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The Recent Developments of Green Banking: A Study on Private Commercial Banks in Bangladesh

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ABSTRACT
The emergence of green banking in the modern banking industry is not new. This study focuses on the recent developments made in green banking to private commercial banks of Bangladesh. The study also highlights the contribution made by financial institutions to promote the green economy of the country. Review of secondary data is the basis for this research where data is collected from different sources such as published annual reports of the private commercial banks, Bangladesh bank website, articles, newspaper, published journals on green banking. The obtained data is reviewed by applying descriptive statistics. The study reveals that the central bank has played a significant role in adopting green banking policy in the sector of private commercial banks. A dedicated department of the central bank issued policies and regulations to establish a green financing environment in the overall financial system of Bangladesh. Even though the country is lagging in comparison to developed economies in implementing green policies to the financial system, the private commercial banks are the forerunner to adopt this. The government also assesses the need for the development of the green economy as the country is also committed to building a sustainable economy through the initiatives of green policy.

I. INTRODUCTION

Economic development is a key concern for any country. Building up an economy with the costs of the environment has received a major setback over the years as the awareness for sustainable economic development is mounting. Financial institutions are the intermediaries that significantly affect a country's economic development in a significant manner. The concept of green banking emerges to develop an economic system prioritizing environmental and social issues while implementing financial decisions. Since banks and financial institutions belong in the middle of the economy, their influence to implement green banking policy in an economy knows no bounds. A banking institution considers the environmental issues before taking an investment decision to a project. The environmental viability also gets the attention along with the financial viability of the project whether the project is sustainable in the long run considering eco-friendliness and have less effect on flora and fauna. The ongoing worldwide concern for protecting the environment irrespective of developed or underdeveloped countries played a major role in being committed to a sustainable economic model. An intensive effort from all the domains of the economy, especially from financial institutions, is required to implement the green monetary policy. The green banking concept is the brainchild of such global concern for developing a sustainable economic system. The global banking industry follows the footsteps of other industries to adopt a green banking policy on their operational activities, which has a far-reaching impact on other industries.

This study focuses much on the recent development made in green banking by private commercial banks. The commitment towards implementing the policies initiated by the central bank and its monitoring are the key issues for the study. The research was mainly carried out in two-fold; identify the role of financial regulations and regulators in a developing country like Bangladesh implementing green banking and determine the contribution and involvement of private commercial banks in fostering green banking culture. The report structure of this study is in the following sections. Section one discusses the introductory remarks on green banking. Section two of the report reviews different works of literature published regarding the development of green banking in developing countries, the role of the financial sector in potential green growth, the role of regulators in promoting green banking. Section three highlights the overall objective of the study. Section four of the report discusses the methods and materials used to conduct the study. Section five reviews the detailed green banking policies central banks adopt in their financial system and the actual green activities that private commercial banks are following as leading contributors to the sector over time. Section six comprehends the discussion based on the key finding of the research and section seven shows the concluding remarks.

II. LITERATURE REVIEW

2.1 Evolvement of green banking

Green banking is a concept based on banking activities running within traditional banking norms in consideration of the safety of the environment and society. A bank is able to develop a sustainable business model in terms of running its financial activities considering green banking activities. The concept of green banking first emerged in 1990 by a Dutch Bank named 'Triodos Bank’ when the bank formed a green fund to support environmentally friendly projects. Later on, many competitor banks followed the footsteps of implementing green banking activities to their own business model. Due to the rise of global concern on protecting the environment and external regulatory pressure. Economic development has permanently harmed the environment. The rising concern for the development of a sustainable economy considers the safety of the environment and society. As a result, green economy, green growth, low carbon emission, etc. become the global buzzword. United Nations Environment Programme (UNEP) defines the green economy as “the process of reconfiguring businesses and infrastructure to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using less natural resources, creating less waste and reducing social disparities” (UNEP, 2011). Green growth is the growth created through investment in the environment (Vazquez et al, 2014). Green banking can play a significant role in the creation of green growth. The impact of banks and financial institutions over other industries is huge as financiers. The definition of green banking is not unique.

The prevalence of the concept is becoming so wide-speared that the definition of green banking is being reshaped every now and then. The common feature of green banking is that it emphasizes sustainability rather than profitability. Proper blending is ensured while making financial decisions on investing in a project. Green banking focuses on establishing environment-friendly economic systems to reduce environmental degradation and create a sustainable planet (Masukujjaman and Aktar, 2013). Green banking demands prioritizing financing to the sectors committed to fulfilling ecological and social obligations. Banks and financial institutions adopt environment-friendly financing mechanisms as part of their commitment to green banking initiatives and green transformation of its overall operations (Tara et al., 2015). Green banking is the way of operating banking activities with special attention to social, ecological, and environmental factors to conserve nature and natural resources (Chowdhury and Dey, 2016).

2.2 Role of the financial sector in green banking

The financial institution plays an intermediary role in the economic system. It accumulates funds from the surplus unit and distributes them to the deficit segment. The impact of a financial institution on the economy is huge as it can influence others' investing decisions. Commitment for less carbon emission and mitigating environmental hazards can be ensured through the investment decision the board of a financial institution invests in less carbon emission projects and environment-friendly projects (Ward and Naude, 2018). Even though banking activities directly have no impact on environmental issues, it has a huge indirect effect on the ecological consequence. The major industry of Bangladesh includes paper mills, steel mills, brickfields, chemicals, fertilizers, textiles, power, pharmaceuticals, etc., which have direct environmental and societal impact. These industries largely depend on banking sectors for their investment need. As banks are the major financiers of these industries, they have a huge impact on projects undertaken by these industries. Projects that are socially and environmentally hazardous may not be eligible for finance by banks. Alternatively, more environmentally friendly projects can get more investment attention from a bank that adopts a green banking policy. The investment aspect of green banking is termed green finance, where green projects are chosen for investment (Vazquez et al, 2014). Projects chosen for investment undergo extensive environmental screening and risk assessment to meet sustainability standards. Along with an economic feasibility assessment, environmental feasibility is also assessed under green financing.

A sustainable economy refers to an economic value system not based on short-termism (Masukujjaman and Aktar, 2013). The long-term consequence of financing a particular project is evaluated under a sustainable development program. Potential economic and environmental repercussions are evaluated before funding a project. Financial institutions to assess also risks and mitigation planning under green financing. Investment in brickfields in Bangladesh by financial institutions significantly decreased due to its negative environmental consequence. Garment manufacturers in Bangladesh also face pressures from national and international institutions to make the environment of the factory premise eco-friendlier (Chowdhury and Dey, 2016). Thus, manufacturers who are more compliant to address environmental, health and hygiene, and employee safety issues prioritize securing finance from banks. A well-structured green lending policy can have a huge role in mitigating problems ecological by other industries. Banks can impose a high return rate for environmentally hazardous projects. At the same time, it can offer an incentive or low-interest charge for institutions that are more committed to a society to fulfill environmental obligations.

2.3 Role of regulators for the promotion of green banking

Regulators are the bodies that formulate policies and guidelines and ensure the implementation of such policies through their constituents. Government is the ultimate regulator for a country under which many institutions are operating. Like other countries, the central bank is the banking sector's regulatory body. The effect of climate change, global warming, rise of sea levels, environmental pollution, health consciousness has been recognized by countries across the globe regardless of their economic condition. Bangladesh has also recognized these issues and committed to formulating policies addressing the issues with its other counterparts. Since banking sectors are regulated through Bangladesh Bank, the central bank of Bangladesh, it has a huge impact over the banks regulated under it. Financial stability by ensuring a long and sustainable policy implementation is a key concern for the central bank. The concept of green banking has been prioritized by regulators considering its long-run effect on the economy and society. Pursuance of regulators for implementing policies undertaken by government or other regulatory agencies addressing social and environmental effects is inevitable. Three different types of risks have been identified due to environmental issues; transition risks, physical risks, and liability risks (Carney, 2015). Transition risk arises from a sudden and disorderly transition to a low carbon economy, physical risk arises from the interaction of climate-related hazards and liability risks arise from the parties who suffered loss from the effect of climate change (Carney, 2015). Many central banks across the globe have already developed sustainability policies to regulate their banking industry which is an initiative for the enforcement of green banking at the very root of the banking sector. Bangladesh Bank formed a separate Sustainable Finance Department (SFD) in 2015 for the mass implementation of green banking policies. It is evident that developing economies are the more engaged in pursuing green policies in the banking sector due to regulatory requirements (Dikau and Collins, 2017) while the green finance activities in developed economies are mostly voluntary and motivated by the decision-makers' awareness of sustainable development and corporate social responsibility (Ward and Naude, 2018). The central bank has the supervisory role for the overall banking industry for any economy. Every individual financial institution operates within the jurisdiction and legal framework. Enforcement of policy differs due to different jurisdictional policies and legal implementation. A government's commitment to its people also plays a vital role in shaping up the legal framework. As the central bank is the authority to represent its banking industry, it has the primary role to address global issues to integrate with its economy. In developing economies, the adoption requirement of green banking is mostly voluntary rather than legal bindings (Rahman and Lateh, 2017). The problem lies with the inherent characteristics of developing economies, as the economic cost of due diligence for green banking is very high. A potential imbalance in competition arises, which regulatory institutions must also address. Raising awareness is also a part of regulators' responsibility and pressure groups' responsibility.

International institutions like International Finance Corporation (IFC) and MIGA facilitate local financial institutions to boost green financing activities (Johnston, 2017). Green funds are developed from time to time for specific green projects which the same institution also monitors. Besides regulatory institutions, industry leadership also plays a major role in implementing green banking approaches. Many financial institutions around the world either voluntarily created their networks or joined platforms established by international development agencies such as IFC and UNEP (Park and Kim, 2020). A group of central banks and supervisors launched the Networking for Greening the Financial System to assess environment-related risks in the financial sector and mobilize mainstream finance to transform into a sustainable economy (NGFS, 2020). The Task Force on Climate-related Financial Disclosure (CFD) was established by the Financial Stability Board (FSB). This acclaimed international body monitors and makes recommendations regarding the global financial system to develop voluntary, consistent climate-related financial risk disclosures that would be useful to investors, creditors, asset managers, insurers in identifying and managing financial risks (Park and Kim, 2020). Global Alliance for Banking on Values (GABV) is another independent worldwide network of banks and financial institutions whose mission is to use finance as a means to deliver sustainable economic, social, and environmental development.

III. OBJECTIVE OF THE STUDY

The adoption of green banking has been a critical concern for modern economic development. Implementing a green banking system to the overall banking industry is to fulfill the commitment towards all the stakeholders. Along with the developed economies, the need for the implementation green economy was also assessed by the central bank of Bangladesh. The purpose of the study is to analyze the recent developments made in the banking sector regarding the implementation of green banking. Private commercial banks are considered major participants in the banking industry. The role of the private commercial banks of Bangladesh in implementing green banking in the banking sector is also studied through this research. Evaluation of the regulatory effort for the overall implementation and monitoring is also a key concern for this study.

IV. METHODOLOGY OF THE STUDY

Secondary data is collected to conduct the study, which is descriptive. The study accumulates regulatory initiatives, including financial and non-financial, undertaken by the central bank to implement green banking. Data availability in different sources like websites, journals, quarterly reports, published annual reports, disclosures is an advantage to conducting the study. The challenge lies in accumulating the data from the right sources and linking it with the research objective. In addition to the access to websites of private commercial banks and Bangladesh bank, the key to World Bank website, UNEP, published journals in well-known journal sites, newspaper articles helped to formulate a world view towards green banking. The qualitative approach is followed for the study, which involves organizing, collating, and assessing the obtained data samples to draw valid research conclusions. The scope is limited only to private commercial banks operating in Bangladesh, excluding government commercial banks, specialized banks, non-banking financial institutions who are also significant participants in the money market industry of Bangladesh. The role of insurance companies and capital market participants is also excluded from this research's scope.

V. DATA ANALYSIS AND INTERPRETATION

5.1 Emergence of green banking in Bangladesh

Bangladesh, a South Asian country, is one of the fastest-growing economies in the region. Its aspiration to be a middle-income nation from lower economic status has attracted investors' attention globally. The country is committed to international rules and regulations and a major participant in the world's socio-environmental forum such as UNEP. The country tripled its per capita income and doubled purchasing power parity between 2000 to 2017 (Johnston, 2017). The consistent gross domestic product (GDP) is 7.86% in 2017 (World Bank Annual Report, 2018).

Bangladesh Bank is conveying forward with an innovation-driven, inventive, climate and minimal expense banking approach; passing on a subjective change in banking, the readiness of money related arrangement, use of cutting edge financial innovation, and utilization of Information and Communication Technology (ICT) to stretch out monetary administrations to the doorstep of average folks. To guarantee admittance to monetary administrations for all, different drives have been taken like exchange finance; digitalization of the monetary area; directing liquidity into useful and supply increasing speculations including agribusiness, SMEs, Green Banking and CSR exercises; expected to prompt more expansive based comprehensive development and along these lines diminish neediness; needed for pushing the country on course to the designated vision of advanced Bangladesh by 2021; the time of Golden Jubilee of their autonomy (Atiur Rahman, 2010).

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Green Banking Policy of BASIC Bank Limited, Bangladesh (2011) goes forward in response to increasing consciousness over climate change, environmental degradation, need for urgent measures for sustainable development to be addressed by some of the stakeholders in the world. The banking system holds a unique position in an economy that can affect production, business, and other economic activities through their procedure for financing activities, which would contribute to protecting the environment/climate from pollution. Moreover, efficiency in energy use, water consumption, and waste reduction may significantly contribute to operating cost for many of the country's large banks. However, increased industrialization and development of several mega projects have priced environmental degradation. The CO2 emission per capita doubled from 0.20 to 0.46 metric tons between 2000 to 2016 (Johnston, 2017). The country is one of the worst sufferers due to climate change and environmental pollution, even though it contributes less than 0.35% of global greenhouse gas emissions, which is way low compared to other developed and developing countries (International Monetary Fund, 2019). The intensity of frequent floods, droughts, cyclones is more likely and will have severe consequences soon. Bangladesh is low land. Almost 75% of its total land lies above sea level, which indicates the southern part of the country's land will be gone underwater if the sea level rises only 0.2 meters. The floods and river erosion are so frequent that they incur a substantial economic loss every year. A report shows the average temperature of the land rises by 0.2 C per decade (Rahman and Lateh, 2017). According to a report published by UNFCCC, if the current situation continued, the estimated annual loss of the country would be 2% of GDP by 2050 and 9.4% of GDP by 2100 (Bhuiyan et al, 2021). World Bank suggests about 5.30 million poor people will be more vulnerable due to the effects of climate change by 2050 (World Bank annual report, 2018). Bangladesh Bank is the money market regulator where the major participants are government commercial banks, private commercial banks, specialized banks, and NBFIs. At present, 62 scheduled banks are under Bangladesh bank, among which 40 private commercial banks are operating their activities in the banking industry (Bangladesh Bank Annual Report, 2020).

5.2 Developments of green banking in the financial system of Bangladesh

Developments of green banking are broadly categorized in below aspects; policy development, green banking activities of private commercial banks, supplementary initiatives of Bangladesh Bank. The following section will review and analyze data from the 2016 to 2020 published by different private commercial banks to provide justification and evidence.

5.2.1 Policy development

Bangladesh bank gained recognition for the early assessment of implementing green banking policies for the financial sector. It developed guidelines and facilitated innovative schemes to expedite implementing a green economy. The promotion initiative for the development of sustainable finance was undertaken back in 2011 by the central bank. Environmental Risk Management Guidelines (ERM) were issued for Banks and financial institutions to conduct a preliminary review prior to making investment decisions in projects based on the environmental due diligence checklist in 2011 (The Business Standard, 2020). The guideline was implemented in three main phases; first, policy formulation and governance. Second, green strategic planning and specific environmental policies; third, introduction and design of innovative green financial products (Bose, Khan and Monem, 2020). In 2013, Bangladesh Bank, in collaboration with International Finance Corporation (IFC), assessed the implementation experience of ERM Guidelines in the country. BB has published the updated version based on the findings in 2017, which now termed as Environmental and Social Risk Management Guidelines (ESRM). The new guideline incorporated environmental risk mitigation measures and integrated social and ecological risk issues to the overall credit management policy comprehensively. A robust quantitative risk rating system was introduced compared to qualitative risk assessment in the previous ERM guideline. Since 2016 annual target is set to 5% of total disbursed loan in the green projects of the total loan portfolio. Banks and financial institutions must form a Climate Risk Fund and allocate at least 10% of the total CSR budget to this particular fund. The developed fund can further be utilized to provide grants for implementing relevant green projects of finance the same at a reduced interest rate. Newly constructed building infrastructure for the banks and financial institutions encouraged to incorporate solid waste management system, rainwater harvesting, and solar power panel to ensure a green environment (Hoque et al, 2019).

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5.2.2 Green banking activities of private commercial banks

This section outlines the green banking trends of Bangladesh in recent years and exhibits green banking activities of the private commercial banks (PCBs) accumulated from 2016 to 2020. Table 1 below represents category-wise direct green finance in 2020. Table 2 shows the year-on-year disbursement of green finance during the last five years for PCBs compared to total disbursement made in green finance.

Table 1. Green finance in FY20 by PCBs (In million BDT).

Types of Banks and Fis	**Renewable Energy**	**Energy efficiency**	**Alternative energy**	**Waste management**	**Recycling and recyclable products**	**Green brick manufacturing**	**Green establishment**	**Misc**	**Total**
PCBs (40)	1979.41	6398.37	10.08	8878.87	8298.55	8402.9	32737.93	2962.65	69668.75
Total	3537.85	9545.1	16.08	10062.72	8866.69	9198.28	66740.18	3238.67	111205.6

Source: Sustainable Finance Department, Bangladesh Bank (2020)

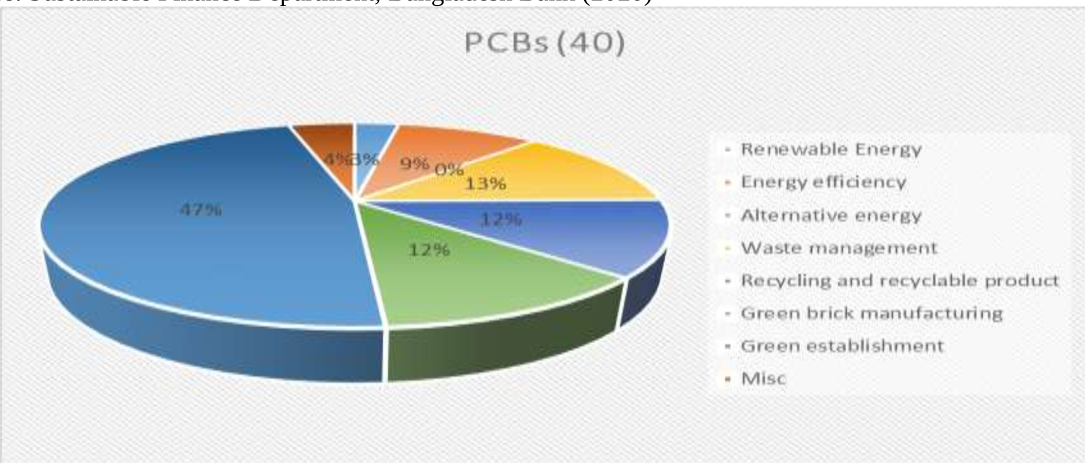

Figure: 1 Share of category wise green finance by PCBs

In table 1, total sector-wise investment data in green finance by 40 private commercial banks are shown. Almost 47% of green finance investment is concentrated in the green establishment sector chosen by private commercial banks. The total investment made in renewable energy by Banks and NBFIs in the year 2020 is BDT 3537.85 million of which BDT 1979.41 million contributed by PCBs which is more than 50% of total investment to the sector. However, total investment in the green finance made by all banks and NBFIs amounted to BDT 111,205.60 million, of which BDT 69668.75 million contributed by PCBs almost 63% of the total contribution. The role of PCBs implementing the green banking policy in terms of sector-wise investment shows the private commercial banks are ahead of state-owned banks and NBFIs.

Table 2. Green finance by private commercial banks (PCBs) from 2016 to 2020 (In BDT million).

Green Finance	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
Total 40 PCBs	24,597.40	30,578.50	65,904.30	78,316.90	69,668.75	269,065.85
Total Banks & NBFIs	33,327.90	38,646.20	71,301.70	105,249.40	111,205.55	333,966.09

Source: Sustainable Finance Department, Bangladesh Bank (2020).

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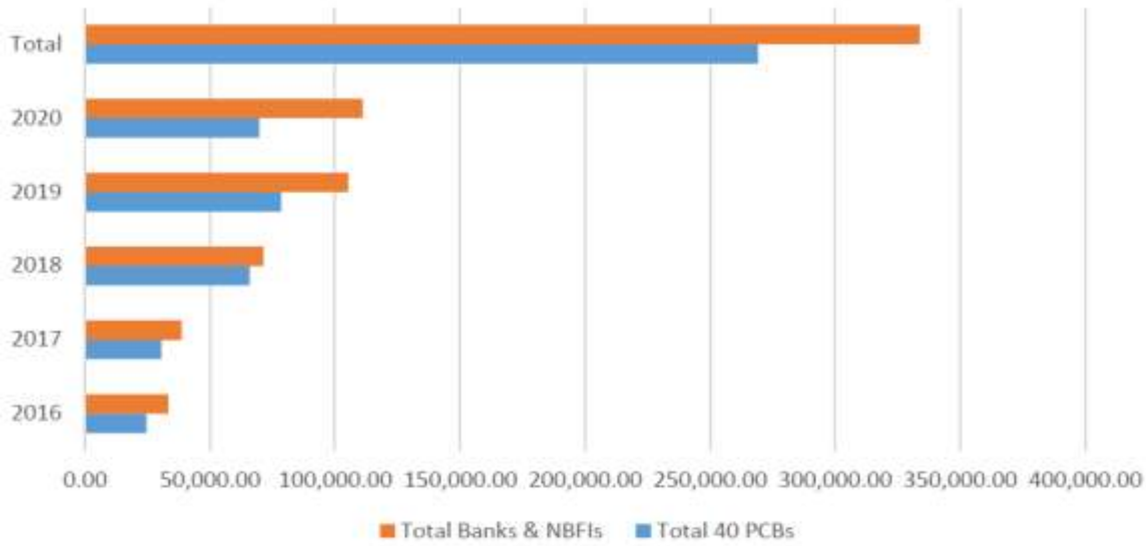

Figure 2: Portfolio contribution to green finance by PCBs in comparison to total green finance

In figure 2, a trend analysis is shown comparing the data from 2016 to 2020 (5 years span). The data show the private commercial banks' contribution to green finance over the periods at an increasing trend. In 2020, the investment in green finance projects slightly down from the preceding year by PCBs, mainly due to the Covid-19 outbreak for which total investment in the banking industry is down. In comparison to the contribution by the whole sector, PCBs contributed tremendously well, which is almost 80% of total investment. This picture depicts that PCBs are the forerunner to implement green banking policy to the overall financial industry in Bangladesh.

Through the scheduled banks, Bangladesh bank implements refinancing schemes aimed at green financing needs. The allotted plans are distributed in different projects. The investment trend for such distribution by Bangladesh Bank in different green sectors are shown in Table 3 below. Figured are in million BDT.

Table: 3 Disbursement trend of refinancing scheme by BB in green projects

Green sectors	**2016**	**2017**	**2018**	**2019**	**2020**
Biogas	84.8	46.6	10.5	4.6	1.24
Solar home	114.7	35.3	0	0.2	0.45
Solar irrigation pump	0.6	0	0	0	0
Solar assembly plant	16.3	0	0	0	0
Solar mini-grid	10	0	0	0	0
ETP	58	179.6	60	108.4	132.5
Hybrid Hoefflin Klin technology	177.8	10	0	5	100
Vermicompost	1.6	1.30	0	0.8	1.26
Green industry	400	0	500	152.3	198.70
Safety of working environment	35.70	55.30	82	40	88.10
Organic manure	0.20	0.10	0	0	0
Paper waste recycling	20	20	0	0	0
Energy-efficient tech	0	0.6	13	10	46.29
Total	393.50	919.70	348.80	321.30	568.54
Relative change in %	-	133.72%	-62.07%	-7.88%	76.95%

Source: Sustainable Finance Department, Bangladesh Bank (2020)

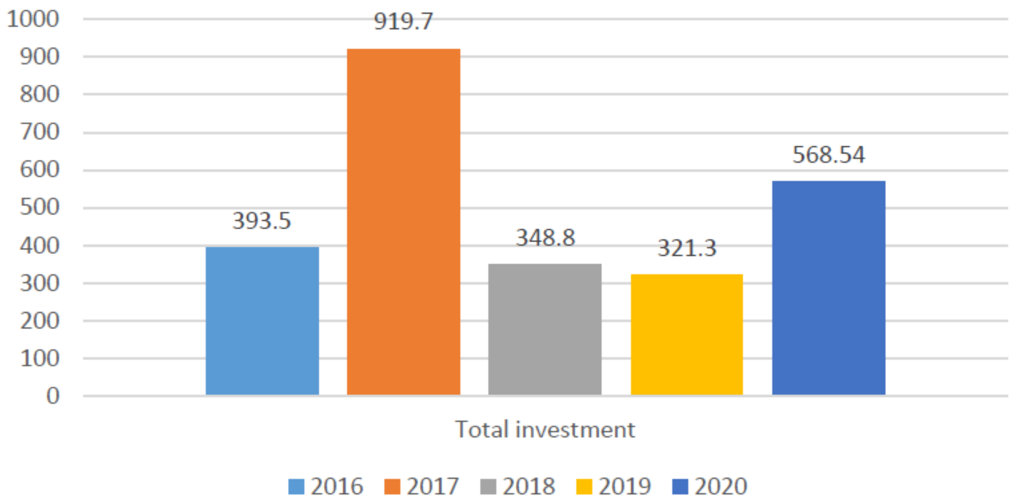

Figure 3: Total refinance allocation in Million BDT

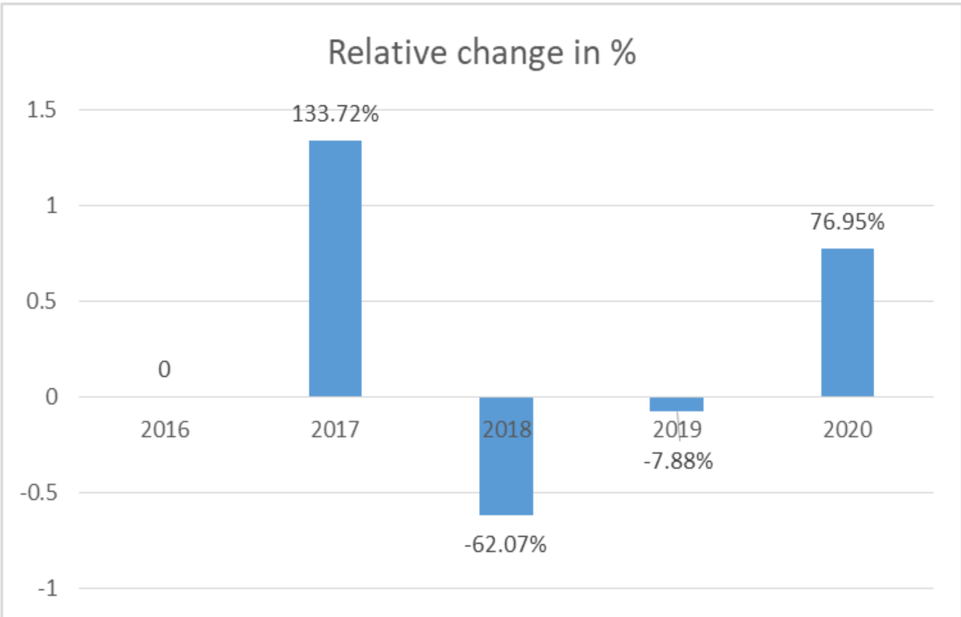

Figure 4: Change of percentage over periods in green project refinance scheme

Figure 3 suggests that the refinance scheme initiated by Bangladesh Bank, which is disbursed through scheduled banks, has an increasing and decreasing trend. The refinancing scheme is not allocated at a gradually increasing trend; rather, it has a fluctuating trend. In 2017, the scheme total disbursed BDT 919.70 million, which is BDT 568.54 million in 2020. The industry-wise summary is represented in table 3, which suggests the green industry has received the suitable disbursement in the year 2020. Figure 4 indicates the change of percentage of investment under refinance scheme. In 2018, the scheme disbursed significantly less, which is 62.07% less than its preceding year. However, the scheme investment increased in 2020 by 76.95%.

5.2.3 Supplementary initiatives of Bangladesh Bank

Apart from policy formulation, Bangladesh Bank (BB) has taken the initiative to broaden the financing avenue for green products like solar energy, biogas plants, and effluent treatment plants. BB had established a revolving refinance scheme of BDT 2 billion in 2009 from its fund to facilitate solar energy, biogas, and ETP, which increased to BDT 4 billion subsequently (Bangladesh Bank Quarterly Report, 2020). Bangladesh Bank also launched a refinancing window targeting the green transformation of brick industries in 2012 (Hoque, 2019). The Asian Development Bank (ADB) funded $50 million in the Financing Brick Kiln Efficiency Improvement Project aimed at reducing emissions of greenhouse gases and fine particulate pollution through promoting the use of energy efficient modern technology in the existing traditional brick fields. 35 banks and 21 financial institutions so far have signed a participation agreement with Bangladesh Bank to utilize the fund (Bangladesh Bank Annual Report, 2020). Bangladesh Bank undertakes different initiatives to make its operational activities more environmentally friendly, energy efficient, and technologically advanced. Bangladesh Bank installed a solar power system on its rooftop to reduce dependency on electricity. E-recruitment, documentation management system, leave management system, online salary and account statement, personal file update system, online office orders, electronic pass for visitors, and many other initiatives were also introduced through the Bangladesh Bank intranet. Regulatory reporting is ensured from banks and NBFIs through a web upload and Enterprise Data Warehouse (EDW) system (Hoque, 2019).

VI. RECOMMENDATIONS

The study analyzed the green banking policy adopted in the financial sector of Bangladesh. Bangladesh Bank plays a crucial role in formulating the banking industry's policies and guidelines. Banks and NBFIs are the key participants in the money market operation of which private commercial banks hold a significant share to accomplish green banking. The study showed analyzing historical data from secondary sources that development in green banking is at a steady process. However, the commitment for the implementation from the supervisory level is made. Banks and financial institutions lag because of the lack of investment opportunities in green projects. The creation of a new industry focusing on environmental and social issues will help to accelerate the investment opportunity of banks more in the future. Awareness for environment-friendly projects should be raised from the government level.

VII. CONCLUSION

Environmental concern is heart of Green Banking (GB) policies and strategies. In spite of many limitations the overall implementation status of GB in Bangladesh is satisfactory. Bangladesh Bank not only gives the policy but also provide technical supports for Green Banking adoption. In addition to the government effort, collaboration with the international community will secure more green projects for the private sector. The potential limitation of the study is it studied only secondary sources, which may contain preliminary analysis. Further research can be conducted on the topic, formulating a hypothesis and conducting primary research.

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