

## Green Banking Status and Climate Change: Bangladesh Perspective

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### Abstract

*The earth is the only planet in the universe for human habitats with an ecological harmony of nature. We must protect our planet at any cost for us and the coming generations. Bangladesh is an alarmingly vulnerable country to climate change due to its location and position. Among many more endeavors, green banking can be an example of ejecting low carbon dioxide, supplying green financing, gaining sustainable banking practices, and saving nature. The green banking paradigm is right now passing the growth level in Bangladesh. This research discusses the basic concepts of green banking moves, their current status, and their impact on climate change issues in Bangladesh. In this initiative, we used data from secondary sources, such as journal articles, annual reports of Bangladesh Bank (BB) and other scheduled banks, proceedings, and daily newspapers from 2021 to 2023. The collected dataset is analyzed using MS Excel software, considering its nature. This paper identifies the data regarding green finance, such as investment for ETP, green energy, biogas plants, solar home plants, HHK, green industry, green buildings, production of vermicomposting, and many more. This study also gathered quarterly published data by Bangladesh Bank and compared it with the target set by the controlling regime. This study showed that 23 commercial banks have reached the target of GF set by Bangladesh Bank as  $GF \geq 5\%$  of total term loan disbursement. State Bank of India achieved 99.52%, got first position and Pubali Bank PLC achieved 5.80%, got last place considering the target set. On the other hand, 15 commercial banks fulfilled their target of SF compared to total loan disbursement. In this case, the target attainment is  $SF \geq 20\%$  of total loan disbursement. Bangladesh Krishi Bank holds the highest position (57.22%) and Community Bank Bangladesh Ltd., (20.10%) got the lowest position. The BB, as a controlling body of all financial institutions, and other banks are on the right track. Almost all commercial banks fulfill their targets concerning green financing, contributing towards a healthy environment, and making the planet green.*

**Key Words:** GB=Green Banking, Climate Change, SDGs, GF=Green Financing, HHK=Hybrid Hoffman Kiln Bangladesh Bank, Carbon dioxide, SF=Sustainable Finance.

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### 1. Introduction

Bangladesh Bank has become a role model in green banking by providing proactive guidelines to banking companies and non-bank financial institutions (NBFIs) since February 2011. The banking sectors of Bangladesh play a pivotal role by initiating green banking activities, creating a green economy, and saving the environment. Homo sapiens cannot alter the emission of gases such as carbon dioxide or the globe's trajectory near the sun. However, they can hold the inflated portion of carbonic acid gas and their influence on the climate. In the last century, carbonic acid gas engagement has grown alarmingly in the air, and human beings are liable for this. The leading reason for increased carbonic acid tiers in the air is the burning of fossil energies. Industrial activities rose rapidly from the end of the 19th century, and many plants were built. These plants demanded power, which was fulfilled through the blast of coal. Excluding coal, other power bases, such as oil and natural gas, were ignited to heat our houses, run automobiles and aircraft, and beget power supply.

At present, nearly 85 million barrels of natural oil are steamed every day. Every time a fossil raw material is burned, it emits CO<sub>2</sub> into the air. Thus, it is evident that human beings are causing more conservatory gases like

CO<sub>2</sub> worldwide. Besides, we also support the conservatory effect by intentionally unclogging forests, which implies cutting down trees. Each year, people consume massive woodland to get wood, make thin rooms for mining, and make habitats (Alam & Islam, 2023; Rabiul Islam & Hossain, 2018). This loss of woodlands causes double concerns, such as fumed-up trees emitting significant volumes of CO<sub>2</sub> into the air. On the other hand, as forests absorb much CO<sub>2</sub> from the air and deliver Oxygen instead, we also eliminate an essential storehouse of Oxygen when we empty woodlands. Green financing (GF)/banking (GB), also called environment-responsive financing/banking, can solve this big problem. The concept of green banking was founded in 2009 in the state of Florida, USA. In March 2009 Chris Van Hollen, a congressman, introduced the “Green Bank Act” to offer financial support to increase energy usage efficiency and reduce carbon emissions and other environmental pollution under the ownership of the US government. The concept of GB was founded in 2009 in Florida, USA. In March 2009, Chris Van Hollen, a congressman, raised the “Green Bank Act” to deliver monetary aid to boost energy usage efficiency and lower carbon emissions and other environmental hazards beneath the privilege of the US regime. In honor of 1st GB’s persistent actions, it was granted membership to the Global Alliance for Banking on Values in May 2012. In the complex financial environment during which 1st GB opened and functioned, it attained outstanding profitability in 19 months, with current assets of about 252 million dollars as of Dec. 2013.

## **2. Definition Green Finance (GF)**

In the United Kingdom, in 2009, the concept of GF was initially raised. It is a general term that illustrates the idea of financing enterprises and expansion exercises that deliver results and emit less carbon dioxide to confirm sustainable and eco-friendly growth around the globe. GF is a distinctive aspect of monetary services that provides funds for projects and initiatives with environmental benefits (Rana & Hossain, 2023a, 2023b). It focuses on the financial products and services that support environmentally sustainable projects, businesses, and activities. Eco-friendly financing moves and energy-efficient tasks are given below: i. Wastewater treatment projects/ETP ii. Waste management and recycling projects. iii. Biogas plants iv. Renewable-energy projects v. Hybrid auto projects vi. Climate change adaptation programs vii. Paperless banking exercises viii) Green loans viii) Green bonds ix) Sustainable farming tasks. x) Etc. In brief, GB is a broader concept that encompasses the overall promise of a bank to environmentally responsible approaches, but GF mainly deals with financial products and services tailored to support environmentally tolerable projects (Alam & Shaikh, 2023). Both ideas contribute to the more comprehensive goal of aligning financial moves with environmental sustainability regulations. Banks that adopt GB codes offer GF options as part of their promise to promote environmentally friendly initiatives (Rahman & Hossain, 2020). GB and GF are related concepts focusing on environmentally tolerable traditions within financial and non-financial firms. But they refer to various facets of this pledge. Bangladesh Bank (BB) founded Green Banking Initiatives (GBI) in 2011 to help promote commercial banks' sustainable financing. BB issued policy guidelines for GF in 2011 and the revised version of ESRM (Environmentally Sustainable Risk Management) in February 2017. In 2015, the UN adopted 17 SDGs so everyone could enjoy peace and prosperity by 2030. This was a universal call to end poverty, zero appetite, quality education, improved health, and bias against women and to defend the planet.

### **SDG-13: Climate Action**

In 2015, all nations picked and assumed a set of goals to end deprivation, no starvation, save the only human planet, and secure means for all by 2030 under the UN deal. They set 17 primary purposes and 119 targets and anointed SDGs for 2030. Among them, SDG-13 is a climate move that includes 3 targets. In these pursuits, the world leaders noted supporting climate-related threats and catastrophes and counting and mitigating climate shift loss in each polity. Bangladesh has promised to lower CO<sub>2</sub> emissions by 5% from the business and has decided to decline an extra 15% with approval from the development partners, but just 2% has been enforced. Based on the Bangladesh Progress Report 2020, the no. of deaths, people disappearing, and affected individuals instantly attributed to catastrophes per one lac of individuals has reduced over the years. Now, it stands at 12881 with a target of 1500 by 2030. The GOB has endorsed the Disaster Risk Reduction Strategies (2016-2020) in line with the Sendai Disaster Risk Reduction Framework 2015-2030 and different global protocols endorsed by the country. As part of its promise to the National Determined Contribution (NDC) to CO<sub>2</sub> emission drop, Bangladesh has willingly promised to lower its business emissions by 5%. It has consented to lessen an extra 15% with backing from the development allies. The GOB has also revamped its climate adaptation action plan to utilize capacity for useful climate change-related planning and control. Bangladesh received funding from GCF in 2018 for clean cooking agendas, enriching the adaptive abilities of seaside residents and climate-resilient infrastructure mainstreaming. The recent episode of COVID-19 was a critical event that especially threatens the attainments made over the past two decades <https://www.undp.org/sustainable-development>. GF is any designed monetary exercise devised to secure a more suitable environmental effect. It contains a collection of debts, loan instruments, and acquisitions to boost the growth of green schemes or reduce the consequence of more common tasks on the environment. GF initiatives often include renewable energy projects (Hasan et al., 2013). GF can fund renewable power, electric automobiles and infrastructure, water saving and infrastructure support, waste control and recycling endeavors, biodiversity protection and ecosystem assistance, social impact investing and microfinance. Some examples of GF green bonds include green loans and sustainable bonds. GB and GF are two different concepts. GB refers to the practice of environmentally aware banks devoted to sustainable growth. They take into account the environmental impact of their functions and assets. GF, on the other hand, refers to economic products that are created to support environment-friendly schemes. These products include green bonds, green credits, and other financial products to fund schemes that impact the atmosphere.

### **3. Objectives**

The major intent of the research is to specify how GB activities affect climate change in Bangladesh and globally. The precise objectives of the research are:

- To find out the amount of SF and GF invested as well as the performance of commercial banks in Bangladesh.
- To supply some suggestions for enhancing GF activities to save our planet.

### **4. Significance of the Study**

Bank Financial Institutions is one of the principal bases of green investment in manufacturing enterprises, such as cement, steel, fertilizers, chemicals, textiles, electricity, paper, etc., which cause colossal carbon emissions.

Hence, the banking sector can be vital in social and economic growth and climate conservation to foster ecology-friendly, enduring, socially liable investment. In conformity with the ex-UN Secretary-General Ban Ki-moon, "There is no plan B because there is no Planet B" In Recent years, the world witnessed various instances of extreme pollution in different cities, even in Asia, including Dhaka, New Delhi, Beijing, and so on, due to unplanned industrialization and development that deteriorate the ecological equilibrium. GB is considered a holistic concept that comprises all economic, social and environmental factors and the financial priorities as a whole in an eco-friendly way. Extensive research has analyzed GF and its Impact on Bank Profitability. The results are mixed depending on the choice of the country, the period of data, the sources of the compiled data, applied methodologies, etc. In the context of Bangladesh, some studies have shown the Status of Green Financing and its Impact on Bank Profitability in Bangladesh. Very few research studies have yet been conducted on the impacts of various green banking variables, primarily based on Bangladesh's state-owned, specialized, private, and foreign commercial banks. Our study on green banking status and climate change has introduced sustainable finance taxonomy and reflects a review of commercial banks' efforts concerning the 3 Ps (People, Profit and Planet).

A precise narrative on The Greed of the Mighty Rivers in Bangladesh: A Poor Woman, Meherjan, resides in a landfill in the Sirajganj town safety dam. The murmur wind from the Jamuna River creates an erratic fire. The caper fire leads Meherjan to disruption in her life. Not long back, Meherjan owned many things – a family, arable soil and livestock. The erosion of the Jamuna River gradually consumed all her land and other property. It eventually claimed her only shelter during the last monsoon. It took the river only a day to finish Meherjan's house, trees, vegetable garden and bamboo bushes. She had a happy family once. Over the years, she lost her spouse and her family members to illness that abusive hunger and poverty brought to the family. Now, she is the only one left to live on with the loss and the pain. The greedy Jamuna River has ruined her drive and pleasure. There are thousands of others remaining who share Meherjan's fate. Bangladesh is a land of rivers, with some flooding or erosion during the monsoon season. Land erosion is a harsh reality for the people living along the river banks. During each monsoon season, mighty rivers endanger numerous villages, such as the hostile Jamuna, Padma, Meghna, etc. Land erosion by all these rivers makes at least 100 thousand people abandoned and shelter less yearly in Bangladesh. River erosion is one of the most destructive casualties of the effect of climate change. If we cannot take prompt steps to adjust to climate change, thousands of more Meherjan will be in our towns and villages annually. For ages, Paban Baroi's household safeguarded a Shiva temple, the Hindu God of destruction, till the mighty Padma River in Bangladesh wiped out the sanctum, their dwelling, and about two hundred other cottages in their village. The 70-year-old and thousands of his neighbors became destitute as rushing waters and rusting grounds reshaped the terrain – a sensation created more spoiled by ecological shift (Aljazeera, 10 October 2022). This country is a land of delta intertwined by about two hundred channels, each linked to the rivers Ganges and Brahmaputra that travel from the Himalayas via the Indian subcontinent. Scientists say weather transformation has raised the rigor and commonness of the phenomenon, with additional irregular rain pushing more hurricanes and overflows in Bangladesh. The effect is anticipated to deteriorate significantly in the coming decades, as growing sea levels endanger the disposal of millions of individuals in Bangladeshi low-lying coastline and the inundation of its most fertile farmlands with salt water. Bangladesh is ranked by the UN and civil society groups as one of the nations most influenced by its

harsh climate since the turn of the century, with a total of inland villages brushed from the map. Rivers in Bangladesh will erode nearly 1800 hectares of motherland a year, and the dwellings of more than 10000 individuals will vanish, based on the state-funded Centre for Environmental and Geographic Information Services (CEGIS). Citizens of disappeared villages usually pursue a fresh life in the slums in Dhaka, an overcrowded metropolis of nearly 22 million people. Many of them have been ousted for weather transformation - connected causes. Ian Fry, the UN select **record-keeper** on the weather transformation, mentioned in a report that underscored endemic kid malnutrition, a scarcity of safe water for drinking, and increased speeds of human trafficking [Munir Uz Zaman/AFP]

### **COP29, Climate Change and Bangladesh**

COP means Conference of the Parties. In COP27, Bangladesh made a strategy to address growing catastrophes and harsh climate casualties initiated by weather transformation at November's COP27 Egypt's climate conference. It has kept the river eroding to about 1000 hectares annually. At the seminar, Dhaka appealed to the heads of emerging polities for the critical budget. It gauged that 230 billion dollars would be needed by 2050 to reduce the effect of weather change on the homeland. In COP28, Dubai, 2023, the term "fossil fuel" is included in the decision.

What can Bangladesh do in COP29 to be held in Azerbaijan in 2024? Dr Mizan, DD of the ICCCD (International Centre for Climate Change and Development), published an article in the Daily Star dated 20 December 2023 and suggests:

- i) Bangladesh has already developed a Loss and Impairment framework, which is a welcoming measure. A functional upset and impairment tool can be devised to hold the support from the L& D budget.
- ii) Bangladesh can bank on the decision to use perpetual power and its cost-effectiveness. The Muzib Climate Prosperity Plan (MCP) holds a driving target regarding perpetual energy: Forty percent of our energy combinations should be perpetual by 2040. We should also have a pilot scheme to increase energy productivity. To capitalize on the marks, we should accomplish two items: a) A non-emotional examination of our severe shortage of headway in rising perpetual power, which is still less than 5% of the whole energy, and b) Mark an operating strategy for rising power usefulness and power saving.
- iii) The global purpose of transformation has set some non-quantified marks. Bangladesh has already fulfilled a few of these purposes, such as designing a national adaptation plan (NAP) and mainstreaming adaptation in development policies. So, Bangladesh is viewed as an international leader and identified as a role model in catastrophe governance. The period has arrived to recognize the mark in the supervision, examination, and understanding means, jointly with supporting the eight codes of locally-led transformation, as numerous polities have already accomplished, which can be a study for other polities.
- iv) We learn that a large share of poor environmental finance drives for mitigation rather than adaptation. Even for the least developed polities, such as nano-emitters, where adaption is of supreme primacy, more than half of environmental finance moves to alleviation. It is dual justice. So Bangladesh can start a study of global help for adaption versus alleviation.
- v) In the foremost of its type "Local Climate Action Summit ", more than 500 Mayors, governors and other sub-national leaders attended to highlight the role of cities in climate action. Seventy-one countries joined the coalition for high-ambition multilevel partnership initiatives, committing to robust urban climate action through

their NDCs and enhancing collaborations among local, national and international actors. Governments, companies and philanthropies announced over one billion dollars in new grants for this area. We have a good space here in which to act, where city and town mayors can adopt local adaptation plans to mobilize investment to divert the inflow of displaced people away from an overcrowded Dhaka to other cities, towns, and growth centers. With spectacular improvements in communication under the present government, we can turn them resilient and migrant-friendly. In fine, capacity building is direly needed in two areas: a) we need to prepare a cohort of young negotiators because some of the experienced government and non-government negotiators will retire soon. b) The other area is the writing of science-based fundable projects, for the government may forge partnerships with universities. Scientists say climate change has increased the severity and frequency of flooding, with more erratic rainfall causing cyclones and flash floods. The UN and civil society groups have already rated Bangladesh as one of the countries most affected by extreme weather events since the turn of the century, with entire inland villages wiped from the map. According to the state-funded Centre for Environmental and Geographic Information Services, some 1,800 hectares (4,500 acres) of land will be eroded by rivers in Bangladesh this year, and the homes of at least 10,000 people will disappear. Residents of disappeared villages often seek a new life in the slums of Dhaka, a sprawling city of 22 million that has doubled in size since the turn of the century on the back of urban migration. Women walk past an eroded section on the banks of the Padma in Munshiganj. Bangladesh is a delta country crisscrossed by more than 200 waterways, each connected to the Ganges and Brahmaputra rivers that course from the Himalayas through the South Asian subcontinent. The impact of flooding is expected to worsen significantly in the coming decades. "These erosion events are clearly a result of climate change," said Ian Fry, the UN special rapporteur [Munir uz zaman/AFP]. COP13 held in Bali, December 2017 a demonstration slogan was climate change leads us to hell. They showed on a placard the climate is changing, why aren't we! Warning, global warming.

## 5. Literature Review

K. Rejaul (2020) recognized direct and indirect investment and showed an upward trend in the bank and non-bank financial sectors but far behind the benchmark declared by Bangladesh Bank. He tried to depict the scenario of GB practices from 2013 to 2017. The author also studied data on GB, which has been available since 2013 on websites. He noted the green investment areas as water sanitation and purification, waste management and recycling, reforestation and biodiversity conservation, creation of climate risk fund, paperless economic activities, eco-friendly monetary products, renewable energy etc. he also pointed out direct finance as ETP, bio-gas plant, renewable energy plant, bio-fertilizer plant, HHK technology, green finance etc. and indirect financing as project having ETP system, sharing of e-files, voice mail, e-mail and zoom meeting. Aubhi, R U. (2016) pointed out that green banking is a popular climate concept originated in Western nations, and now it has grown and is copied by other nations globally. It is also prescribed eco-friendly banking, environmentally friendly banking, ethical banking, sustainable banking, etc. He addressed the green banking as a win-win situation and mutual benefit among banks, the environment, clients, government enterprises and the economy. He rightly recognized GB as safeguarding the green planet by reducing CFC, GHG, SLR, and other environmental degradation around the year. He finally pointed out 4 E's: i) Educate, ii) Enable, iii) Easy, and iv) Earnest. The three bottom lines of a green economy are: i) sustaining economic wellbeing, ii) promoting



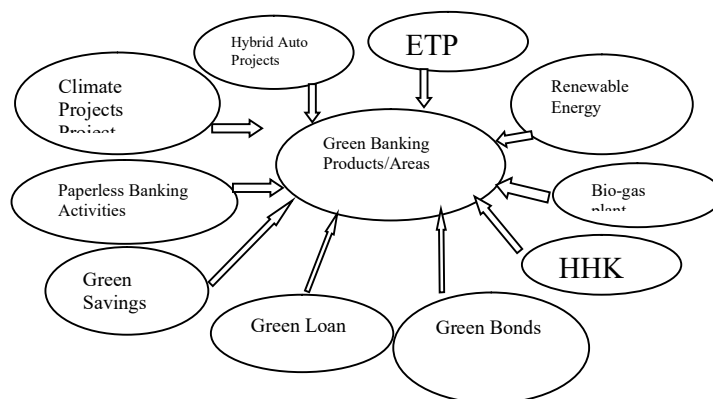
environmental wellbeing, and iii) social wellbeing. Khairunnesa, F., Vazquez-Brust, D.A., & Yakovleva, N. (2021) found that DBBL first raised the green banking concept in the name of Triodos Bank, founded in 1980 in Bangladesh. In 1990, the bank made a green fund to support environment-friendly projects, initiatives for sustainable banking, and the growth of a green economy. They identified GB as a green economy with green growth and a low-carbon emission economy. They pointed out that banks are influential financiers and significantly influence the funding of green projects/products set by Bangladeshi banks, playing a crucial role in creating growth in business and the environment. The study also mentioned image issues as Bangladesh is a fast-growing economy in the world and responsible for less than .35% of global GHG emissions compared to other countries but suffers a lot. Bangladesh become more vulnerable and faces frequent floods, droughts, cyclones, earthquakes, SLRs and many more, resulting in a massive loss of 8.5 billion dollars. They also show that the average temperature in Bangladesh is rising by 0.2 degrees Celsius per decade.

Bose, S., Khan, H. Z., Rashid, A., & Islam, s. (2018) examined the GB factors in Bangladesh from 2007 to 2014. They suggested that retail banks worldwide experienced massive pressure from different sides to run their business in an environmentally friendly way instead of facing huge penalties. In the United Kingdom, their courts have penalized many banks for polluting the environment. They suggest that the Government and independent board members should influence participation in green banking activities through their particular thoughts and actions. Raisa, T S., & Maria, A. N (2019) found that firms that use EU trading strategies, following the Global Reporting Initiative (GRI) guidelines, provide better quality and quantity of environmental information. They set performance indicators: i) energy, ii) biodiversity, and iii) emissions. GRI sets 30 environmental indicators and three guiding principles, including- i) economic, ii) environmental, and iii) social. GRI also pointed out that the Bangladesh Delta Plan denoted as BDP-2100, was structured as i) significant policies, ii) investment agenda, and ii) institutional improvements. If it is approved and implemented at the right time, it will address the causes and effects of climate change susceptibility. Moon, Z. K., & Hasan, M. M. (2022) mentioned that Bangladesh is a vulnerable and hazardous country due to its geographical location, dependency on natural resources and socioeconomic conditions. Bangladesh ranked 7th in the global climate risk index among all climate-vulnerable countries. Zhixia C. et al. (2018) surveyed the study on green banking and CSR from the 2012-2017 fiscal year using secondary data and found there are four steps of banking to adopt for sustainable banking such as i) Offensive banking, ii) Defensive banking, iii) preventive banking and iv) Sustainable banking. They identified some problems, such as the barricade of green banking, good governance, corruption, political influence, corporate governance, misuse of ICT, etc. Zheng, G. W. et al. (2021) opined that banks and non-bank FIs should focus on social, economic, and environmental activities to obtain sustainable development goals. They found that about 95% of bankers think green investment is critical in the banking sector's short and long-term strategies for development. Khatun. N. k. et al. (2021) highlighted that banking sectors in emerging economies like Bangladesh need green banking policies with 3P (people, profit and planet) for sustainability. They recognized environment-friendly schemes such as renewable energy, climate vulnerability resistance infrastructure, and building more energy-efficient climate-innovative equipment, household devices and automobiles. Hoque N. et al. (2019) found that in Bangladesh, environmental degradation is visual through the devastation of forests and wetlands, lack of soil nutrients, high levels of water and air corrosion, use of fossil fuels, wrong dumping of medical wastage, loss of biodiversity, loss of open

space and so forth. Redwaduzzaman, M. (2020) claimed a cultural shift in the bank's operation 3R for sustainable banking, such as rethinking, redesigning and restructuring. He recognized GB as a distinct corporate doctrine exclusively concerned with environment-related matters, issues and opportunities. Finally, he developed a hypothetical framework consisting of three independent variables (customer, competitive, and community pressures) and a conditional variable, GB adoption. Khan, S. R. and Ali, A. (2016) concluded in the study that to save our planet from the impacts of climate transformation, there is no option for a green solution, and GB may be one of them to cope with the environmental problems. Ahmed, F. et al. (2013) identified five GB variables such as: pressure from stake holders, potential for the profitability, and concern for the environment, risk minimization and image improvement which force to green banking adoption in Bangladesh. Sahoo, P., & Nayak, B. P. (2007) opined that Banks and FIs should play proactive role to take ecological and environmental aspects as part of lending and investing principles which would force banking sectors to go mandatory investment for environmental management, use of appropriate technology and management system in India. Hidalgo-Onate, D. et al (2023) mentioned major economies in the world committed to achieving a carbon neutral economy by 2050 in accordance with the Paris agreement. One of the goals set by the Paris agreement is to limit the temperature increase to a maximum of 2°C above pre-industrial levels and where possible to 1.5°C. Xia, L., Fatema, N., & Ibrahim, A. M. (2022) opined that green banking is a "brainchild concept" of global concern for developing a sustainable economic system can affect climate change positively.

### 5.1 Research Gap

Much research has yet been conducted on GB from different points of view in Bangladesh and abroad. Nevertheless, those are in a different context. Some studies covered only state-owned commercial banks; some were on private commercial banks, and some covered banks and NBFIs institutions in various aspects that could not accurately represent total green banking concepts. On the other hand, almost all studies were on the data before 2021. No in-depth study has explicitly been done to estimate and compare the effect of GB factors on banks' profitability. Not only that, but very few studies have shown the cause and effect of environmental shifts in Bangladesh. So, the present situation demands a comprehensive study on green banking that will affect climate change and the environment.



**Figure1:** Conceptual Framework on GB  
 Source: Authors' Own



## 6. Methodology of the study

This research is primarily descriptive and dependent on secondary information. This research collected data from reliable sources such as quarterly reports released by Bangladesh Bank, annual reports of commercial banks, sustainable reports published by Bangladesh, and various research articles relating to green banking and green financing published from local and internationally recognized journals. Also, this study collected data from ADB reports, the United Nations environment program reports, World Bank websites published articles in renowned and esteemed national newspapers, websites connected with the title, relevant books, etc. Sometimes, we took interviews from bank executives off the record, discussing GB's perspective in their office and wrote. This article has used the MS Excel 2019 version. It takes a quantitative method and results shown about the present status of GB depicting three years of data (2021 to 2023), investment situation of commercial banks, mainly green financing position set by Bangladesh bank and sustainable finance that impact on climate change in large. The area and scope of this study are confined to all commercial banks, including state-owned (06) and Specialized Dev. Banks (03), private (43) and foreign (09), in total 61. The main limitation of this study is that it avoids primary data and excludes NBFIs, insurance firms, stock market mediators, investment companies, etc.

## 7. Data Analysis and Results

7.1 Refinance Initiatives of BB Providing Opportunities of some Schemes for GF:

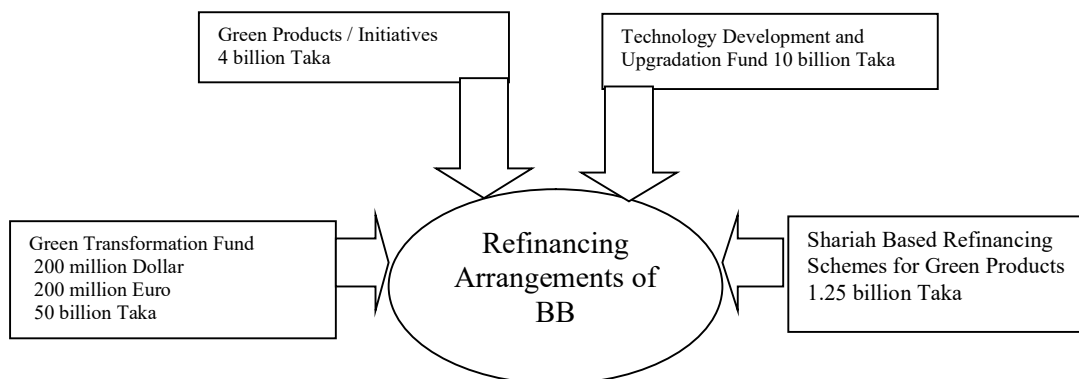


Figure 2: BB Refinance Schemes in Q3, July-September 2023.

Source: BB Report on Quarterly Review of Sustainable Investment (SI) of Banks and NBFIs. (Q3, 2023).

Bangladesh Bank not only offer financing to traditional banks but also Islamic banks for go green activities. BB has defined “Green Finance” and “Sustainable Finance” policy clearly for all financial institutions. The chart 1 entails the data on policy initiatives taken by the central bank as on Q3, 2023 which covers 61 banks and 34 other financial institutions operating under the refinance scheme of BB. In the report BB shown GF by banks (July-September, 2023) is 36044.34 million BDT and Sustainable Finance by banks (July-September, 2023) is 322964.30 million BDT.

### 7.2 Sustainable Finance (SF) at a Glance by Banks (in million BDT) in Bangladesh: Highlights

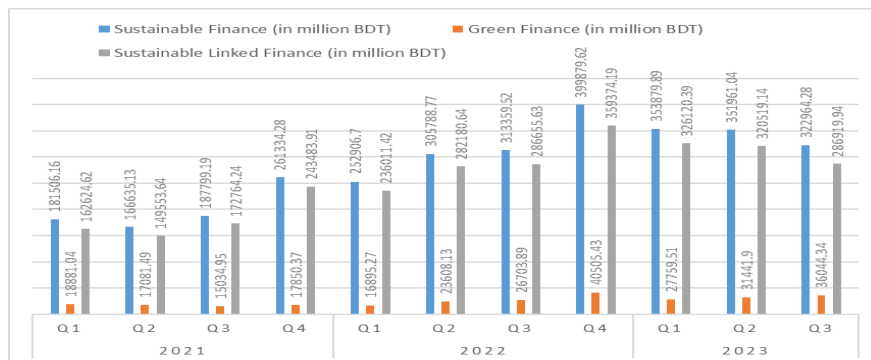


Chart 1: SF at a Glance by Banks (in million BDT) in Bangladesh, Period: Up to July- September, 2023

Source: BB quarterly Review Report on SF of Banks and FIs

Chart 1 shown GF of Q4, 2022 amount 40505.43 million was the highest but trend is gradually increased upward.

### 7.3 SF at a Glance by Banks (as %) in Bangladesh: Highlights

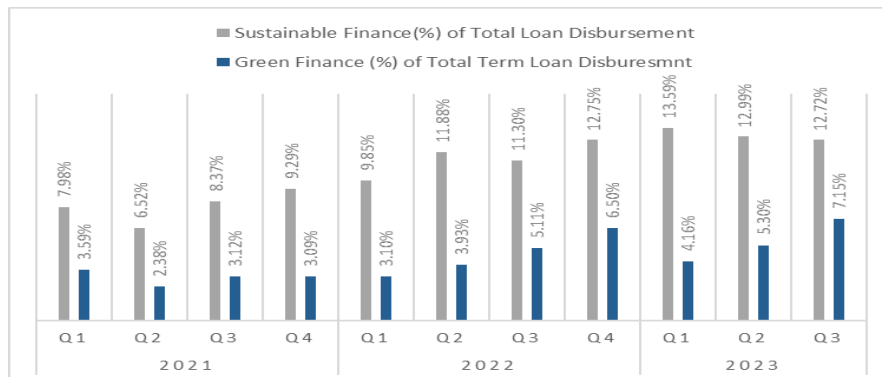


Chart 2: SF at a Glance by Banks (as %) in Bangladesh, Period: Up to July- September, 2023

Source: BB quarterly Review Report on SF of Banks and FIs

Chart 2 exhibits GF disbursement below 5% of total term loan before 2022, Q2 but increased gradually next.

### 7.4 Sector-wise SF (in Million BDT)

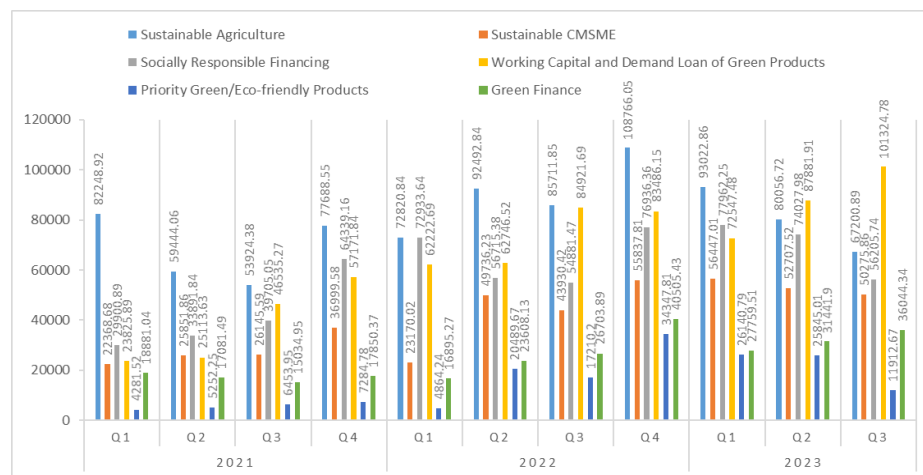


Chart 3: Sector-wise SF at a Glance by Banks (in million BDT) in Bangladesh, Period: Up to July- September, 2023

Source: BB quarterly Review Report on SF of Banks and FIs

There are six sectors where BB promotes financing for sustainable banking in chart 3.

### 7.5 Year-wise Total SF (in Million BDT)

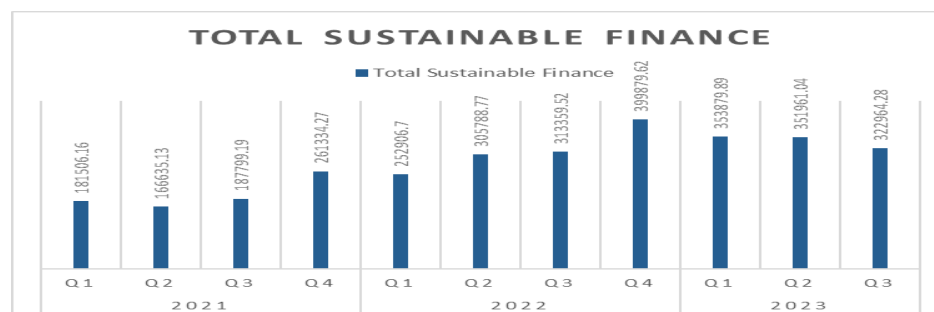


Chart 4: Total SF at a Glance by Banks (in million BDT) in Bangladesh, Period: Up to July- September, 2023

Source: BB quarterly Review Report on SF of Banks and FIs

Total SF is the aggregate of different six sector wise investment by banks in Bangladesh. The highest total investment was found in Q4, 2022 and lowest Q2, 2021.

### 7.6 Trend of GF in million BDT

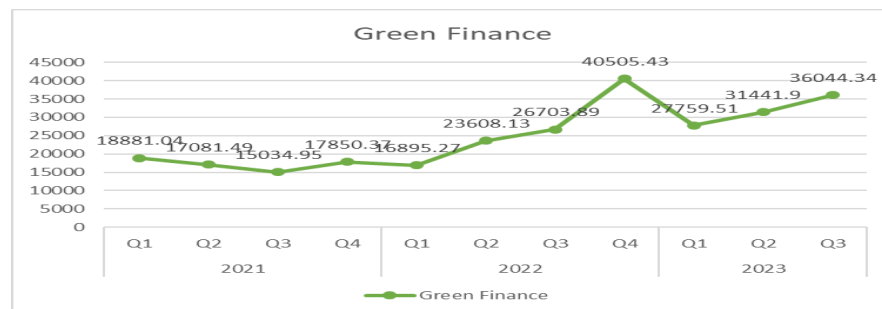


Chart 5: GF Trend in Bangladesh Period: Up to July- September, 2023, in million BDT

Source: BB quarterly Review Report on SF of Banks and FIs

### 7.7 Trend of Total SF in million BDT

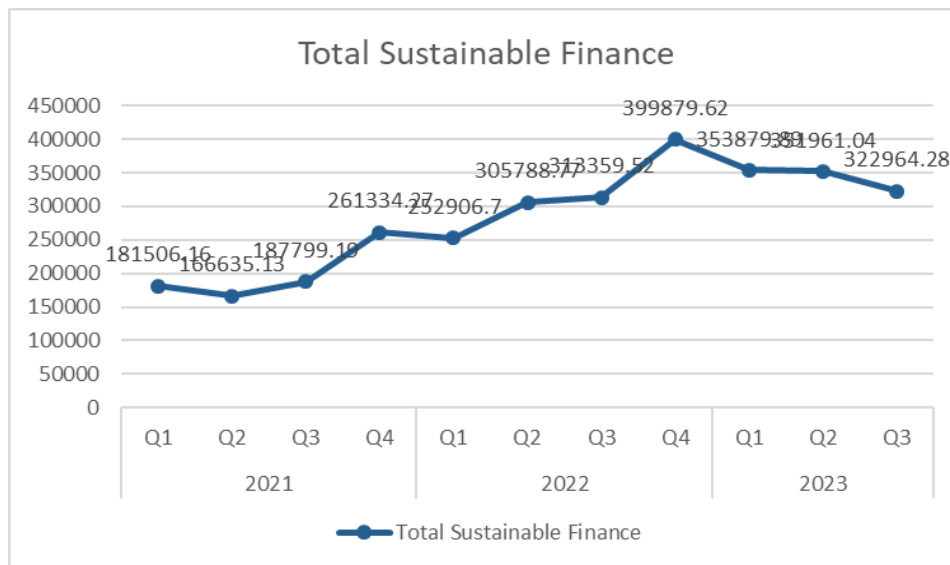


Chart 6: Total SF Trend in Bangladesh Period: Up to July- September, 2023  
 Source: BB quarterly Review Report on SF of Banks and FIs

### 7.8 Year-wise performance of GF and SF in Bangladesh :( 2019-2023)

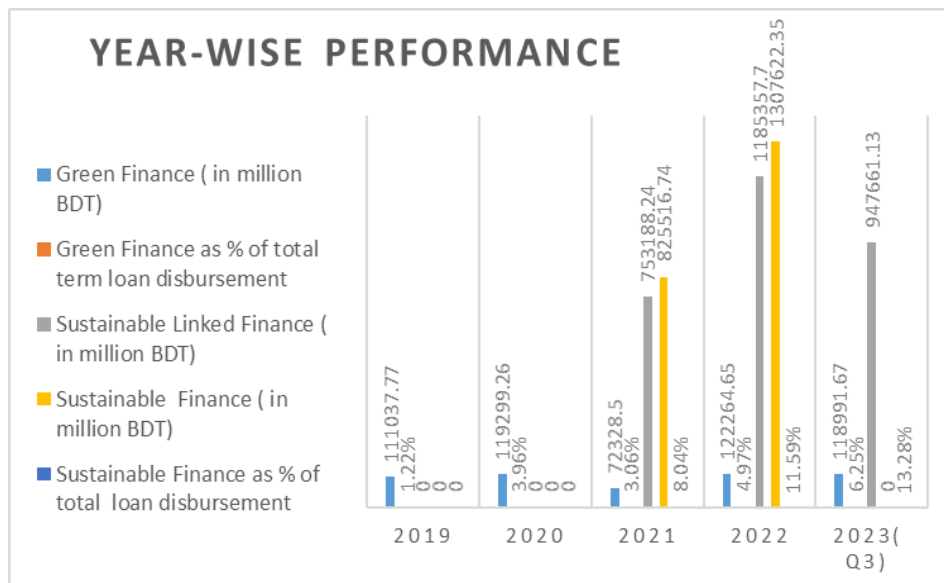


Chart 7: Year-wise performance of GF and SF in Bangladesh Period: Up to July- September, 2023  
 Source: BB quarterly Review Report on SF of Banks and FIs

### 7.9 Bangladesh Bank Refinance Scheme for Green Products or Initiatives

The disbursement trend from fiscal year 2015 to fiscal year 2023 and the product wise disbursement figures are presented in table 1 below:

Table 1: Green product-wise Disbursement Trend of The BB's Refinance Scheme for the Green Products/Initiatives (in million BDT)

Green Products	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Effluent Treatment Plant (ETP)	0	58	179.6	60	108.4	132.5	193.14	20	67.1
Paper Waste Recycling	0	20	20	0	0	0	0	0	0
Soar Irrigation Pump	26.5	0.6	0	0	0	0	0	0	0
HHK Technology in Brick kiln	47	177.8	10	0	5	100	0	55	152.5
Solar Mini grid	0	10	0	0	0	0	27.5	0	0
Bio Gas	83.3	84.8	46.6	10.5	4.6	1.24	2.17	4.7	1.47
Green Industry	0	400	0	500	152.3	198.7	400	200	393.37
Solar Assembly Plant	148.1	0	0	0	0	0	0	0	0
Safe Working Plant	0	0	55.3	82	40	88.1	0	0	0
Solar Home System (SHS)	87.5	14.7	35.3	0	0.2	0.45	1.32	3.61	0.93
Vermicomposting	1.1	1.6	1.3	0	0.8	1.26	1.67	3.37	1.16
Energy Efficient Technology	0	0	0.6	13	10	46.29	0	0	0
Safe Working Environment	0	0	0	81.97	39.96	88.1	60	59.9	23.11
Green Building	0	0	0	0	0	0	0	400	433.59
<b>Total</b>	<b>393.5</b>	<b>819.5</b>	<b>348.7</b>	<b>747.47</b>	<b>361.26</b>	<b>656.64</b>	<b>685.8</b>	<b>746.58</b>	<b>1073.23</b>

Table1 above depicts nine years product wise refinance schemes for banks under Bangladesh Bank from 2015 to 2023.

7.10 The share of disbursement in major green products of BB refinance scheme in FY 2023 shown as pie chart.

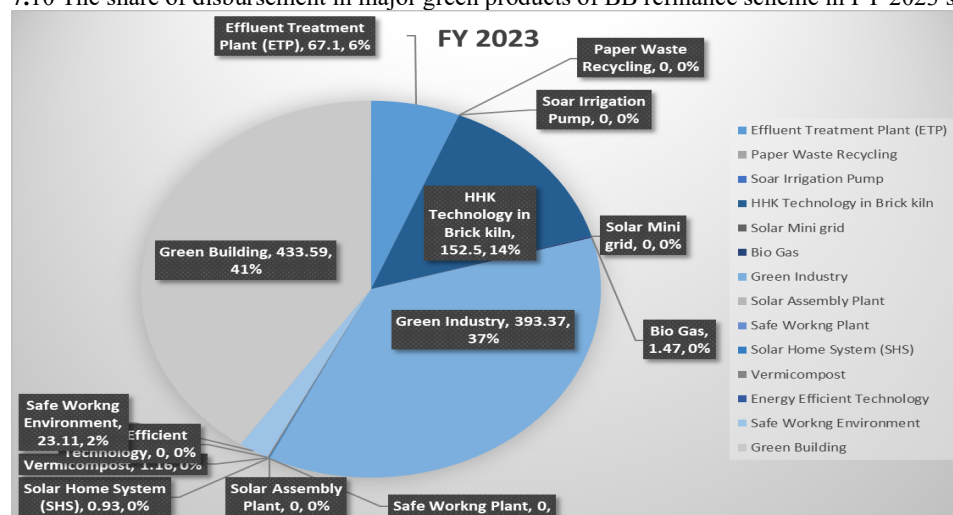


Chart 8: The share of disbursement in major green products of BB refinance scheme in FY 2023

Source: BB Annual Report 2023, Sustainable finance department.

BB refinance in green structures is highest at 41%, green industry at 37%, ETP at 6%, and safe working environment at 2% in 2023 (July-September). In 2009, a rotating refinance plan of BDT2.0 billion was set to widen the budget for green derivatives or firms at low-cost funds, which later boosted to BDT4.0 billion. Six

green derivatives were initially specified to spread the refinancing structure under the scheme. Later, considering market needs and expert views from the technological advisory panel and time-to-time consultations with professionals and stakeholders, BB improved the suitable green derivatives to refinance through the plan from 55 derivatives in FY20 to 68 in FY23. Participatory banks/financial institutions can charge the highest interest rate of 5%-6% on monetary green derivatives/initiatives under the plan. Owing to the state’s emphasis on farming sectors, the “solar irrigation pumping system” is preferred over customary diesel and power-run pumps. The accumulative refinanced payment beneath the project until June 2023 reached BDT792.58 million.

#### 7.11 SF at a Glance by Banks (in percentage) in Bangladesh

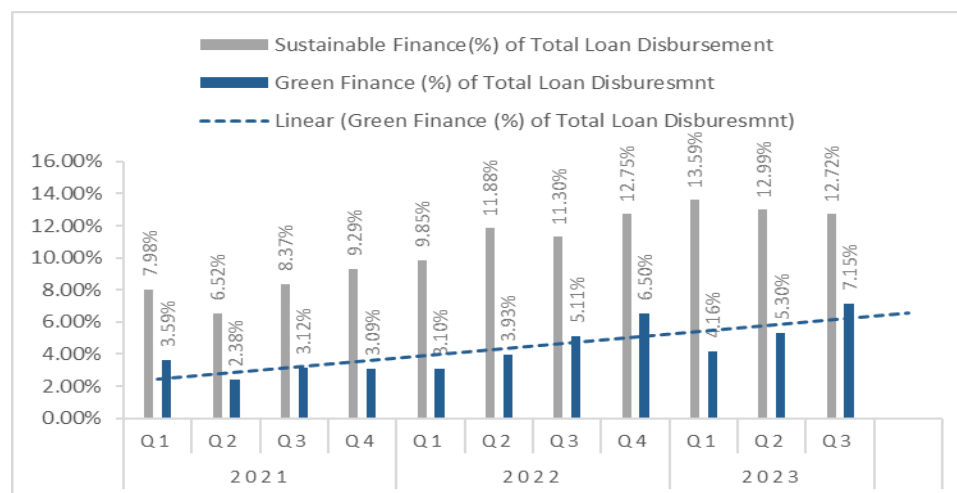


Chart 9: SF at a Glance by Banks (in percentage) in Bangladesh, Source: SFD, BB  
 In Q1, 2023 achieved highest SF 13.59% and Q3, 2023 highest GF 7.15% which is gradually increase upward.

#### Green Transformation Fund (GTF) by BB

The recent initiative of BB to promote SF to form GTF. In 2016, BB established a GTF of USD 200 million to enhance long-run change in the export-led textile, leather, and jute sectors, vowing the country’s green economic shift. Though the GTF fund was initially available only for export-oriented products, it evolved to open for all export-led sectors in June 2019 to ensure an enduring export boost for the country in changing into a greener thrift. It planned to boost entry to funding in foreign currency by all plants in export-led sectors for importing capital machinery and supplements to enforce environment-pleasant enterprises. It includes efficiency in water use, wet processing, water saving and surveillance, garbage control, resource usefulness and recycling, renewable power efficiency, temperature and heat management, ventilated air and efficiency circulation and job setting advancement endeavors (Circular No. 02/2016). In April 2020, URO 200.00 million and the current USD 200.00 million were boosted in GTF. The disbursement from GTF up to FY 22 was USD 140.94 million in 47 tasks and EURO 71.21 million in 30 tasks. On 7 Dec. 2022, GTF in local currency was introduced to boost backing to exporters and factories carrying a budget of BDT50.00 billion. Till 30 June 2023, BDT1778 million was disbursed to 5 clients of 4 banks from this domestic currency GTF fund.

#### 7.12 Initiatives Taken by BB regarding Sustainability Banking in Bangladesh



BB, the controlling body of all scheduled banks and other FIs achieved the recognition as an early mover in the case of policy formulation, innovation, supervision and facilitating proactive, innovative projects for promoting sustainable finance as well as green finance. Since February, 27, 2011 to till now Bangladesh bank has developed several policies and regulations for banks and NBFIs on sustainability which is mentioned below:

### 7.12.1 ATM Facilities of Commercial Banks: As on September, 2023

Table 2: ATMs of Commercial Banks in Bangladesh

Types of Banks	No. of Banks	Branches	ATM	ATM Facilities (%)
SOCBs	6	3830	446	3.90
SDBs	3	1541	7	.06
PCBs	43	5986	10927	95.30
FCBs	9	69	85	.74
Total	61	11426	11465	100

Source: BB websites

ATMs are automated teller machines that significantly contribute to creating banks without branches worldwide. BB encourages banks to introduce ATMs to their customers for their convenience. This avenue allowed banks to provide allied services such as debit cards, credit cards, POS/online transactions, etc. The first ATMs in Bangladesh were introduced in 1993. As of June 2023, the total ATMs was 13704 in Bangladesh.

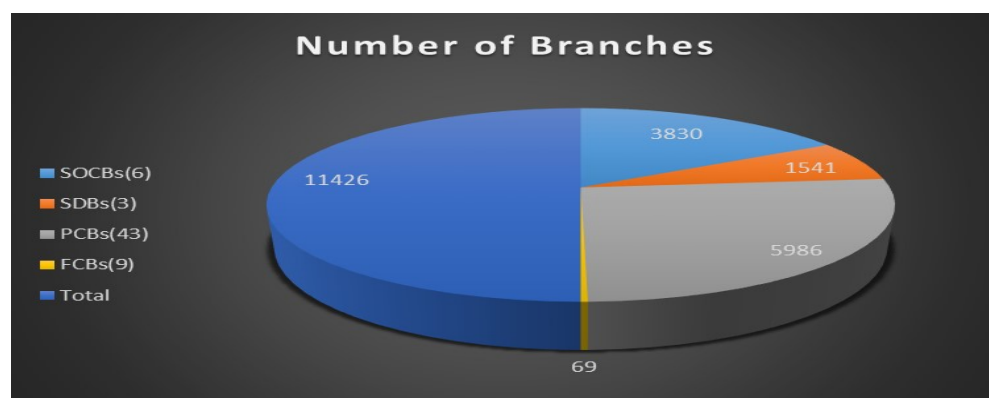


Chart 10: Total Number Scheduled Banks. Source SFD, BB 2023.

Private commercial banks hold highest 11426 branches and Specialized developed banks hold the lowest 1541 branches across the country.

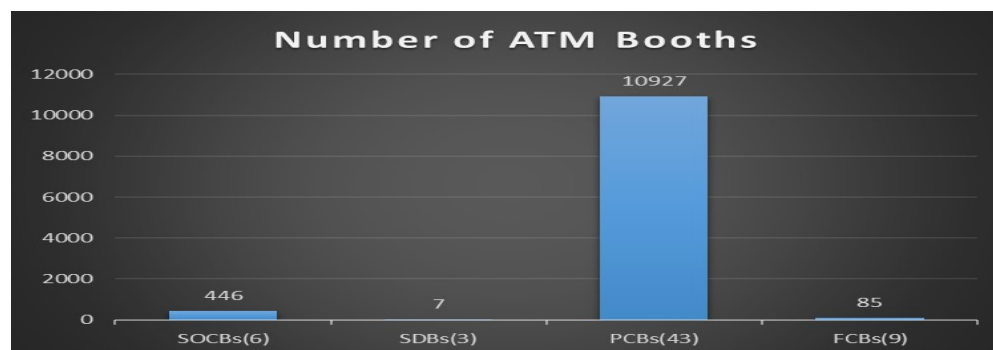


Chart 11: Total Number of ATMs installed

Private Commercial Banks (PCBs) hold the highest number of 10927 ATMs, and Specialized Developed Banks (SDBs) have the lowest, with only 7 ATMs nationwide. Once, ATMs were a symbol of E-banking for promoting

easy and quick money pullout with different banking solutions, along with time-saving, payment by credit card, balance checking, etc. But banks are now phasing out ATMs as the focus shifts to deposit and pull out. Banks are now switching to Cash Recycling Machines (CRMs) as they feed clients the added convenience of keeping or drawing funds from a single booth. CRMs also help banks reduce operational expenditures associated with loading machines with cash withdrawals and deposited funds. BB showed there are about 13732 ATMs in Bangladesh as of Aug. 2023. Nevertheless, the number fell smartly by Nov. 2023, so banks began to reduce ATMs in rural sites. Contrarily, CRMs were considered first in the country about seven years ago, but their usage steadily rose, with banks carrying installed 3897 units as of Nov. 2023. Mr. Arup Haider, head of retail banking at City Bank PLC, agreed that electronic answers are becoming popular payment methods. He mentioned that MFSs are now a significant medium of fund transfer, utility bill payment, shopping, etc., further the country's move towards a cashless society. So, Banks are slowly replacing ATMs with CRMs as the latter enables customers to deposit or withdraw money in real time from a single spot. Moreover, Cash Deposit Machines (CDMs) have too little purpose other than taking deposits. Again, the CDMs do not show the customer's account balance until the cash officers of banks register the transaction, he added. Md. Shafquat Hossain, DMD and head of retail banking at Mutual Trust Bank (MTB) PLC, said CRMs benefit banks by reducing operational costs. They can bring down the queue of clients in branches, he added.

In May 2023, Standard Chartered Bank (SCB) Bangladesh began restricting access to ATMs at its branches to encourage cashless transactions. The bank already closed down several of its ATM outlets. In an e-mail response about the closure of ATMs, SCB said that as cash and ATMs lost relevance and BB graphed a path to become cashless by 2027, it followed suit. We began promoting a cashless lifestyle through campaigns in March 2023. Abul Kashem Md Shirin, MD of Dutch Bangla Bank PLC, said the need for liquid money pullback via ATMs/CRMs will continue for a short duration. This is because Bangladeshi people are required to be ready for transactions without cash. DBB PLC currently has 5500 ATMs and 2000 CRMs all over the country. The bank recently placed a work order to purchase another 3000 CRMs to lodge the devices at all branches

#### 7.12.2 Bank wise mobile services in Bangladesh:

Table 3: Bank wise mobile services in Bangladesh:

Bank	MFS	Date of Incorporation	E-Wallet
BRAC Bank PLC	B Kash	July ,2011	P@yNow
Duch Bangla Bank PLC	Rocket	May,2011	NexusPay
Bangladesh Post Office	Nagad	November 11,2018	
Islami Bank Bangladesh PLC	m Cash	December 27,2012	CellFin
Rupali Bank PLC	Sure Cash	August 27,2010	Qpay
Trust Bank PLC	T-Cash	April 1,2018	Walletmix
One Bank PLC	OK	October,2013	OK Wallet
Mercantile Bank PLC	My Cash	February,2012	MBL Rainbow
UCB PLC	U Cash	November,2013	YPAY

Sonali Bank PLC	Sonali eSheba	--	Sonali e-Wallet
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### 7.13 Year wise performance on Green Finance of commercial banks

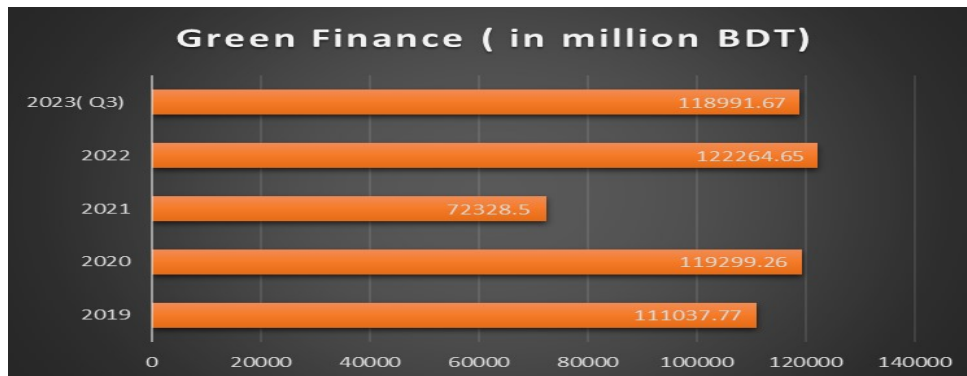


Chart 12: Year-wise performance of GF (in million BDT)

Chart 12 shown in respect of amount year 2022, GF 122264.65 million BDT which is the highest and year 2021 is the lowest.

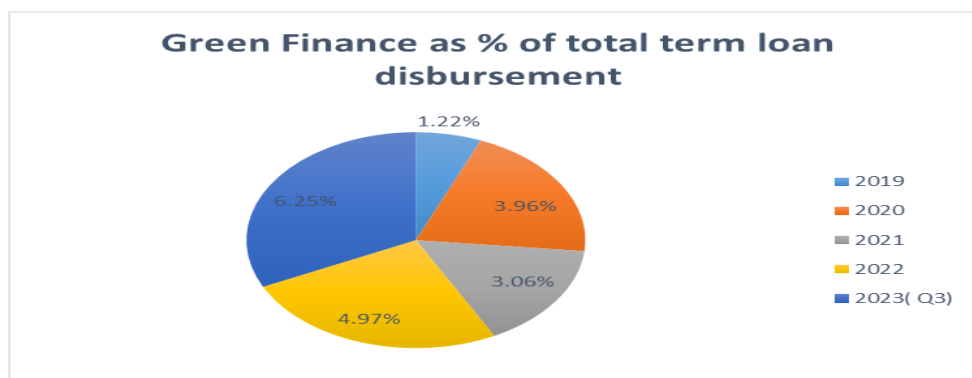


Chart 13: Year-wise performance of green finance (as %)

The chart 13 depicts year 2023 performed 6.25% green finance by banks which is the highest and 2019 is the lowest and below target 5% set by BB.

### 7.14 Achievement of some leading banks in SF and GF in Bangladesh

#### A. SF

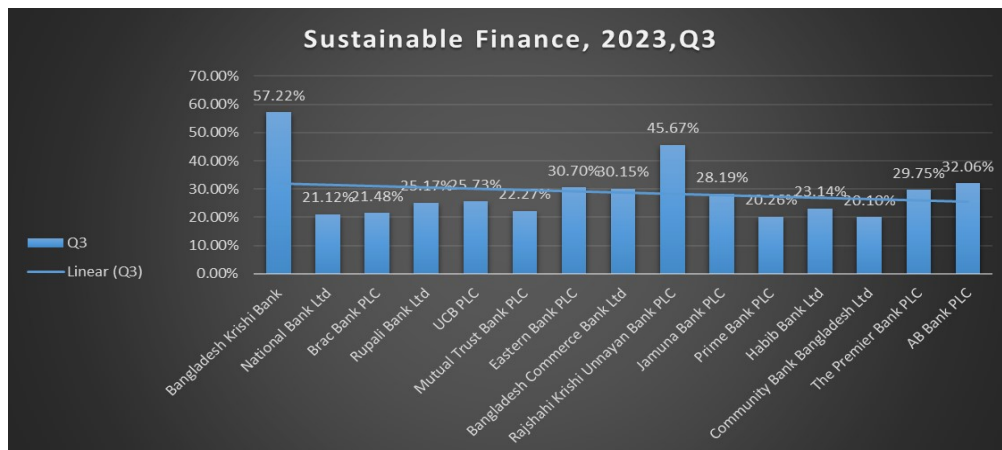


Chart 14: Sustainable Finance as % up to July-September, 2023.  
 NB: Target Attainment is Disbursement in SF  $\geq$  20% of total loan disbursement

### B. Green Finance (GF)

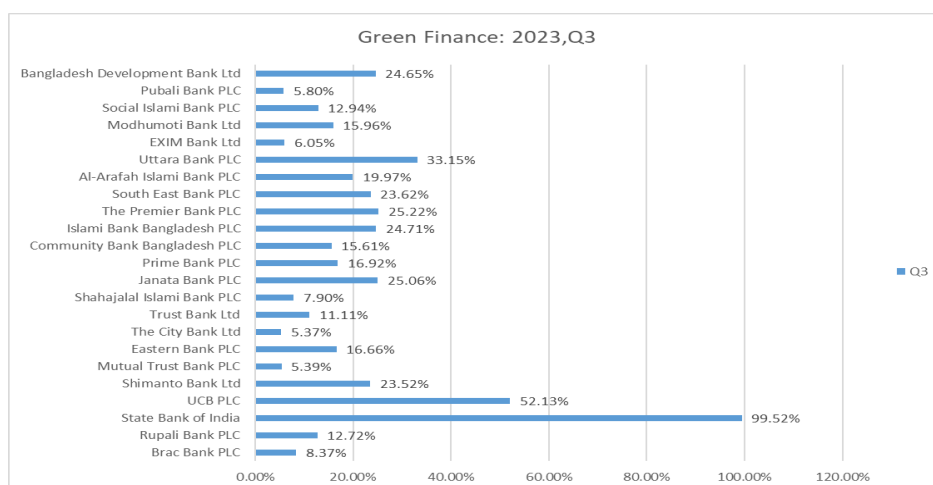


Chart 15: GF as % up to July-September, 2023.  
 NB: Target Attainment is Supply in SF  $\geq$  5% of entire Term Credit distribution

Chart 15 shows State bank of India done well and achieved around cent percent performance in green performance comparatively. The city bank Ltd achieved 5.37% of total term loan disbursement is the lowest among 23 banks.

#### 7.15 Use of Climate Risk Fund:

In Q3, 2023 total use of climate risk fund is 83.44 million BDT including events 21.13 and projects 62.31 shown in the chart 17. This chart also showed last three years information regarding climate risk fund compiled by the author.

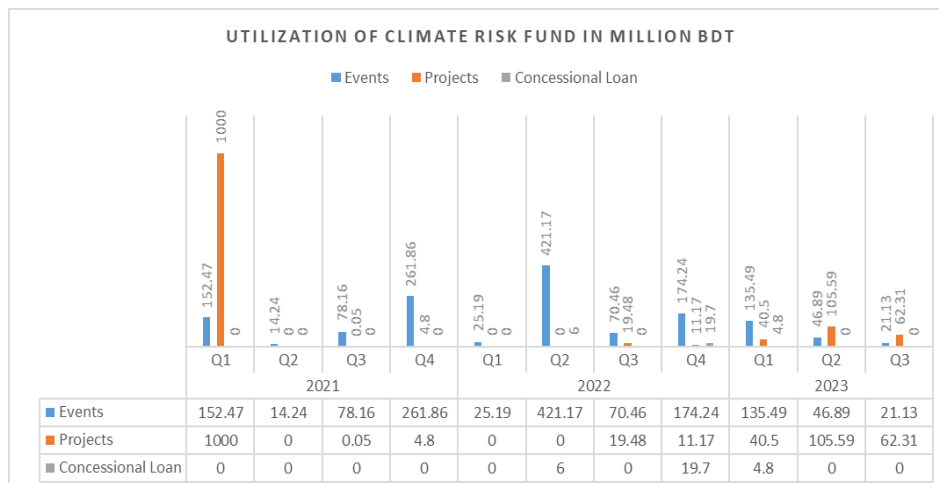


Chart 16: Climate Risk Fund Utilization Up to Q3, 2023 in million BDT  
 Source: Sustainable Finance Department Head office, BB

In Q1, 2021 the highest 1000 million BDT was invested in projects, but no investment was found in Q2, Q3 and Q4. This fund is used to prevent environmental crisis under CSR activities of banks. It is also used as endowment or grants as well as investment at reduced rate of return.

#### 7.16 Compliance Overview of Ecological and Social Risk Rating Mgt. (ESRM)

The core objective of ESRM is to assist banks and FIs how to mix ecological and social risks into total loan mgt and effective risk mgt. and lessening steps by which they can evade investment in tall E & S. Total 49 banks out of 61 have conducted ESRM in the Quarter three (Q3), 2023 which is given below:

Table 4: Overview of Ecological and social risk rating (ESRR):

Bank Types	No. of Scheme Evaluated	No. of Scheme Appraised Funded	Total Disbursed in Million BDT
SOCBs	3664	3184	3242.24
SDBs	0	0	0
PCBs	65491	29822	877030.70
FCBs	881	747	60162.88
Total	70036	33753	940435.82

Source: Annual report, BB 2022

We found in table 4 private commercial banks disbursed the highest 877030.70 million BDT then foreign commercial banks 60162.88 and state-owned banks 3242.24 but specialized banks disbursed nothing.

#### 7.17 Factors leading the Adoption of GB in Bangladesh

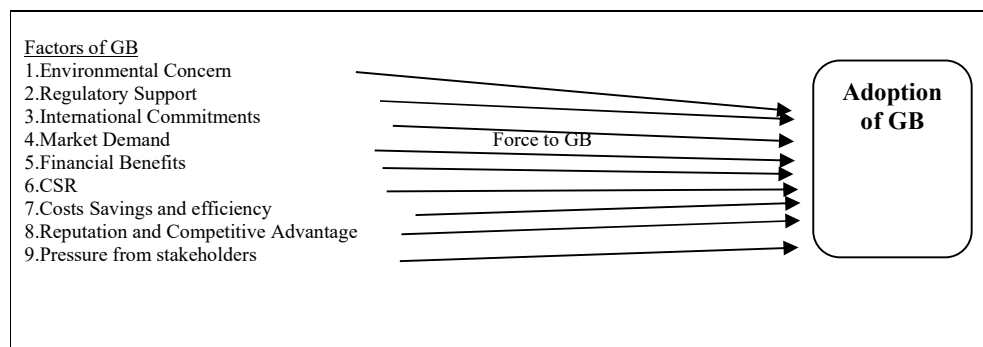


Figure 3: Adoption of GB  
 Source: Authors' own

In Bangladesh context several factors contribute to the adoption of GB which is mentioned in the figure 1 above. If banks incorporate the mentioned factors and forced to green banking than easy to adopt green banking activities in Bangladesh.

#### 7.18 Sustainability Ranking of Bank

Sustainability Rating of Banks in Bangladesh Declared by Bangladesh Bank: (Alphabetical Order)

Table 5: Sustainability Ranking of Bank declared by Bangladesh Bank

In 2020	In 2021	In 2022
Al-Arafah Islami Bank Ltd	Bank Asia Ltd	BRAC Bank Ltd
Bank Asia Ltd	BRAC Bank Ltd	Jamuna Bank Ltd
BRAC Bank Ltd	DBBL Ltd	Prime Bank Ltd
DBBL Ltd	Eastern Bank Ltd	Shahjalal Islamic Bank Ltd
EXIM Bank	EXIM Bank Ltd	The City Bank Ltd
IBBL Ltd	IBBL Ltd	Trust Bank Ltd
Mutual Trust Bank Ltd	NRB Bank Ltd	UCB Ltd
Prime Bank Ltd	Pubali Bank Ltd	
The City Bank Ltd	Southeast Bank Ltd	
UCB Ltd	The City Bank Ltd	

Source: Source: Authors' compilation from <https://www.bb.org.bd> SF Department

BB declared sustainable banks based on four indicators in the Sustainable Ratings of 2020, 2021, and 2022, such as i) SF, ii) GF, iii) CSR activities, and iv) Core banking sustainability. That is (2022) the 3rd time BB announced bank sustainability ratings. In an interview, BRAC bank CEO Selim RF Hossain said, "Since birth, BRAC bank has been devoted to the value-based funding effort where profitability and sustainability are mixed to produce a more significant socio-economic effect. In two years, we realized we had considered and attached all three core values of people, planet, and prosperity to sustainability as our bank's mission statement. Now, BRAC bank follows impact-based funding instead of conventional financing to achieve the SDG 17 goals in Bangladesh. He also noted that as a founding member of the global alliance for Banking on Values, we use 360-degree banking services to provide an endurable monetary, environmental, and social transition. "As one of the founding members of the Global Alliance for Banking on Values, we are utilizing 360-degree banking services to deliver sustainable economic, social, and environmental development. Our corporate social initiatives are also focused heavily on agendas that have an ongoing influence on the environment, society, and its people," Hussain remarked. "On the principles of sustainability, BRAC Bank seeks to employ the guiding regulations of Bangladesh Bank and set sustainable growth priorities in our future strategy. We are honored that Bangladesh Bank has named us one of the Top Ten Sustainable Banks for 2021," he added. Executive director and spokesperson of Bangladesh Bank, Md Serajul Islam, said that the top 10 banks in the sustainability rating list were published to motivate the banks to uphold good governance, integrity, and social responsibility. Asked about the indicators and the views of some central bank divisions in assembling the list, he told Dhaka Tribune: "Sustainability ratings are founded on several indicators, including CSR spending, GF, core banking moves, and default rate. "Hopefully, this rating will boost the formation of virtue and good governance in the actions of banks and FIs. In addition, Islam added that CSR will play a more pioneering role in spending and GF. However, in 2020, a circular was issued by the Sustainable Finance Department of the Central Bank for all scheduled banks in the country, which referred to the sustainability ratings founded on the sustainable finance policy and the SDGs. The names of the top 10 sustainable banks were reported for the first time in 2020. [tps://www.dhakatribune.com/273013](https://www.dhakatribune.com/273013)

### 8. Findings and Recommendations

Acknowledge the GB exercises, climate change, sustainability, etc. Bangladesh Bank has turned its paradigm by forming sustainable financing policies, strategies, etc., for scheduled banks. After viewing Q3, 2023, it can be concluded that 23 banks have reached the target of GF set by Bangladesh Bank (Chart 15: Green Finance as % up to July-September, 2023). Target Attainment is Disbursement in SF  $\geq$  5% of total term loan disbursement compared to total term loan disbursement. State Bank of India achieved 99.52%, got first, and Pubali Bank PLC, 5.80%, got last. On the other hand, 15 banks fulfilled their target of SF compared to total loan disbursement (Chart 14).

In this case, the Target Attainment is Disbursement in SF  $\geq$  20% of total loan disbursement. Bangladesh Krishi Bank holds the highest position, 57.22%, and Community Bank Bangladesh Ltd., 20.10%, got the last position. The SF department expects robust, functional, and significant efforts from banks in GF, SF, and even climate change. The researchers believed that the Bangladesh govt should include "climate resilient green bento effectively and efficiently lower carbon emissions. It is evident from earlier studies and shown in this paper that



policy guidelines in three phases formulated by Bangladesh Bank ended in 2015, and ESRM policies for banks and FIs ended in 2017 bring positive growth to GB performance. BB also fulfills the criteria set by the World Bank's IFC on green banking, including 35 emerging markets divided into three broad proportions. According to the Environmental Performance Index (EPI), Bangladesh ranked 177th out of 180 countries and scored 23.10, just after Pakistan. At the same time, about Ecosystem Vitality (EV), Bangladesh ranked 159 and scored 29.40, which shows a deficient performance. So, GB can improve a polity's ranking regarding EPI and EVs worldwide. Though BB is constantly working, the subsequent steps can be carried out to improve the present position of country rank as: i) Environmental governance with the banks internally and externally, ii) Frequently arranging awareness programs among stakeholders and publishing environmental slogans, articles, and publicity through print, electronic, and social media iii) Execute prize and penalty among scheduled banks and FIs iv) Often organize seminars, conferences, attention march to aware ordinary people v) Building capacity by providing suitable training, workshops on GB among bank employees vi) Show zero tolerance in GF, SF, and reporting. Suggestions regarding climate change: i) Reduce burning fossil fuels (oil, gas, coal etc.) as it is non-renewable energy and they account for three fourth of all GHG emissions. ii) Increase using renewable energy (water, solar, air, biomass, geothermal, wave power etc.) iii) Increase using electric vehicles iv) Reduce methane (CH<sub>4</sub>) emissions which is 80 times more powerful than carbon dioxide (CO<sub>2</sub>) and v) Capture carbon dioxide using natural and artificial process such as more tree plantation program, using ETP in the industry, power plant etc.

### 9. Limitations and Future Direction

The noteworthy limitation of this study is that the survey collected data from secondary sources and used only MS Excel as a statistical tool. As we used panel data in this research, we could use cutting-edge software, such as SPSS, STATA, SEM, etc. The limitation of the study is that we used a single dimension, that is, only commercial banks in Bangladesh, and we bypassed non-bank financial institutions (NBFIs). We also bypassed bank-wise data rather than stockpiled data gathered by BB. Researchers may use two or more dimensions, such as banks, NBFIs, industries, etc. They can also use more cutting-edge statistical means to interpret data.

### 10. Conclusion and Implication

Bangladesh is the 39th biggest and 3rd fastest evolving polity in the world. The trend of GB practices in Bangladesh is upward but still crawling behind the set standard. Yet, all banks have pledged to GB exercises and have their GB unit. BB is trying to boost its image by forming suitable guidelines, procedures, plans, etc. BB's approval of the refinancing plan can also be pivotal in the country's GB initiatives. As the outcome of the above initiatives taken by BB, a positive impact will be seen in the trend of GF and SF by commercial banks in a gradual upward manner (Chart 5 and Chart 6). GB Slogans mentioned in BB are- Save papers, Save Trees; Conserve energy, Conserve natural resources; Reduce, Reuse, and Recycle; Be paperless-Kick the habit; Pay your bills online; Digitalize yourself; Unplug your electronic devices while not in use; Preserve the planet and Reduce Pollution for the Sustainability of the Human Race. Private sector commercial banks contributed the highest 78.12% of the total GF in Bangladesh. (Guang-Wen Zheng et al, 2021) They also disclosed the sizes of GB are related to the i) Economic, ii) Environmental, and iii) Social aspects of the SDGs and the positive impact on the sustainability performance of banks. About 95% of bankers identify GF as a vital component in Bangladesh's short- and long-term growth of banks. Bangladesh, India, China, Indonesia, Vietnam, and Brazil have taken diverse regulatory initiatives to face the climate transformation challenges. BB and all scheduled banks have taken a unique position in the economic system, which can affect production, economic activities, and other business activities through GB initiatives and thus influence the environment and sustainability in Bangladesh. These institutions can implement "go-green policies" for the betterment of banks and clients. In the long run, clean technology will reduce banks' operational costs and induce them to enter new markets. To attain the target set by BB, all FIs should follow the principles of the carbon footprint of their projects and clients to ensure sustainable banking and environment. This study covers green investment under BB's refinancing scheme of almost 61 commercial banks.

If all banks and financial communities participate in GB practices, the economy of Bangladesh will turn into a sustainable, healthy, and green economy, and the planet will be green.

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