensive disclosure of their environmental protection initiatives, while a limited number of banks effectively publish quantitative data on their green efforts in their annual reports. In addition, these banks ensure consistency in the annual disclosure of environmentally friendly information. The findings suggest that the banks are strongly dedicated to the environment and are making greater efforts to improve their green performance. Consistent with Hoque et al. (2019) and Hossain et al. (2016), the study demonstrates that certain banks merely provide a broad statement without offering precise quantitative data regarding their green initiatives.

The third research objective aims to identify the challenges Bangladeshi banks currently face in adopting GAR practices, with a specific focus on exploring effective approach in this field. The outcomes of this objective are presented as follows:

- It is seen that all respondents unanimously agree that the banks' green infrastructure needs to be improved in the introduction and implementation of green accounting procedures. Specifically, 75% of respondents agreed, while the remaining 25% strongly agreed. The introduction and implementation of green accounting provide a substantial barrier to underdeveloped green infrastructure. In addition, most respondents indicated that a lack of understanding of the importance of environmentally friendly technologies poses a significant obstacle to developing the state-of-the-art technology in

green financial institutions. At the same time, 10% expressed no strong opinion.

- For the banks, it is a matter of thinking that all respondents believe that an unskilled workforce hinders the successful application of GAR practices, where 60% strongly agreed and 40% agreed. The problem is serious regarding the need for a proficient workforce in effectively implementing green accounting methods. Additionally, 35% of respondents believe incurring extra costs could challenge implementing GAR practices. Meanwhile, 40% of respondents were neutral, indicating uncertainty about the extent to which cost factors are obstacles in adopting green accounting practices. Nevertheless, 25% of the participants hold a different opinion.
- Most respondents believe that a lack of consciousness about green accounts adversely affects green accounting adoption, indicating a significant challenge for the banks. However, 10% of the respondents were neutral in this respect. Moreover, half of the respondents said that strict terms and conditions about green issues adversely affect the appropriate implementation of green accounting practices, indicating a significant challenge. However, 30% of the respondents were neutral, while 20% disagreed.
- It is seen that most of the respondents think that low adoption of green initiatives (e.g., green targets, strategic plan, budget, etc.) is a very significant challenge for proper implementation of green accounting practices where 10% of the respondents were in a neutral position, and the same disagreed with this challenge. Again, most respondents opine that inadequate in-house green activities adversely affect the proper implementation of green accounting practices, indicating a significant challenge. However, 20% of the respondents were neutral on this challenge.
- Over two-thirds of participants believe that several risks, particularly credit, legal, and reputational risks, hurt green loans under green accounting practices, hindering financing for environmentally friendly projects. 20% of the participants disagreed, while 10% strongly disagreed with this challenge. Furthermore, most participants believe that more collaboration with various stakeholders on environmental matters is needed to ensure the effective

execution of green accounting methods, posing a notable difficulty. However, 10% of the respondents expressed neutrality towards this subject.

- It is a concerning issue that around a third of the total respondents said institutional constraints are a significant challenge to adopting green accounting practices. However, 20% of the respondents were neutral, and 10% disagreed with this challenge. Moreover, most respondents believe insufficient information about green issues adversely affects the proper implementation of green accounting practices. It indicates a significant challenge that banking companies need more information about green issues to maintain green accounts appropriately. However, 10% of the respondents were neutral on this issue.
- Over one-third of the respondents think that uneven competition about green issues results in low adoption of green accounting practices. This indicates that the banks do not perceive competitors' pressure to adopt green problems. However, half of the respondents were neutral, possibly due to a lack of clarity on this issue. However, 10% of the respondents strongly disagreed with this issue.
- Finally, the respondents were asked to share their perspectives on the lax oversight function of BB in monitoring environmental issues carried out by the banks. Only 10% of respondents think BB's lack of oversight of green issues hinders the growth of GAR practices. This suggests that banks adhere to green reporting criteria set by BB. Despite the leniency of the BB's role, banks have only partially implemented GAR procedures. However, 50% of the participants remained neutral, possibly due to their adherence to regulations and ethical standards or hesitance to reveal details about BB's supervisory position in GAR operations. 20% of the respondents disagreed, while an equal percentage strongly disagreed with this subject. Some banks are highly focused on reporting their environmentally friendly projects under regulatory standards set by BB, which could influence their decision-making.

5.4 Original Contributions of the Study

This study makes some empirical contributions to the existing literature on GAR practices, with a specific focus on the banking industry in Bangladesh.

- The study enhances the existing body of green accounting literature in Bangladesh, focusing on the banking industry. Several previous studies (Masud et al., 2016; Masud et al., 2017; Chowdhury & Dey, 2016; Hoque et al., 2019; Islam, 2018; Faruque et al., 2016; Rahman & Perves, 2016) have made distinct contributions to the examination of GAR practices among banking companies in Bangladesh. Several studies (Masud et al., 2016; Masud et al., 2017; Hoque et al., 2019; Masud & Hossain, 2016) have examined the practices of GAR in selected banks. Additionally, some studies (Islam, 2018; Chowdhury & Dey, 2016; Faruque et al., 2016; Rahman & Perves, 2016) have focused on the nature of green banking reporting practices soon after the introduction of BB's green reporting guideline. This study provides a comprehensive analysis of the GAR practices by Bangladeshi banks, explicitly focusing on all the commercial banks listed in the DSE in recent years. Hence, the research findings have the potential to foster sustainability and environmental accountability in the financial sector, leading to beneficial transformations within both the industry and the broader national economy.

- Most importantly, this study extensively investigated the sustainability indicators of Bangladeshi banks in the context of GRI Standards in the aspect of the environment. A limited number of studies (Mahmud et al., 2017; Masud & Hossain, 2016; Islam & Chowdhury, 2016; Khan et al., 2011) have examined green disclosures in Bangladeshi banks using the GRI reporting framework. However, this study related to the green disclosure reporting of Bangladeshi banks has been conducted for the first time following the introduction of the GRI reporting framework, GRI Standards. The findings can assist banks in achieving continuous improvement and fostering stakeholder relationships. This, in turn, enables banks to effectively communicate sustainable development's positive and negative impacts, thereby enhancing transparency and accountability. Ultimately, these efforts contribute to a more sustainable and resilient future for the organization and society.

- The study offers a chance to utilize several analytical approaches to explore GAR practices in Bangladesh's banking industry. Furthermore, utilising various methodological procedures improves the strength of the research and raises the study's reliability and validity more efficiently. This approach is

especially convincing considering the growing emphasis on this research field in recent years.

- Furthermore, the study presents a unique opportunity to employ a primary method in uncovering the challenges related to GAR practices in Bangladesh's banking industry. This approach would be particularly influential in this specific field of research. This research aims to identify Bangladeshi banks' challenges and how addressing them might enhance their environmental responsibility. By doing so, these banks can position themselves for long-term success and competition in a world increasingly prioritizing sustainability and responsible finance. Therefore, the research has the potential to be distinctive and contribute an additional aspect to the existing body of knowledge on green accounting in Bangladesh's banking industry.

- This research provides detailed suggestions for the relevant authorities in Bangladesh's banking sector to implement environmentally friendly initiatives and sustainable reporting practices. The study's findings provide significant impetus for authorities at Bangladesh Bank to reassess green banking norms, given their tangible impact on sustainability reporting. Furthermore, this study has significant implications for policymakers in Bangladesh's government, particularly regarding non-performing environmental laws and other regulatory bodies in Bangladesh, such as the Securities Exchange Commission of Bangladesh (the regulator of listed firms in Bangladesh). These regulators could use banks' green initiatives as a reference and encourage listed firms to actively participate in environmentally friendly activities actively, thereby promoting sustainable development. It is advisable for the professional accounting bodies in Bangladesh, in collaboration with national and international policymakers, to create a distinct conceptual framework on GAR for the country's financial and nonfinancial sectors. This framework should include defined objectives, assumptions, qualitative characteristics, and the impact on entities that apply it.

5.5 Recommendations

Based on the findings of the third research objective, this study intends to offer comprehensive suggestions for the smooth expansion of GAR practices in

Bangladesh's banking sector. Here are some suggestions for implementing environmentally friendly initiatives and sustainable reporting practices that could inspire the relevant authorities in Bangladesh's banking industry.

- Banking companies must adhere to thorough green reporting principles in a formal and structured way to meet global standards, ensuring compliance with regulatory obligations under the guidance of BB. As the overseer of all banks, the BB should diligently oversee the banks' environmental practices and enforce stringent criteria when considering loans for environmentally harmful projects. The banks should be required to provide comprehensive green data to the BB periodically.
- Banks utilize numerous premises for their offices and residential accommodations. To ensure the safety of the ecology and public health near the construction site, they must adhere to robust construction guidelines. Banks should establish green buildings for their offices and staff accommodations to benefit the environment. These facilities should be ecologically friendly and energy efficient. These methods will help decrease carbon footprint and significantly reduce operational costs.
- Green technology is an advantageous approach to mitigate the adverse effects of technology on the environment. It is crucial to secure accessible funding possibilities to continue the growth of green banks. The current tax system for environmentally friendly equipment should be reevaluated to promote the country's widespread use of green technology.
- Additional human resources and costs are necessary for the successful execution of green accounting methods. Banks must hire talented, professional, and experienced officials with expertise in green issues. They should ensure employee integration through ongoing training sessions on environmental subjects and consider including a specific training slot on green efforts during new employee orientation.
- Banking companies are to develop a proactive green management system by performing intensive in-house activities in eco-friendly ways to arrest emissions from carbon footprint.

- Banks should deal with morally questionable businesses in a way that does not negatively impact either society or the environment. They should allow loans to eco-friendly projects to enhance their image and maximize revenue opportunities. Never investing in environmentally hazardous projects should be the motto of every bank, thereby protecting the environment as the primary goal and reducing credit risk, legal risk, and reputation risk to a great extent.
- Banking institutions must establish a proactive green management system by implementing extensive in-house practices that are environmentally beneficial in order to reduce carbon emissions.
- Banks should engage in ethically dubious industries in a manner that avoids any adverse effects on society or the environment. Loans should be permitted for eco-friendly projects to improve their reputation and optimize revenue potential. Every bank should adopt the motto of never investing in environmentally hazardous projects. This approach will prioritize environmental protection and significantly mitigate credit, legal, and reputation risks.
- Banks can cultivate environmental consciousness among those involved and endorse the most optimal green products that are both environmentally responsible and commercially feasible. In addition, they can perform green audits on the projects for which they provide financing.
- Banks must recognize the imperative of embracing green initiatives in response to competitive pressures. Furthermore, it is essential to incentivize the adoption of green accounting standards by newly established green banks by providing various incentives.
- The government and regulatory bodies, such as BB, should implement necessary measures to enforce and incentivize banks to incorporate environmental concerns in their annual reports. They may offer incentives to promote collaboration among individuals and groups to achieve a sustainable Bangladesh.
- It is crucial to note that the research strongly advocates for the mandatory adoption of the global reporting framework GRI rules in Bangladesh's banking industry. Additionally, it emphasizes the need to use the BB green reporting

guidelines to disclose green issues and achieve sustainability and sustainable development goals.

5.6 Research Limitations

While the study has made a valuable contribution to implementing GAR practices in Bangladesh's banking sector, it is essential to acknowledge its shortcomings.

Primarily, the study focuses on the new GRI reporting framework GRI Standards version, specifically emphasizing sustainability-related environmental concerns. The GRI Standards encompass 32 principles divided into eight areas specifically related to the environment. However, this study has yet to include many principles (precisely, 17 principles) due to the chosen research field and objectives, which is considered the main weakness of this study.

Furthermore, the research surveyed a restricted sample size of respondents. To collect primary data, a deliberate selection was made of ten banks to get green reporting status. If all the commercial banks listed in the DSE were to possess preliminary data, the collected data would be more pertinent and dependable.

In addition, an additional constraint of this study is the matter of reliability, which is acknowledged as an inherent shortcoming of the research. The survey primarily collects data based on the participant's subjective ideas or perceptions and their willingness and ability to submit information, which can be influenced by cognitive, cultural, political, and organizational factors. Moreover, the data collected may exhibit inconsistencies and need more reliability when compared to actual measurements. Consequently, the participants have the potential to introduce bias, thereby influencing the outcomes.

Finally, the survey utilized in this study focuses on the extent of disclosure rather than its level of excellence. The capacity to identify the quality of green information in the annual reports of the selected banks is still being determined, potentially impacting the sustainability of said information's quality. Moreover, the researcher has classified the survey data based on his assessment and understanding. Hence, subjectivity was inevitable, resulting in a potential predisposition towards bias in the result.

5.7 Directions Towards Future Research

This study specifically explored the GAR practices of banking companies in Bangladesh. Given the exploratory nature of this work, there are significant opportunities for undertaking further research in the same direction. Future research can be focused on the following areas:

- The study aims to explore Bangladesh's GAR practices by including all the commercial banks listed on the DSE. An intriguing approach would be to examine the entire banking sector, encompassing all scheduled banks, to derive accurate findings regarding the existing status of GAR practices in Bangladesh.
- Most importantly, the research concentrated on the financial sector, namely the banks in Bangladesh, using the global sustainability reporting framework, such as GRI. It primarily emphasized environmental concerns related to green issues. To move forward, it is necessary to conduct a longitudinal study focusing on the most environmentally sensitive industrial sectors in Bangladesh, including Pharmaceuticals and chemicals, Textiles and clothing, Papers and printing, Leather and footwear, Fuel, and Power, to analyze the trends of GAR practices in Bangladesh with GRI guidelines.
- The study examined the implementation of GAR practices according to the principles set by the GRI. Exploring the problems and promise of green reporting under GRI principles in Bangladesh's banking industry and other ecologically sensitive industries is highly pertinent.
- Conducting in-depth interviews and case study research can help determine the extent to which industrial enterprises in Bangladesh are disclosing their green initiatives.
- An examination of GAR practices in South Asian nations, such as Bangladesh, India, Pakistan, and Sri Lanka, is expected to provide further insights into the implementation of green accounting in this region.

5.8 Final Concluding Remarks

The research analyzes the current status of green accounting and reporting practices in Bangladesh's banking sector. The study is grounded on the most recent GRI reporting

framework, specifically, the GRI Standards, which primarily focuses on environmental concerns related to sustainability. The findings of this study can assist regulatory authorities in identifying environmental issues and specific areas that should be prioritized to establish a sustainable reporting culture in Bangladesh's banking sector. This will contribute to advancing sustainable development by promoting transparency and accountability.

BB aims to actively monitor the situation and implement effective green policy measures to promote and encourage banks to adopt more stringent and realistic practices in incorporating green reporting soon. Regarding the enhancement of corporate image, it is widely believed that the banking sectors in Bangladesh will thrive due to their current implementation of green accounting practices and their efforts towards sustainability. These initiatives contribute to a greener world and improve the efficiency and effectiveness of the country's banking sector.

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APPENDIX A

List of the Sampled Banks

SL No.	Bank Name	SL No.	Bank Name
1	AB Bank Ltd.	16	Mutual Trust Bank Ltd.
2	Al-Arafah Islami Bank Ltd.	17	National Bank Ltd.
3	Bank Asia Ltd.	18	NCC Bank Ltd.
4	BRAC Bank Ltd.	19	One Bank Ltd.
5	The City Bank Ltd.	20	Premier Bank Ltd.
6	Dhaka Bank Ltd.	21	Prime Bank Ltd.
7	Dutch-Bangla Bank Ltd.	22	Pubali Bank Ltd.
8	Eastern Bank Ltd.	23	Rupali Bank Ltd.
9	EXIM Bank Ltd.	24	Shahjalal Islami Bank Ltd.
10	First Security Islami Bank Ltd.	25	Social Islami Bank Ltd.
11	ICB Islamic Bank Ltd.	26	Southeast Bank Ltd.
12	IFIC Bank Ltd.	27	Standard Bank Ltd.
13	Islami Bank Bangladesh Ltd.	28	Trust Bank Limited
14	Jamuna Bank Ltd.	29	United Commercial Bank Ltd.
15	Mercantile Bank Ltd.	30	Uttara Bank Limited

APPENDIX B

List of Banks Selected for the Primary Data Collection

SL No.	Bank Name	SL No.	Bank Name
1	Al-Arafah Islami Bank Ltd.	6	Islami Bank Bangladesh Ltd.
2	Bank Asia Ltd.	7	Mercantile Bank Ltd.
3	BRAC Bank Ltd.	8	NCC Bank Ltd.
4	City Bank Ltd.	9	Prime Bank Ltd.
5	Dhaka Bank Ltd.	10	Rupali Bank Ltd.

APPENDIX C

Disclosing and Non-disclosing information on GRI Standards

Environmental Aspects	Following Standards	Not Following Standards
Materials (301-1 to 301-3)	301-1: Materials used by weight or volume 301-2: Recycled input materials used	301-3: Reclaimed products and their packaging materials
Energy (302-1 to 302-5)	302-1: Energy consumption within the organization 302-3: Energy intensity 302-4: Reduction of energy consumption 302-5: Reductions in energy requirements of products and services	302-2: Energy consumption outside of the organization
Water and Effluents (303-1 to 303-5)	303-5: Water consumption	303-1: Interactions with water as a shared resource 303-2: Management of water discharge-related impacts 303-3: Water withdrawal 303-4: Water discharge
Biodiversity (304-1 to 304-4)	304-2: Significant impacts of activities, products, and services on Biodiversity	304-1: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high Biodiversity value outside protected areas 304-3: Habitats protected or restored 304-4: IUCN red list species and national conservation list species with habitats in areas affected by operations
Emissions (305-1 to 305-7)	305-1: Direct (Scope 1) GHG emissions 305-2: Energy indirect (Scope 2) GHG emissions 305-4: GHG emissions intensity 305-5: Reduction of GHG emissions	305-3: Other indirect (Scope 3) GHG emissions 305-6: Emission of ozone depleting substances (ODS) 305-7: Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions
Effluents and Waste	306-2: Waste by type and disposal method	306-1: Water discharge by quality and destination 306-3: Significant spills

(306-1 to 306-5)		306-4: Transport of hazardous waste 306-5: Water bodies affected by water discharges and/or runoff
Environmental Compliance (307-1)	307-1: Non-compliance with environmental laws and regulations	
Supplier Environmental Assessment (308-1, 308-2)	308-1: New suppliers that were screened using environmental criteria	308-2: Negative environmental impacts in the supply chain and actions taken

APPENDIX D

Survey Respondents from the Sampled Banks

Name of the Bank	Survey Date	Designation and Department	Gender	Age (Years)	Academic Qualification	Key Responsibilities
Brac Bank Ltd.	25/01/2022	Head of Sustainable Finance	Male	40-44	MBA	• Stay updated on the sustainability and environmental regulations and guidelines set by Bangladesh Bank. • Assess and manage environmental and climate-related risks within the banking operations and develop strategies to mitigate these risks and ensure long-term financial sustainability. • Develop training programs for bank employees to raise awareness about sustainability and environmental best practices. • Explore opportunities to participate in green finance initiatives and support eco-friendly projects. • Gather and analyze environmental data. • Prepare and submit regular sustainability reports in line with Bangladesh Bank's directives. • Collaborate with credit and investment departments to promote sustainable lending practices. • Conduct thorough environmental due diligence for project financing and investment decisions. • Engage with internal and external stakeholders and communicate the bank's sustainability efforts, gather feedback, and collaborate on sustainable initiatives.
		Associate Manager Sustainable Finance		35-39		
Al-Arafah Islami Bank Ltd.	27/01/2022	Senior Vice President Sustainable Finance	Male	45+	MBA	
		Principal Officer Sustainable Finance		35-39		
Islami Bank Bangladesh Ltd.	06/02/2022	Principal Officer Green Banking	Male	35-39	MBA	
		Officer Green Banking		30-34		
Rupali Bank Ltd.	10/02/2022	Senior Officer Green Banking	Male	35-39	BSC (Engr.)	
		Senior Officer Green Banking	Female	35-39	LLM	
City Bank Ltd.	15/02/2022	Senior Manager Sustainable Finance	Male	40-44	MBA	
		Manager Sustainable Finance	Female	35-39		
Mercantile Bank Ltd.	02/03/2022	First Assistant Vice President Sustainable Finance	Male	40-44	MBA	
		Principal Officer Sustainable Finance		35-39		
NCC Bank Ltd.	22/03/2022	Officer Sustainable Finance	Male	30-34	MBA	
		Officer Sustainable Finance		30-34		

Bank Asia Ltd. (via email)	11/04/2022	First Vice President Credit Risk Management	Male	45+	MBA	
		Executive Officer Sustainable Finance and Green Banking		35-39		
Prime Bank Ltd.	17/05/2022	Assistant Vice President Wholesale Banking	Male	45+	FCS	
		Associate Manager Wholesale Banking		40-44	MBA	
Dhaka Bank Ltd.	30/05/2022	Senior Vice President Sustainable Finance	Male	45+	MBA	
		Senior Assistant Vice President Sustainable Finance		40-44		

APPENDIX E

Questionnaire **Confidential**

Title: Status of Green Accounting in Bangladesh

Part-A: General Information

1. Name of the bank :
2. Name of the respondent :
3. Gender :
4. Age :
5. Designation and Department :
6. Last academic degree :
7. Email :

Part-B: Specific information

Key Challenges in GAR Practices in the Banking Sector of Bangladesh

Statement 1: Undeveloped green infrastructure is very significant challenge in introducing and implementing green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 2: Lack of awareness about the need of green technologies is a major challenge for the widespread adoption of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 3: High cost of compliance is a very concerned issue in adopting green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 4: Unskilled workforce is an obstacle to the effective implementation of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 5: Lack of consciousness about green accounts affects adversely on the adoption of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 6: Strict terms and conditions about green issues affect adversely on the appropriate implementation of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 7: Low adoption of green initiatives (e.g. green targets, strategic plan, budget etc.) is very significant challenge for proper implementation of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 8: Inadequate in-house green activities affect adversely on the proper implementation of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 9: Involvement of various risks specially credit risk, legal risk and reputational risk adversely affects green loans in green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 10: Lack of co-ordination with different stakeholders related to green issues affects adversely on green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 11: Institutional constraints are very significant challenges on the adoption of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 12: Insufficient information about green issues affects adversely on green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 13: Uneven competition about green issues results in low adoption of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Statement 14: Slack role of Bangladesh Bank is a barrier to the smooth expansion of green accounting practices.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Thank you very much