

GREEN BANKING FOR ENVIRONMENTAL SUSTAINABILITY- PRESENT STATUS AND FUTURE AGENDA: EXPERIENCE FROM BANGLADESH



Chen Zhixia¹

Md. Miraj

Hossen²⁺

Sayed Sami

Muzafary³

Mareum Begum⁴

¹Professor, College of Public Administration, Huazhong University of Science and Technology, 1037 Luoyu Road, Wuhan 430074, Hubei, P. R. China

Email: zhxchen@hust.edu.cn Tel: 86-0-13317190366

²Research Scholar (PhD Program, Major: Administrative Management), College of Public Administration Huazhong University of Science and Technology, 1037 Luoyu Road, Wuhan 430074, Hubei, P. R. China

Email: miraj.hossen@yahoo.com Tel: +8615549437752

³Research Scholar (PhD Program), Major: Administrative Management, College of Public Administration, Huazhong University of Science and Technology, 1037 Luoyu Road, Wuhan 430074, Hubei, P. R. China

Email: s.muzafary@yahoo.com Tel: +8613006398947

⁴Research Scholar (Master Program), College of Public Administration, Huazhong University of Science and Technology, 1037 Luoyu Road, Wuhan 430074, Hubei, P. R. China

Email: mareumsw@yahoo.com Tel: +8615623271901



(+ Corresponding author)

ABSTRACT

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The concept of green banking is becoming a buzzword in the financial and banking sector and in the common people of the world over the last few decades. This paper tries to highlight the present status of green banking practice, progress, and different green initiatives taken by the Bangladeshi banks to keep the environmental sustainability. Through content analysis of the annual reports of Bangladesh Bank (the Central Bank of Bangladesh), quarterly review report of green banking activities and annual review report of CSR activities, the study discovers that Bangladeshi banks are doing well in practicing sustainable banking with maintaining the specific guidelines of Bangladesh Bank. Though the green banking initiatives were introduced by Bangladesh bank in 2011 but within a short period, it's achievement is mentionable. As the guardian of the banking companies, Bangladesh Bank provides a standardized guideline, and all the banks practice green banking activities according to its instruction along with their own policies. Mostly the banks insert their good news about green activities, investments, and achievements in their annual reports and also report to the Bangladesh Bank. This type of green practices aids the banking institutions to attract the regulator, customers, public and also get the greater legitimacy. As a developing country with lower technological advancement and minimum social and environmental awareness of the general people, Bangladeshi banking companies face many challenges to be green and environment-friendly. Finally, the study concludes with mentioning some suggestions to make the practices of green banking effective through gathering experiences from different research in advanced countries.

Contribution/ Originality: This study is an original one and contributes to the existing literature considering the green banking practices in Bangladesh with relationship of environmental sustainability. The main contribution of the research is to way out the major techniques and suggests to the practitioners how it brings optimum success to this field.

1. INTRODUCTION

We are born and brought up by nature and always getting care by nature. But in response to such blessings of nature we the people are causing different harm to the nature like cutting plants, polluting air and water and testing atomic energy as the symbol of technological advancement and the industrial revolution. Subsequently nature also takes the malicious revenge in the form of numerous calamities like storms, floods, droughts, earthquake, excessive heat and melting ice. Facing the experiences of such tragic natural retribution many people around the world, try to build a mass awareness and motivate us to think earnestly about global warming, its impact and find out the probable solution to make the world livable and adopt eco-friendly policy (Institute of Development and Research in Banking Technology (IDRBT), 2013). As ecological sustainability is the biggest challenge recognized globally, the environmentalists from different corner of the world are agreed to stop human-made devastation to nature and come forward to make a sustainable environmental policy in order to avoid from such antagonistic effects. As a part of e-commerce, green banking can ensure the environmental sustainability by ensuring the online banking and e-banking by following the 3D approach- De-materialization, De-carbonization, and De-mobilization in the daily activities of the bank (Hossen *et al.*, 2014).

The Bank is considered as the backbone of an economy, and it has a direct and indirect impact of preservation and destruction of environmental sustainability. Though banking industry is always considered as environment-friendly but at present the substantial use of energy (lighting, air conditioning, computing), small space, unplanned building, ignoring in-house greenness considerably increased the carbon footprint of banks. Consequently, to minimize carbon footprints and ensure sustainable environment banks are motivated to use eco-friendly technology, green products, new process and strategies (Bhardwaj and Malhotra, 2013). Green banking avoids usage of paper as much as possible and relies on online/electronic transactions for processing so that we can get green credit cards and green mortgages. Less paperwork means less cutting of trees which can preserve the environmental sustainability (Singh and Singh, 2012). As a member of society, corporations like bank must have some responsibilities to reduce the carbon emission and help the government to minimize this by introducing Green Banking for sustainable development. He also added that the green lending policies and commitment of banks can in favor of the fortification of environment and ensure eco-friendly projects (Mani, 2011). Zamil and Hossen (2012) Bangladesh is lag behind reaping the desired outcomes related to ICT and telecommunication as there is a slow growing internet and telecom sector in the country and most of the part of the country is still uncovered by internet service which plays a great role in the online banking, e-commerce, and environmental sustainability.

Surely, banking is the key sector that can play an intermediary role between economic development and environmental protection. Considering internal operations, it can be said that banks do not affect the environment severely through emission and pollution, but their external impact on the environment through their customers' activities is substantial. As the major users of technology, banks itself can espouse green practices and thereby lead the way to face the global environmental challenge. Banks can play a significant role in this changing-game as they are the sources of finance for many projects such as Brickfield, Steel Mills, Paper mills, Cement factories, Chemicals Fertilizer industries, Power sector, Textiles industries, etc. which cause maximum carbon emission and pollute the environment thereby. As the providers of finance, banks can be strict and impose restriction to the business initiators to adopt environment-friendly projects and socially responsible investment to ensure the sustainable environmental condition. Moreover, banks can provide loan at a lower rate and other incentives to industries for adopting green technologies which will have a lasting positive effect on the global environment.

1.1. Research Objectives

The study mainly aims at understanding the concepts of green banking through different literature review. Beside this, it focuses the following objectives-

- To make awareness among the common people about the e-banking, paperless banking, mobile banking, and online banking, etc. through green banking concept;
- To ascertain diverse levels of green banking ingenuities, its strategies, and practices in Bangladesh and even across the world;
- To know and highlights the achievements of green banking practices of Bangladesh and how it acts a mediator to keep environmental sustainability;
- To identify the foremost challenges to implement the green banking activities and draw some future agenda to overcome these challenges.

1.2. Motivation of the Study

As climate change is one of the burning issues in the world for last few decades, many countries around the world have made numerous endeavors to mitigate the risk of climate changes and make the world livable. As the conscious member of the society, banks are aware of the environmental changes and try to play a major role to support and supplement the government effort towards substantial reduction in carbon emission all over the world through introducing the green banking or sustainable banking practices. Though there is a lot of research already have done in developed or even developing countries but in Bangladesh, it is still long way to go to achieve the topmost success regarding green banking and environmental sustainability issues as mass people of the country are not much aware of it. This is the prime reason to work on this present-day driven topic, and the researchers think that it will be a great initiative to provide important messages to the mass people and the practitioners. Besides this, the study has mammoth rationalization from academic and real-world perspectives. To do this study, the researchers try to understand the perception of bankers, customers, and mass people regarding this issue.

1.3. Data and Methodology

The present study is narrative in nature and mostly based on secondary data with an extensive literature survey along with scanning the annual and quarterly report of Bangladesh Bank (the Central bank of Bangladesh) on green banking, corporate social responsibility (CSR) during 2012-2017 fiscal years. Besides these data also collected through the annual reports, newsletters, and websites of different commercial banks operating in Bangladesh.

To get the concrete data and have clear idea about the concept and practice, the researchers have conducted an informal interview to some bankers and practitioners and also selected some banks as sample to show the real picture of their green banking practices. Then the accumulated data were organized and analyzed considering the research objectives. Lastly, the findings of the study are presented in some tables and figure.

2. LITERATURE REVIEW

2.1. Conceptual Analysis: Green Banking

Green banking is a form of banking activity where the banks take initiative to do its daily activities as a conscious being in the society by considering in-house and external environmental sustainability. The banks who do such type of banking activities is termed as socially responsible and a sustainable bank or green bank or ethical bank. Such type of banking is not only limited its in-house green activities rather it helps to make the environment green and viable through facilitating green financing. It is one of the smartest, modern and proactive way of thinking about the sustainability of upcoming days. As per the definition of [Indian Banks Association \(2014\)](#) 'green banking is the normal banking activities which also considers all the social and ecological factors with an aim to

ensure the environmental sustainability and proper utilization of natural resources. Green banking is the normal process of banking and all the activities are controlled by the same authorities with giving extra care of world environmental sustainability (Singh and Singh, 2012; Jha and Bhome, 2013; Karunakaran, 2014; Nath *et al.*, 2014). One of the major factors of practicing green banking in Bangladesh is to ensure economic sustainability which is imposed by the central bank of Bangladesh (Ahmad *et al.*, 2013). Banks can be greener by initiating new way of its daily activities like – green investment management, online and paperless deposit management, in-house greening, e- recruitment and e-training and development, doing social responsibility, and creating awareness among employees, customers and mass people as a whole (Rahman *et al.*, 2013).

This type of bank carries their daily banking activities with an additional responsibility of taking care of earth and nature. They are always conscious about improving the technological uses, operational activates, project financing, and altering their clients' behaviors in the banks and also in the society. Introduction of modern technology, e-banking, online banking, paperless data storage, e-HRM, video conferencing, paperless training, conservative uses of air-conditioning, daylight uses all are treated as green baking activities of a bank. Different studies show that there is an affirmative relation between environmental performance and financial performance of banking sector. This type of banking activities is not only a CSR activity of an organization but also it is about making the society livable without any significant damage.

Ullah (2010) mentioned some important features of green banking operations which are as follows:

- Banks can help environment through automation and online banking;
- It constantly aware to creates a congenial atmosphere inside and outside the bank;
- In financing, it always gives priority to investments considering environmental issues;
- It always cares for sustainable and green growth in industrialization and greater society;
- It changes mentality and persistence of the officials and customers, in line with green sensibilities; and
- It helps greater society and mass people to live as a responsible member with dignity.

According to Bangladesh Bank (the central bank of Bangladesh, 2012), implementing green banking policy will generate the following benefits for the banks:

- efficient and effective use of banks resources and network financing;
- reduce carbon footprint in all branches and Head Offices of all banks;
- increase goodwill or improve brand image as they are protecting environment;
- easily take decide to reduce giving loans to certain environmentally harmful projects;
- introduce new technology in banking operations to ensure prompt customers services and increase employees' productivity; and
- create awareness amongst the stakeholders which helps them to implement environmentally business practices.

2.2. Analysis of Existing Literatures

Though the concept of Green Banking was developed in the western countries and it is popularly used and practiced most of the countries of world in present days due to stopping the environmental degradation and making this world livable. A lot of research has already been done on the topic 'Green Banking' all over the world last few decades. In general term 'Green Banking' is a multifaceted activity of banks concerning about environmental issues in their daily activities and investment as well.

Weber and Remer (2011) Green Banking is a value-driven banking system that can appeal the interest of clients looking for safe and sensible ways to deposit their money, attract conventional banking towards social banking. This bank has a positive social and ecological impact at its heart as well as its economic sustainability. Green banking or sustainable banking can help the business and society by saving time, energy and cost. It reduces paperwork, creates awareness to business people regarding the environment of the greater society (Bahl, 2012).

socially responsible banking activities start with the aim of protecting the environment; before granting any loan for any project at first, this banks consider the environmental aspects of the project, at present or even in future environmental safety (Bihari, 2011). As environment has direct effect to the business's – assets quality, profit, rate of return, human capital and some other aspects, so the banks should play proactive role to go green by considering ecological and environmental issues in their lending principles (Sahoo and Nayak, 2007). According to Biswas (2011) green banking rationalizes the uses of paper and minimizes the cost by practicing online banking, internet banking, mobile banking, SMS banking and ATM services.

Dharwal and Agarwal (2013) argued that green banking or ethical banking is a key to mitigate different types of risks like- the credit risk, legal risk, and reputation risk. The authors also had suggested some green practices- carbon credit business, green financial products, green mortgages, carbon footprint reduction, energy consciousness, green buildings and social responsibility services towards the society. Goyal and Joshi (2011) highlighted some social and ethical issues in banking like- disbursement of loan only to those organizations which have environmental concerns and finally, it can facilitate the achievement of sustainable development of banking and financial sector. Every bank should take the initiative to develop the new green product with greater involvement of stakeholders and contribute to green banking practices and environmental sustainability in today's banking competition (Choudhury *et al.*, 2013). Whereas, Ginovsky (2009) had emphasized on launching new banking products which promote the sustainable activities and ensure environmental friendly business.

Meena (2013) identified four benefits of green banking- reducing deforestation, creating environmental awareness among employees and customers, providing loans at a lower rate, changing business activities in a manner that is environmentally friendly. In few cases, social banking can help to lower risk, ensure greater environmental stewardship and increase in operating profit (Jeucken, 2001). Bahl (2012) found that Carbon footprint reduction by Green building, green banking financial products had been given top priorities in green banking strategies whereas, paperless banking and using mass transportation system has been rated low as green banking strategies. Rahman (2012) Bangladesh Bank is carry forwarding with technology-driven, innovative, environment and low-cost banking approach to ensure access to financial services for all by 2021; the year of Golden Jubilee of the independence of Bangladesh.

Chaurasia (2014) found that there have not been many initiatives in green banking in India and investigators suggested that bank should practice greener and consider ecological aspects as part of their lending principle, which would force industries to go for mandated investment for environmental management for the greater society. Green Banking Policy of BASIC Bank Ltd Bangladesh (2011) was come forwarded to increasing consciousness to their employees, customers and other stakeholders over the climate change, environmental degradation, need for urgent measures for environmental sustainability. According to Krebsbach (2005) the banks, which adopted green banking by considering environmentally responsible policies and practices, these banks were enjoying a competitive advantage over others as society is aware of the environmental issues. Ginovsky (2009) had argued that banks should launch environment friendly green products and renovate their office structures and daily operations to implement ecologically friendly practices and promotes the sustainable development.

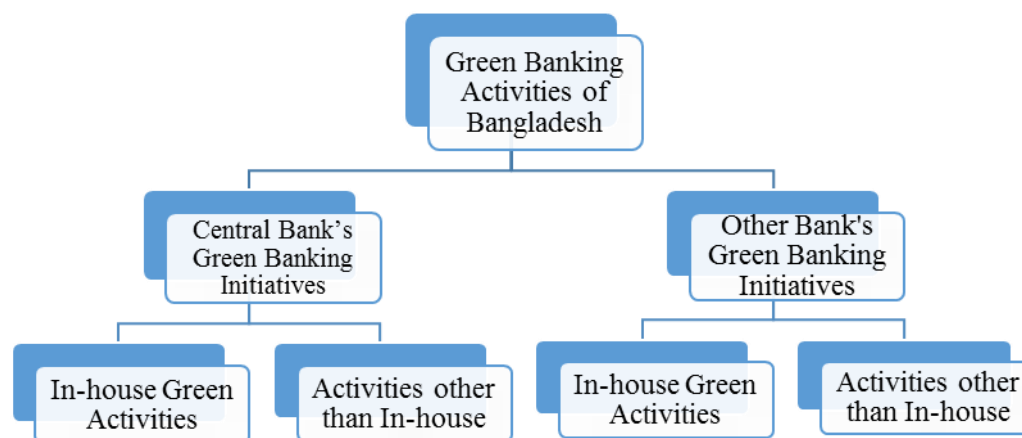
According to Malu *et al.* (2014) by introducing sustainable banking or ethical banking, the banking industry can play a substantial role in minimizing the carbon footprint in the society and helps to preserve the environmental sustainability. Goyal and Joshi (2011) Green banking provides important lessons for the banking and financial sector to avoid further social and environmental crises in the future by considering social, cultural, ecological, and economic sustainability. They also added that green banking is becoming cultural power as social banking includes the concepts of humane and humanist in financial activities. Jeucken (2001) has mentioned four phases to adopt for sustainability for bank like- defensive banking, preventive banking, Offensive banking and Sustainable Banking. Sudhalakshmi and Chinnadorai (2014) argued that the importance of green banking is multifaceted and in developing countries like- Indian banks are running behind time in adoption of green phenomenon and its benefits,

serious steps are required to be taken immediately in this regard. Despite the factors like- customer demand and environmental awareness, cost saving, lowering risk and increase profit and also some other factors influence banks to practice green banking (Heim and Zenklusen, 2005).

Markets are concern about organizational activities, and it rewards as well as punishes the industries or the companies by considering their efficient use of materials and consciousness of environmental sustainability. Besides this, the investors in the stock market and clients of these companies are also aware of environmental issues and would take a stand against those industries that do not concern about greater societal environment (Gupta, 2003; Goldar, 2007). Hart and Ahuja (1996) found that there is a positive correlation between environmental performance and financial performance. Though the banks were measuring only the financial performances previously but nowadays they have started to measure social and environmental performance as well. It is tough to make a remarkable change in the green banking or implementation of any new things all over the world. As Bangladesh has some problems related to good governance, corporate governance, political influence, corruption, improper ICT support and these things acts as the hinders the effective application of green banking and any other dynamic initiatives (Hossen and Anwar, 2011).

3. GREEN BANKING ACTIVITIES AND ENVIRONMENTAL SUSTAINABILITY IN BANGLADESH

The overall green banking practices by Bangladeshi Banks can be summarized in the following flow chart-



3.1. Bangladesh Bank's Green Banking Initiatives

Economic growth and ecological issues are very closely interconnected, and it is a challenging issue to keep balance between these two. The Central bank of Bangladesh (Bangladesh Bank) are trying to keep the balance at its level best through guidelines on environmental risk management and green banking. As the guardian of financial sector, the Central bank of Bangladesh already proved resounding success to implement the concept of green banking in its regular activities. Besides, it also created congenial atmosphere for the banking sector to ensure profound impact of green banking on socioeconomic landscape of Bangladesh.

3.1.1. Policy Support and Guidelines

Bangladesh Bank (BB) is the first central bank in the world that has clear vision to promote green banking to safeguard the environment from unusual weather patterns, rising greenhouse gas, declining air quality. To protect environmental issues, BB has precisely issued different guidelines for Green Banking activities. The Central bank has mediated and advised banks to assist their clients with utmost care in opening Letters of Credit (L/C) for installation of Effluent Treatment Plant (ETP) in industrial units, and financing in solar energy, bio-gas and ETP,

comply with the guidelines on Corporate Social Responsibility (CSR) etc. Here banks have been asked to concentrate on linking CSR at their highest corporate level with environmentally and socially responsible practices by considering the environmental and social impacts of their activities. Beside these the Central bank also has provided a detailed guideline on Environmental Risk Management (ERM) in January 2011, an indicative policy guideline on Green Banking to all commercial banks in February 2011 and a common format for all the commercial banks to report Green Banking activities in a structured manner, on the basis of which this report has come out.

The policy guideline for green banking has been devised on the basis of a green economy, which, in turn, is based on renewable energy, green buildings, green products and materials, and LEED construction, clean transportation (public transit, electric vehicles, car sharing and carpooling programs), water management (rainwater systems, water purification), waste management (recycling, sustainable packaging), land management (organic agriculture, urban forestry and parks, and soil stabilization) etc. BB is providing to the lending banks refinance at five percent interest per annum, from a taka 2.00 (two) billion refinance window accessible against financing for revolving eco-friendly or 'green' initiatives like installation of bio-gas, solar and other renewable energy generation units, effluent treatment plants, adoption of new energy efficient output processes and so forth. Bangladesh Bank is supporting financing of renewable energy generation and other environmentally benign projects.

3.1.2. BB's In-House Green Activities

- BB is concentrating on its in-house green activities through the most effective utilization of resources (power, gas, fuel, water, paper etc.).
- To encourage other commercial banks to use green banking activities, Bangladesh Bank firstly installed 8 kilowatts solar power system on its rooftop in March 2010.
- Using LED bulbs to ensure substantial energy efficiency.
- As part of Central bank automation, Bangladesh Automated Clearing House (BACH), Credit Information Bureau online, Enterprise Resources Planning (ERP), Enterprise Data Warehouse (EDW), e-tendering, and e-recruitment, e-passes, online salary and other necessary information etc. are major areas those covered under in-house green initiatives and activities.
- The overall banking functions of Bangladesh Bank have been brought under automation by implementing the Banking Application Package that includes Core Banking Module, Treasury Management Module, and Market Infrastructure Module.
- All the departments of Bangladesh Bank Head Office and its nine branch offices have already been brought under a computer network (LAN/WAN).
- Environmentally harmful incineration of non-re-issuable spoiled bank notes is being phased out, resorting instead to shredding.
- Online salary and other necessary advice, personal file updated information, office orders, notification online balance statements for all employees of BB, electronic passes for visitors are instantly available.
- An initiative has been taken to convert the head office (30-storied building) of Bangladesh Bank into environment friendly with the modern amenities of harvesting rain water, recycling waste water and energy saving and motion sensor bulbs supported by window based solar panels.

Source: Annual report of Bangladesh bank on Green Banking, 2012

3.2. Commercial Banks Green Banking Initiatives

All scheduled banks have formulated their own green banking policy Guidelines approved by their Board of Directors/Competent authority and formed Green Banking Unit (GBU) for Green Banking activities on the basis of BB's guidelines. All banks have Green Office Guide for their in-house green activities. All banks are supposed to report their green banking activities quarterly basis in an assign format as provided by Bangladesh Bank. Policy formulation & implementation, budget allocation & utilization, environmental risk rating, green financing, utilization of climate risk fund in the most effective manner i.e. CSR activities for green event and green projects, fund utilization for green marketing and capacity building, online banking, in-house environment management, their recent concentration on sector specific environmental policy, green strategic planning, environmental risk

management plan, designing & introducing innovative green product, disclosure and reporting; all these activities and initiatives have been considered in evaluating bank's green banking performance.

3.2.1. Budget Allocation and Utilization for Go Green

As per the guidelines of Central bank, all banks are required to allocate a significant amount for green banking activities in their annual budgets, and the allocation should be categories into-

- Fund for green finance/investment;
- Fund for Climate Risk Management; and
- Fund for Green Training & development, Marketing, & Capacity Building.

3.2.1.1. Green Finance/ Investment

Green finance combines both direct and indirect green finance. Sources of Bank's direct green finance may be bank's own fund or Bangladesh Bank's fund for renewable energy and environment friendly projects like Installation of ETP, Bio-gas Plant, Solar Panel/ Renewable Energy Plant, Bio-Fertilizer Plant, Hybrid Hoffman Kiln (HHK), Green Finance at Reduce rate of Interest, and others. Indirect green finance means financing the projects having Effluent Treatment Plant (ETP) or alike system. The investment to green finance for last six years-

Table-1. Direct and Indirect Investment to Green Finance during 2012- 2017

Year	2017	2016	2015	2014	2013	2012	Total
Direct GF (TK. in million)	34033.1	27410	26525	34900	29682.02	11821.48	164371.6
Indirect GF (TK. in million)	500675.8	458669.3	415548.9	347400	318397.86	259100.05	2299791.9
Total Investment (TK. in million)	534708.9	486079.3	442073.9	382300	348079.88	270921.53	2464163.5

Source: Annual Report of Central Bank (Bangladesh Bank) during the years (2012- 2017).

3.2.1.2. Climate Risk Fund

Bank's Climate Risk Fund covers their part of CSR activities as green event or green projects related to Climate Change Risk. Banks have allocated taka 2145.35 million and utilized taka 258.89 million in the very first time in 2012 from their Climate Risk Fund. Banks CRF allocation and utilization for last six years-

Table-2. Budget Allocation and Budget Utilization for CRF during 2012- 2017

Year	2017	2016	2015	2014	2013	2012	Total
Budget Allocation (TK. in million)	2732.06	3,843.21	5282.1	4,473.15	2586.67	2145.35	18,917.19
Budget Utilization (TK. in million)	876.1	455.7	564.3	440.4	315.42	258.89	2910.81

Source: Annual and Quarterly Report of Central Bank during the years (2012- 2017).

3.2.1.3. Marketing, Training and Development

Private Commercial Banks (PCBs) have given more concentration on Green Marketing, Training and Development compared to State-owned Commercial Banks (SCBs), Foreign Commercial banks (FCBs) and Specialized Development Bank (SDBs). In this case, PCBs alone have share about 90%. The real scenario of marketing, training and development investment for last six years are

Table-3. Budget Allocation and Budget Utilization for MTD during 2012- 2017

Year	2017	2016	2015	2014	2013	2012	Total
Budget Allocation (TK. in million)	3459.4	46413.31	7,347.87	2118.56	2105.32	---	61444.46
Budget Utilization (TK. in million)	48.2	53.5	168.7	147.7	167.03	90.42	675.55

Source: Annual and Quarterly Report of Central Bank during the years (2012- 2017).

3.2.3. Online, Internet and SMS Banking

Online banking services is growing day by day along-with the coverage of branches with online and accounts facilitated with internet and SMS banking. Predominantly private and foreign commercial banks are automated fully to ensure these services all of their branches. About 100% branches of PCBs have been brought under online banking coverage. The coverage is increasing day by day and the overall scenario are as follows-

Table-4. Online Banking during 2012- 2017

Year	2017		2016		2015		2014		2013		2012	
Type of Bank	Total Branches In %	Online Branches In %	Total Branches	Online Branches In %	Total Branches	Online Branches In %	Total Branches	Online Branches In %	Total Branches	Online Branches In %	Total Branches	No of Online Branches
SOCBs	3729	71.25%	3,715	70.63%	3,683	56.45%	3,540	24.24%	3,505	16.72%	3482	177
SDBs	1787	3.9%	1,410	9.01%	1,406	5.41%	1,499	8.87%	1,479	6.09%	1457	77
PCBs	4616	99.98%	4,343	99.95%	3,838	99.97%	3,634	99.94%	3,430	94.64%	3378	3116
FCBs	68	100%	75	100%	75	100.00%	75	100%	66	100%	75	75
New Banks	---	---	---	---	202	98.02%	---	---	---	---	---	---
Total	10200	72.65%	9,543	75.10%	9,204	68.07%	8,748	53.70%	3,988	47.03%	8392	3445

Source: Annual and Quarterly Report of Central Bank during the years (2012- 2017).

Private Banks have started to concentrate on SMS banking and internet banking. The State-owned Commercial Banks (SCBs) and Specialized Development Banks need to go a long way in Online, Internet & SMS Banking. The overall scenario regarding this matter can be seen in the following table:

Table-5. Internet and SMS Baking During 2012- 2017

Year	2017		2016		2015		2014		2013		2012	
Type of Bank	% of A/C Coverage in IB	% of A/C Coverage in SMSB	% of A/C Coverage in IB	% of A/C Coverage in SMSB	% of A/C Coverage in IB	% of A/C Coverage in SMSB	% of A/C Coverage in IB	% of A/C Coverage in SMSB	% of A/C Coverage in IB	% of A/C Coverage in SMSB	% of A/C Coverage in IB	% of A/C Coverage in SMSB
SCBs	0.00%	0.47%	0.00%	0.47%	0.00%	0.01%	0.00%	0.01%	0.00%	0.01%	0.00%	0.01%
SDBs	0.00%	0.15%	0.00%	0.11%	0.00%	0.08%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%
PCBs	4.37%	35.80%	3.93%	34.25%	3.91%	29.33%	3.22%	15.32%	2.79%	326.27%	2.62%	7.73%
FCBs	44.50%	59.02%	38.35%	50.80%	29.55%	33.62%	37.20%	46.30%	34.16%	39.83%	35.71%	39.64%
New Banks	---	---	---	---	1.25%	30.95%	---	---	---	---	0.00%	0.00%
Total	2.12%	16.16%	1.94%	15.82%	1.79%	12.50%	1.57%	6.71%	1.32%	1.22	1.22	3.20

Source: Annual and Quarterly Report of Central Bank during the years (2012- 2017).

3.2.4. Mobile Banking

With fast expanding mobile telephony and great enthusiasm of the banks in offering financial services through mobile phones, BB issued guidelines on mobile financial services in 2011. Initially 25 banks have been given license thus to provide mobile financial services (MFS) of which 16 banks have started their operations in the very beginning. These banks are presently providing MFS to around 3.6 million customers; average transaction volume is around taka 330 million per day. The growth rate of customer base in mobile banking is currently 20% per month.

3.2.5. ATM Services by Banks

Most of the banks whether it is private or public have been offering 24-hour/ 7-days banking services through their countrywide ATM booths. Now 4738 (June 2017) ATM booths are operating in Bangladesh and the number of ATM services increasing day by day. At present we can't find any bank which has no ATM or online services at all, no matter whether the coverage is little or large scales.

3.2.6. Branches/ SME/ ATM Units Powered by Solar Energy

To remove gas emission most of the private or state-owned banks started to use solar energy in their branch operation, SME/ ATM units and following table shows the present status of its progress over the last 6 years:

Table-6. Branches and ATM units powered by Solar-energy During 2012- 2017

Year	2017		2016		2015		2014		2013		2012	
Bank/ Branches	Branches Powered by SE	ATM units/ SME PBSE	Branches Powered by SE	ATM units/ SME PBSE	Branches Powered by SE	ATM units/ SME PBSE	Branches Powered by SE	ATM units/ SME PBSE	Branches Powered by SE	ATM units/ SME PBSE	Branches Powered by SE	ATM units/ SME PBSE
SCBs/ 3729	35	2	38	0	41	0	30	0	16	0	21	8
SDBs/ 1787	0	0	0	0	23	0	29	0	23	0	2	3
PCBs/ 4616	463	254	451	245	313	243	289	185	206	180	169	150
FCBs/ 68	2	3	4	6	4	6	4	6	3	4	22	0
New Banks	---	---	---	---	35	0	---	---	---	---	---	---
Total/ 10200	500	259	493	251	416	249	352	191	248	184	214	161

Source: Annual and Quarterly Report of Central Bank during the years (2012- 2017).

3.2.7. Commercial Banks in-House Green Activities

- Major sources of natural energy such as -trees, water, wind, sun-shine have been ensured in each floor through green building architecture and interior designing.
- Using sensor lighting equipment for saving electricity and environment.
- Initiate the shared use of table stationeries instead of individual use.
- Use both side of paper for internal consumption to reduce dusts and waste.
- Introduction of e-statement, e-application for customers instead of paper works.
- Introduce online communication in the best possible manner to all the concerned.
- Using more daylight to reduce electricity consumptions and ensure proper air circulation instead of using air conditioning.
- Using energy saving bulbs, environment friendly cartage and tonner for printing.
- Use of Eco Font for printing light impression on both sides of the paper.
- Setting defaults like "Thinking twice before printing", "Printing only it really needs", "Please check your environmental responsibility" etc. in e-mail correspondences.
- Video/ Audio conference in lieu of physical travel to save environment, cost and energy.
- Conservation of Bank's vehicles (pool) into CNG and use of energy efficient electronic equipment
- Efficient use of printer cartridges, photocopy toner, office stationary, etc.
- Sharing electronic files, voice mail and e-mail instead of paper memos
- More concentration on developing a Green Office Guide for reducing the information gap/reducing hazards/increasing efficiency/awareness/reducing pollution/developing Green Banking for sustainable finance.

3.2.8. Other Green Banking Activities of Commercial Banks

Banks are now concentrating on –

- Improving their in-house Green activities in accordance with their Green Office Guide.
- Supporting Employee Training, Consumer Awareness and Green Event
- Disclosure and Reporting of Green Banking Activities to Bangladesh Bank, Annual Report, Bank Web Site and Media.
- Motivating employees, customers, and mass people through green banking slogans like-

<ul style="list-style-type: none"> ▪ Save paper, save trees ▪ Conserve energy, conserve natural resources ▪ Pay your bills online ▪ Turn off the tap when not needed ▪ Always use a cloth bag ▪ Reduce, reuse and recycle ▪ Digitize yourself ▪ Think before you press the button ▪ Everything has two sides ▪ Be paperless- kick the habit ▪ Use car pools to go to work ▪ Unplug electronic devices while not in us

Source: Annual report of Bangladesh bank on Green Banking, 2012

4. ENVIRONMENTAL CONCERNS ACTIVITIES OF SOME SELECTED BANKS

Green banking practice and other environment-friendly initiatives of banking sector of Bangladesh has a significant impact to make the bankers, customers, and general people aware about the preservation of environment sustainability. The following table shows the environmental concern initiatives of some selected banks of Bangladesh-

Banks Name	Green Initiatives for Environmental Sustainability
Mutual Trust Bank Limited	<ul style="list-style-type: none"> ✓ MTB Centre is an environmentally conscious/green building. In this building, rest rooms and certain offices are motion-sensitive, Auto sensor/ intelligent lighting are available here. ✓ Each working floor utilizes the major energy source such as trees, water, wind, sunlight etc. ✓ Introduction of Earth Hour. ✓ Solar Panel on rooftop and Solar system powered branches. ✓ 'MTB Green Energy' is to finance renewable energy projects (solar, bio-gas, etc.) ✓ 'MTB Krishi (Agriculture)', a loan product to finance the core sectors of agriculture, i.e., crops, fisheries, livestock, poultry and agri-equipment. ✓ Solar power plants and Solar irrigation projects. ✓ Commercial bio-gas plants with power generation.
Eastern Bank Limited	<ul style="list-style-type: none"> ✓ Plantation of 5000 saplings by EBL in case of opening new branches. ✓ Observe world environment day every year.
Bank Asia Limited	<ul style="list-style-type: none"> ✓ Observing world environment day by using day light and without air condition in the head office and also branches for that day. ✓ Decided not to finance any Tobacco related business, and all offices of the bank have been declared as "smoking free zone". ✓ Utilizing day light at their Corporate Office. ✓ Use of alternative delivery channel, Video conference. ✓ Properly waste management.
Trust bank Limited	<ul style="list-style-type: none"> ✓ Introduction of Earth Hour. ✓ Installation of Bio-gas plant to generate rural energy for cooking and lighting, the plant owners are getting other important by products from their investments from February, 2010. The project is identified as 4-Cow model integrated Cattle Farming. Operation of the plant is going smooth & expansion program undertaken. The repayment of loan is regular.
Islami Bank	<ul style="list-style-type: none"> ✓ Preference to environmental infrastructure projects like renewable energy, clean water

Bangladesh Limited (IBBL)	<ul style="list-style-type: none"> supply project, bio-gas and bio-fertilizer, etc. ✓ Financed Rice Mills, for facilitating them with electricity generation from rice husk. ✓ Installation of Solar Panel on rooftop. ✓ Ensuring maximum recycling waste/detrimental by-products. ✓ Environment friendly projects Brick Field (Zig-Zag). ✓ CNG Refueling projects, Energy Savings Bulb Projects. ✓ Tree Plantation, Organic Fertilizer. ✓ Jute Project instead of Polythene.
Al-Arafah Islami Bank Limited	<ul style="list-style-type: none"> ✓ In order to improve the solar energy system and to support power sector of the country, the bank has established a system named "Al-Arafah Renewable Energy Scheme". ✓ Opened many branch with the solar energy facility.
Basic Bank Limited	<ul style="list-style-type: none"> ✓ Financed on environment friendly project. ✓ Social Cost Benefit Analysis (SCBA) is focused while scrutinizing any project.
Bank Al-Falah Limited	<ul style="list-style-type: none"> ✓ Bank Al-Falah Limited installed first ever environment friendly solar powered ATM booth in 2011 to ensures pollution free environment and reduce emanation greenhouse gases. ✓ Bank Al-Falah is committed to conserve the Bengal tigers by protecting the people and the environment of the world's largest mangrove forest The Sundarbans. ✓ To resolve the longstanding scarcity of safe drinking water initiated to re-excavation of ponds in some specific village to e ensure sweet water to the village people. ✓ Arranged a motivational session towards Palm Plantation for farmers and also provided Palm Trees, free of cost for plantation.
BRAC Bank	<ul style="list-style-type: none"> ✓ BRAC Bank's CSR Policy is Green Banking. ✓ BRAC Bank is working towards reducing waste and the more efficient use of resources. ✓ Supported to organize Haor Utshob (Marshy land festival) to build awareness about the eco-system and importance of its existence among the people. ✓ Being 3P (support the people, protect the planet, ensure profitability) follower, it gives away free plant among customers and guests to motivate people for expanding the greeneries in the country. ✓ Prefers usage of re-cycled paper to make the planet greener. ✓ Uses Solar Energy in their offices and also financed to installing solar energy powered lamps in different institutions.
Citibank N.A.	<ul style="list-style-type: none"> ✓ Arranged many workshops and discussions focused on environmental awareness and how business units innovate green solutions. ✓ Use solar energy in offices and ATM units. ✓ Launched "Citi Solar Project for Rural Microenterprises", a project for those who do not have access to the national electricity grid.
Butch-Bangla Bank Limited	<ul style="list-style-type: none"> ✓ Developed Environmental Management System in the year 2012. ✓ Designated environment officials and green unit in the office. ✓ Developed eco-efficient investment scheme namely 'FMO credit line for setting up ETP' to finance projects aimed at environmental improvement or sustainable environment.
HSBC Bank	<ul style="list-style-type: none"> ✓ HSBC has set up rainwater harvesting devices in two major school and college in the capital (Dhaka city) of Bangladesh. ✓ The HSBC Climate partnership is a global five-year, USD 100 million programs in partnership with WWF. ✓ Training program for selective employees and then transfer their knowledge to a local context through the implementation of projects. ✓ In 2010, HSBC volunteers planted over 300 varieties of saplings over a 1 km stretch in western part of the country. ✓ Financed in a project to build 'eco-friendly ovens' and built a training center for women on stitching in a specific village.
Jamuna Bank Limited	<ul style="list-style-type: none"> ✓ JBL uses all biodegradable materials for functioning of the bank. ✓ They use paper folders instead of use plastic folder in their activities. ✓ JBL declares their office free of smoke.
Rupali Bank Limited	<ul style="list-style-type: none"> ✓ The bank is using a slogan "Plant tree, save the environment" in all its pads and envelops in building awareness among the people regarding the environment.
Standard Chartered Bank	<ul style="list-style-type: none"> ✓ The bank has actively engaged itself as "Forced for Good" to improve the social and environmental standards of the clients with the banks. ✓ Observe earth day or environment day every year to make their employees conscious about environmental sustainability.
Bangladesh Bank	<ul style="list-style-type: none"> ✓ Bangladesh Bank (BB) gets solar power system on the rooftop of the central bank's headquarters on March 30, 2010 to cope with the power crisis with the green energy and this plant will produce green energy for the next 20 years. ✓ Use automated systems, E-recruitment, E-training and others.
AB Bank Limited	<ul style="list-style-type: none"> ✓ Introduction of Earth Hour in every branch and at head office. ✓ One officer for each ABBL floor at HO and in every branch will be nominated as "Green

	Monitor". ✓ Switching off all air conditions and unnecessary lights during 3-4pm each Sunday.
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Source: Annual Report of Bangladesh Bank and Related Banks in different years (2012- 2017).

5. CHALLENGES AND FUTURE AGENDA OF GREEN BANKING

The economy of Bangladesh is an emerging economy and there is a huge potential of growth of banking sector with adoption of innovative approach in their strategy making process. There is a need to set up strategic plan which will consider the 3P approach i.e. the people, the planet and the profit. The Banking sector should also have policy for procurement and effective utilization of energy efficient products, electronic compliances, motor vehicles etc. for environment conscious atmosphere. To ensure in house green activities, it is required rigorous training program for top/mid/lower level management and at the same time clients as well. Board/ Competent authority should be aware and act for the updation of the current green banking activities and development.

The future of green banking in Bangladesh seems to be very promising as lots of green products and services are offering day by day and also expected in the future. Some innovative services like- Green excellence awards and recognitions, Green rating agencies, Green investment funds, Green insurance and Green accounting and disclosure would be heard and seen in operation in the near future. Proper green banking implementation will also help to check the polluting industries in their operations. In future, we expect that the banks will act as a guardian as well as mediator towards the economic transformation and create a platform that would create many opportunities for financing and investment policy and contribute towards creation of a low carbon economy. The major challenges and the ways to overcome these problem in the way to green banking can be seen in the following table-

Table-7. The major Challenges and way forward in green banking

<ul style="list-style-type: none"> ▪ Proper communication and coordination among all the concerned authorities. ▪ Problems to move forward with proper awareness and effective capacity building. ▪ Immediate concentration on sectoral lending policies and procedures. ▪ Relocating different industry (Garments, Textiles, Tannery) to a proper location. ▪ Awareness of the top management, Board of Directors/ Competent authority/ Management in all levels/ dealing officials of the banks and clients as well. ▪ Encouraging borrowers to go green and consider the environment for their project. ▪ Need to apply green banking and use ERM guideline in different manner. ▪ Organization based culture on environmental governance should develop. ▪ Choose a benchmark form the world best practice and Replicate it locally. ▪ Complexity in sharing understanding and technical knowledge with peer groups. ▪ Integration with credit risk management in the overall credit risk methodology. ▪ Need to develop and apply an effective method for environmental risk rating. ▪ An efficient database should be developed for technical assistance.
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Source: Annual report of Bangladesh bank on Green Banking, 2012

6. CONCLUSION

To safely accelerate the growth rate of the economy the banking sectors in the emerging economies to should be proactive in nature and must take environmental consideration as a prior commitment in all their business activities. As there is a continuous change in the environment banks can recover the return from their investments and make the polluting industries become environment-friendly by adopting the environmental guidelines in their lending activities. So, it is the best time for the banking sector of Bangladesh to realize their responsibilities towards the environment as well as the society in order to compete and survive in the competitive market. The banks should not only allocate budget for environmental sustainability but also to ensure the efficient utilization of the budget. It

is our expectation that our banking sector will play an intermediary role between economic development and environmental protection towards a sustainable Bangladesh in near future.

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REFERENCES

- Ahmad, F., N.M. Zayed and M.A. Harun, 2013. Factors behind the adoption of green banking by Bangladeshi commercial banks. *ASA University Review*, 7(2): 241-255. [View at Google Scholar](#)
- Bahl, S., 2012. The role of green banking in sustainable growth. *International Journal of Marketing, Financial Services & Management Research*, 2(2): 27-35. [View at Google Scholar](#)
- Bhardwaj, B.R. and A. Malhotra, 2013. Green banking strategies: Sustainability through corporate entrepreneurship. *Greener Journal of Business and Management Studies*, 3(4): 180-193. [View at Google Scholar](#) | [View at Publisher](#)
- Bihari, S.C., 2011. Green banking – socially Responsible banking in India. *India Banker*, 6(1): 32-37. [View at Google Scholar](#)
- Biswas, N., 2011. Sustainable green banking approach: The need of the hour. *Business Spectrum*, 1(1): 32-38. [View at Google Scholar](#)
- Chaurasia, A.K., 2014. Green banking practices in Indian banks. *JOMASS*, 1(1): 41-54. [View at Google Scholar](#)
- Choudhury, T.T., M. Salim, M.M.A. Bashir and P. Saha, 2013. Influence of stakeholders in developing green banking products in Bangladesh. *Research Journal of Finance and Accounting*, 4(7): 67-77. [View at Google Scholar](#)
- Dharwal, M. and A. Agarwal, 2013. Green banking: An innovative initiative for sustainable development. 2(3): 1-5. [View at Google Scholar](#)
- Ginovsky, J., 2009. Green banking - inside and out. *Community Banker*, 1(1): 30-32. [View at Google Scholar](#)
- Goldar, B.N., 2007. Impact of corporate environmental performance on profitability and market value: A case study of Indian firms. *Institute of Economic Growth*, 5(1): 13- 25.
- Goyal, K.A. and V. Joshi, 2011. A study of social and ethical issues in banking industry. *International Journal of Economic Research*, 2(5): 49-57. [View at Google Scholar](#)
- Green Banking Policy of BASIC Bank Ltd Bangladesh, 2011. Head Office, Dhaka. Retrieved from http://www.basicbanklimited.com/Green_Banking.php.
- Gupta, S., 2003. Does stock market penalize environment-unfriendly behavior? Evidence from India. Delhi School of Economics Working Paper Series: 112 -116.
- Hart, S. and G. Ahuja, 1996. Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment*, 5(1): 30-37. [View at Google Scholar](#) | [View at Publisher](#)
- Heim, G. and O. Zenklusen, 2005. 'Sustainable finance: Strategy options for development financing institutions. Zurich: Eco: Fact, Stampfenbachstrass.
- Hossen, M.M. and A. Anwar, 2011. Problems and possibilities of good governance in Bangladesh: Hurdles to achieve sustainable development. *Public Policy and Administration Research*, 1(1): 8-9. [View at Google Scholar](#)
- Hossen, M.M., M.N. Uddin and A. Hossain, 2014. E-commerce: A scrutiny about the environmental commerce through upgrading the environmental sustainability. *BUP Journal*, 1(2): 83-103.
- Indian Banks Association, 2014. Green banking innovations; Indian bank association. Retrieved from http://www.theindianbanker.co.in/html/sto_5.htm [Accessed 10/2/2015].
- Institute of Development and Research in Banking Technology (IDRBT), 2013. Green banking. IDRBT Publication Hyderabad.
- Jeucken, M., 2001. Sustainable finance and banking, the finance sector and the future of the planet. London, Earthscan: RAKUB Approves Green Banking Policy Guideline.
- Jha, N. and S. Bhome, 2013. A study of green banking trends in India. *Abhinav*, 132(3): 127-132. [View at Google Scholar](#)

- Karunakaran, R., 2014. Green banking – an avenue to safe environment. Galaxy international Interdisciplinary Research Journal, 2(2). *View at Google Scholar*
- Krebsbach, K., 2005. Green revolution. US Banker. pp: 29-32.
- Malu, S., R. Agrawal and D. Jajoo, 2014. Gallery: TMU. Retrieved from TMU.
- Mani, A., 2011. Green banking through green lending. Retrieved from <http://www.ibmteedu.org/GVCG/> [Accessed October 13, 2014].
- Meena, R., 2013. Green banking as initiative for sustainable development. Global Journal of Management and Business Studies, 3(10): 1181-1186. *View at Google Scholar*
- Nath, V., N. Nayak and A. Goel, 2014. Green banking practices – a review. IMPACT. International Journal of Research in Business Management, 2(4): 45-62. *View at Google Scholar*
- Rahman, A., 2012. Green banking in Bangladesh, Bangladesh Bank Parikrama, Bangladesh Bank, 37(29): 03-04.
- Rahman, M.M., A.M. Ahsan, M.M. Hossain and M.R. Hoq, 2013. Green banking prospects in Bangladesh. Asian Business Review, 2(2): 59-63. *View at Google Scholar* | *View at Publisher*
- Sahoo, P. and B.P. Nayak, 2007. Green banking in India. Indian Economic Journal, 55(3): 82–98. *View at Google Scholar*
- Singh, H. and B.P. Singh, 2012. An effective and resourceful contribution of green banking towards sustainability. International Journal of Advances in Engineering Science and Technology, 1(2): 41-45. *View at Google Scholar*
- Sudhalakshmi, K. and K.M. Chinnadorai, 2014. Green banking practices in Indian banks. International Journal of Management and Commerce Innovations, 2(1): 232-235. *View at Google Scholar*
- Ullah, M.M., 2010. Green banking in Bangladesh- A comparative analysis. Retrieved from <http://www.wbiconpro.com/610-Maruf.pdf> [Accessed February 20, 2013].
- Weber, O. and S. Remer, 2011. Social banks and the future of sustainable finance. New York: Routledge.
- Zamil, F. and M.M. Hossen, 2012. Problems and prospects of telecommunication sector of Bangladesh: A critical review. New Media and Mass Communication, 4: 16-25.

BIBLIOGRAPHY

- Annual Report on Green Banking, 2012- 2017. Green banking and CSR department. Bangladesh Bank, 2012-2017. Retrieved from <http://ww11.bangladeshbank.org/>.

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