Current Position of Banks in the Practice of Green Banking in Bangladesh: An Analysis on Private Sector Commercial Banks in Bangladesh

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Abstract: Climate change and global warming has become one of the crying issue of recent time throughout the world. As one of the solutions to these problems, green financing has been welcomed in many countries especially commercial banks are suggested to devote themselves in this area. The commercial banks of Bangladesh are not lagging behind in this race. So our current study focuses on the areas of green banking practiced by the private sector commercial banks in Bangladesh. From our analysis, we found that all the banks in our sample have involve themselves in green financing projects under which they emphasize on renewable energy, solar energy, bio gas plant projects. Besides a good number of sample banks have adopted ATM service, Online Banking and SMS banking facilities as well as have established green branches. Many banks have also promoted social awareness program, reduced electricity and water consumption initiatives.

Keywords: Green banking, commercial banks, global warming

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I. Introduction

The twenty-first century is endangered with various problems like climate change and pollution, which may even hamper human health and mortality (Jung et al. 2018). Sources of pollution are varied, ranging from gases (such as ozone and NO_2) and particulate matter produced from traffic, industrialization, to some other hazards associated with indoor environments causing respiratory illnesses, cardiovascular ailments, skin diseases, eye problems etc. (Jung et al. 2018; Brugha et al. 2018). Considering these effects social awareness is being built up all around the world at micro as well as macro level. As a result, this current issue has attracted the attention of many researchers, practitioners as well as world leaders. As a remedy to the environment pollution several measurements are adopted and prescribed throughout the world involving individuals and corporations. As a result, corporate world is engaging more and more in various activities creating positive impact on environment as a part of their Corporate Social Responsibility. In this trend, the financial institutions in each economy are also coming forward.

As the main driver in the financial system, commercial banks of different countries are also getting engaged in green banking activities. Green banking means an eco-friendly banking practice and try to reduce of emitting carbon mark from banking activities. This banking concept promotes to make more livable environment and healthy life for human beings. Green banking ensures an economic growth with a sustainable development without environmental degradation. It is a corporate social responsibility to keep our world livable without any serious harm. The main objective of green banking is to confirm the exercise of organizational resources in assistance of society and environment. Richard Buckminster Fuller (2012) argued that if we want to work proactively and smartly with a future sustainability vision, green banking is the best way. Our current research focuses on the green banking activities of selected commercial banks of Bangladesh. In our research, we find that among the different green banking activities, banks are mostly involved in Online Banking activities. Along with the orientation of technology based products, most of the banks have already formed their green banking policy and have allocated fund for green financing and have made disclosure about their green banking activities on their website. The rest of the paper is arranged as Section 2 literature review, Section 3

Objective of the Study, Section 4 methodology, Section 5 banks' green banking activities and Section 6 findings and conclusion.

II. Literature Review

Global warming is a big issue for our existence of today's world. In the last decade, global temperature has increased 0.7 degree Celsius, roughly ten times faster than average rate of ice-age-recovery warming. It happened just because of huge number of Co2 emitting. As a result, iceberg has melted away and sea level has increased. So, low land countries are losing their land. For this reason, the world tried to take a decision in Paris summit and Copenhagen for affected and censurable countries. Being concerned about the fact, many researchers are focusing on this current issue. Mazzaucato and Semieniuk (2017), Schwerhoff and Mounhamadou Sy (2017) and Thiam and Jacqueline (2016) focused on renewable energy sector in their studies. Many researchers like Donner, Kandlikar, & Zerriffi, 2011; Hannam, Liao, Davis, & Oppenheimer, 2015 have emphasized on the necessity and importance of climate finance and have regarded the issue as the core issue of climate change. Horsch and Richter (2017) and Ockenden et al. (2012) have suggested different financial instruments to arrange fund for green climate. Cui and Huang (2017) have focused on the issue of Green Climate Fund (GCF) whereas Steckel and Jakob (2018) raised the necessity of Credible committing climate policy. Nadira and Ahmad (2017) have made research on nuclear power project and how it can protect environment. Ivan and Tzavara (2012) focused on decarbonized energy system while Zhan and Jong (2018) focused on eco cities and low carbon cities. J.D Gonzalez et al. (2016) and Tortajada (2016) have put attention on water infrastructure system in their studies.

These environmental issues along with human life have also affected the business world. Xubiao and Liu (2018) have mentioned in their research report that most of the researchers have found pollution has a direct impact on stock market in developed countries. Alamdarlo (2018) found shadow price involved in agricultural pollution costing economic development. Environmental concerns are becoming a supplementary and significant (non-financial) criterion through which private investors take their investment decisions nowadays (Knörzer, 2001). Investors while choosing their investment projects not only analyze the financial information rather also observes the ecological, social, corporate governance or ethical criteria (P.M. Falcone et al. 2018; Scholtens et al., 2008). Realizing the significance of this new revolution, the financial institutions all over the world recently has focused themselves towards the green financing projects to contribute to the development of an environmentally sustainable economy (P.M. Falcone et al. 2018). Commercial banks as the main driving force of the financial system always have proven its role in economic development of countries (). As a social entity besides collecting deposit and distributing loans, commercial banks get involved in a number of social activities (Toutsoura, 2004; Choi et.al., 2010; Weshah et.al., 2012; and Ismail & Adegberni, 2013). As a part of the CSR activity, recently commercial banks have devoted themselves in a number of green banking activities (Falcone et al. 2018). In this consequence, banks are designing and offering new products and services for customers to initiate and enhance investment in green projects (P.M. Falcone et al. 2018).

Commercial banks in Bangladesh are not lagging behind in this new trend. They have also given attention to this emerging issue known as 'green banking'. It is the central bank of the country, Bangladesh Bank, who is continuously encouraging commercial banks on green banking practice and also issuing different policies and strategies in this regard. Rahman et al. (2013) have mentioned that as socially responsible corporate citizen, the commercial banks in Bangladesh have a major responsibility to support and supplement the government effort towards environment by reducing carbon emission. So researchers in Bangladesh have also concentrated on the area, like Islam and Das (2013), Masukujjaman & Aktar (2013), Rahman et al. (2013) have analyzed the green banking activities in Bangladesh. Masukujjaman & Aktar (2013) from the Green Banking Report, 2012 of Bangladesh Bank have formed a Green Banking Unit (GBU). They also found that about 34% of banks have provided their allocation in green finance while it is 21% for climate risk fund and have taken initiatives to provide appropriate disclosure and reporting on green banking activities to Bangladesh Bank.

However, the above studies are based on the Green Banking Report published by Bangladesh Bank as a whole on the overall banking industry of Bangladesh and does not enlighten the green banking condition in individual banks. In this study we have emphasized on this gap of literature. Our research fulfils the gap in literature as firstly, the existing literature is based on the overall industry activity not mentioning what individual banks are doing. Secondly, though Islam and Das (2013) took a sample of 8 banks, we have extended the sample size of our research to. Third, the existing literature covers information upto 2012, but our research considers more recent data covering the green banking condition till 2016 Annual Report and website information of 2018. And finally as this paper is going to concentrate on individual bank activities regarding green banking, the paper will facilitate the banks to understand their position in terms of green banking activities in the market and form policies likewise. The policymakers also can consider the findings to form new policies regarding the implementation of green banking in Bangladesh.

III. Objectives of the Study:

The main objective of this study is to focus the green banking activities in which the commercial banks in Bangladesh have concentrated themselves. Specifically, we tried to observe

a) The area wise green banking practice of selected commercial banks in Bangladesh

b) The difference in between selected commercial banks in terms of green banking practice

IV. Methodology:

To achieve the above specified objective, we have used a sample of 28 banks operating in the economy of Bangladesh recently. The sample of banks has been selected on a random basis. To collect data on sample we have mainly relied on secondary sources of information such as banks' website, annual report, magazine, newspaper etc.

To conduct the research and to meet objectives we have mainly segregated the green banking activities of commercial banks in different categories as per the Bangladesh Bank guideline on green banking reporting as has been circulated through BRPD Circular No. 07. After identifying sample banks' involvement in these different categories of green banking activities, percentage calculation has been applied regarding the different categories mentioned.

V. Green Banking Activities

Banks want to take an initiative from the threat of changing environmental condition. In recent times, financial institutions are progressively conscious about investments through green projects. It patronizes a development of sustainable economy. Banks are trying to develop new green financial products and services such as lower interest rates, environmentally related counselling, and environmental rating and due diligence checks, subsequent lease of environmental products. EIM and Oxford Research (2011) found that the green products and projects are adding more value on environment as well as the institution goodwill. Knörzer (2001) concluded that environmental concerns became a supplement and Significant (non-financial) through which private seize decided to make their investment decisions.

As per BRPD Circular No. 07 of Bangladesh Bank issued on July 22, 2007, the central bank of Bangladesh has given some guidelines about green banking where it has mentioned some areas on which commercial banks in Bangladesh have to report about their green banking activities. Under the guideline there are 12 major areas of green banking reporting. They are

As we have collected our information from the annual report and website information of banks, for our research purpose, we have concentrated on the following areas:

- 1. Policy Formulation and Governance
- 2. Initiating In-house Environment Management
- 3. Introducing Green Finance
- 4. Utilization of Climate Change Fund
- 5. Online Banking
- 6. Employee Training, Consumer Awareness and Green Event
- 7. Disclosure of Green banking Activities

So our analysis is based on the rest of eight categories. The involvement of the selected commercial banks in these green banking activities is described below:

5.1 Policy Formulation and Governance:

Under the criteria, the bank's green banking policy, allocation of fund for green banking, utilization of fund and formation of green banking unit are emphasized. In this aspect, our research shows that about 89% of the sample banks have ensured allocation and utilization of fund in respect of green banking. And about 54% of the sample banks have formed green branches or green banking unit.

5.2 Initiating In-house Environment Management:

In respect of Initiating In-house Environment Management, most of the banks have given emphasized on E-Statement and SMS services. About 68% banks have already introduced these services to their customers. 28.57% banks have introduced green office guide. About 39.29% banks have reduced their consumption of water and energy while 32.14% banks have reduced their consumption of paper. Though these figures of consumption reduction are not too big, but indicate a start which is expected to increase in future.

Table. I Danks In-nouse Environment Management Activities							
		Reduce					
	E-Statement	Green Office	Consumption of Water/	Reduce			
	& SMS services	Guide	Energy (office)	Consumption of Paper			
No. of Banks Involved	19	8	11	9			
% of Bank Involved	67.86%	28.57%	39.29%	32.14%			

5.3 Introducing Green Finance

A commercial bank provides different types of loan out of its deposit collection in both retail and corporate banking segment. Now-a-days, banks are putting emphasize on loans which will be utilized for projects involving environmental protection as well as improvement in pollution, known as green financing. In case of introducing green finance, our research found that banks have given the highest priority in Solar Panel or Renewable Energy projects. 50% of the sample banks have reported about their financing in these types of projects. Banks have also given emphasized on Bio-gas and Bio-fertilizer projects. 32% of the sample banks have allocated their fund for financing Bio-gas and Bio-fertilizer projects. 25% banks have financed projects having ETP. Only 5 banks out of 28 (17.85%) have adopted Hybrid Hoffman Klin (HHK). Some banks have also initiated financing for improved technology (17.85%), hazardous waste treatment facility (14%) and plastic waste recycling plant (7%).

Green	For Installation	Bio Gas/ Bio	Solar Panel/	Project	Hazardous	Plastic	Hybrid
Financing	of ETP or	fertilizer	Renewable	Financed for	waste	waste	Hoffman
Sectors	Project financed		Energy	Improved	treatment	recyclin	Klin (HHK)
	of ETP			Technology	facility	g plant	
No. of Banks							
Involved	7	9	14	5	4	2	5
% of Banks							
Involved	25%	32.14%	50%	17.86%	14.29%	7.14%	17.86%

Table: 2 Banks' Green Financing Sectors

5.4 Utilization of Climate Change Fund

At the recent time, banks to a great extent get involved in different corporate social responsibilities (CSR). The CSR activities have become a new revolution in banking industry. Among the different CSR activities, banks concern in some projects which have relationship with environmental issues, like tree plantation. Under utilization of climate change fund, it is to be observed whether any CSR activity of banks is involved with any climate changing activities or not. In our survey, we found that 6 banks out of 28 (21.43%) have involved in climate related activities as a part of their CSR initiative.

5.5 Online Banking

To ensure the protection of environment, under green banking, the commercial banks are advised to adopt the technology based transaction procedure. As a result, banks have introduced account transactions through the use of ATM. From our survey, it is found that 96% of the banks, have arranged their ATM booth. Besides ATM, banks have also initiated online banking and internet banking which enables the customers to avail the banking service at their comfortable zone as well as from their home. Almost 93% of the sample banks have implemented online banking while almost 86% of sample banks have initiated internet banking. On the other hand, because of the rapid expansion of the use of mobile phone, 78.6% of the sample banks have started some of their operation through SMS service or mobile banking operation.

1 able: 3 Green Financing Areas									
		For Installation of	Bio Gas/ Bio	Solar Panel/	Project	Hazardous	Plastic	Hybrid	
		ETP/ Project	Fertilizer	Renewable	Financed for	Waste	Waste	Hoffman	
		Financed of ETP		Energy	Improved	Treatment	Recycling	Klin	
					Technology	Facility	Plant	(HHK)	
No.	of	7	9	14	5	4	2	5	
Banks									
Involved									
%	of	25%	32.15%	50%	17.86%	14.29%	7.14%	17.86%	
banks									

involved

5.6 Employee Training, Consumer Awareness and Green Event

To increase awareness among bank employees and customers about green banking, banks initiate different training program and green event. 39% of the sample banks have arranged awareness program for green banking whereas almost 43% has arranged different green programs.

5.7 Disclosure of Green Banking

As disclosure of green banking, we have observed whether banks have included news of their green banking activities on their website as that is the most convenient way to know about a bank at the recent time by any stakeholders. In our research we found 21 banks out of 28 sample banks (75%) have given green banking disclosure on their website. This indicates that banks are becoming more cautious about their responsibilities towards society and environment and thereby are informing their stakeholders about their initiatives in this area.

VI. Findings & Conclusion

Based on Bangladesh Bank circular BRPD Circular No. 07 dated July 22, 2007, all the commercial banks of Bangladesh are required to submit report on their green banking activities focusing some specific areas. In our current research, we have considered these suggested areas of green banking and have observed how many banks from the sample are taking part in these different areas. Based on the number of banks involved, we later on have calculated the percentage of sample banks involved in the specific green banking activities. From our research, we found that among the various green banking activities most banks have given emphasize on online banking activities. On an average 84.26% of the sample banks have involved in different technology based activities like having ATM booth, introducing online transactions, SMS banking, Mobile banking, E-statement and Internet banking. Secondly, 75% of the sample banks have made disclosure about their green banking activities on their websites for acknowledgement of all concerned bodies. Thirdly, 71.43% of sample banks have formed their own green banking policy and have allocated fund for green financing. So these are the three main areas where banks have given more emphasized. Besides these, 43% of sample banks have initiated in-house environment management activities, 23.5% of sample banks have distributed fund for green financing, 41% of sample banks arranged employee training, consumer awareness programs and green event.

Though our research gives an in-depth idea about the sample banks' extent of involvement in each area of green banking, we did not include all the banks operating in Bangladesh. Also as we had to depend totally on the secondary sources of information that is annual report and websites, the research results could be better if we could collect the information from inner source of banks. These give an opportunity of further investigation in the area for researchers.

Helena koscielniak and Agata Gorka (2016) focused on sustainable financing. Pasquale Marcello Falcone et al. (2017) focused ongreen innovation, green oriented financial initiatives.

Ivan Diaz-Rainey and DionisiaTzavara (2012) found that Good consumer, renewable energy, Energy sector transition are the main actor of decarbonized energy system in cross countries. Authors used primary data and found some excellent result. To use SWA, WTP, Market imperfections and BASS Model, Consumer-Focused green electricity tariff can incentivize investment in the transition to decarbonized energy system, Green tariff may act counter critically to generations investment incentives.

Mazzaucato and Gregor Semieniuk (2017) found that in china, both public and private sectors are financing on renewable energy and the sectors found on re size, portfolioskew, risk taking method among precise, great recession crisis and post crisis. They also found that the financial investment for the direction of RE innovation favors a subset of financial actors and actors will have come with particular portfolios of financing awareness of the historical trend of which types of technology specific policies have invested in the heterogeneity and may help create incentives for that types finance. Different types financing in the deployment phase needs to be paid more attention the type of financial actors to grain level than public versus private.

Nadira Barkatulla and Ali Ahmad (2017) found that Government, Public sector and private sector are the main actor of nuclear power project in cross countries. Debt and equity,CAPM, risk free rate, market beta, market rate of return, cost of equity, NPV method show that new approaches with different risk and ownership structures to mitigate risk and new contractual arrangements aim to the lower fiscal burden. They also found major challenges of financing in nuclear power plants which are high upfront cost, sensitivity to interact rate and long construction time at 2017.

Gregor Schwerhoff and MounhamadouSy (2017) get some extra ordinary result from Africa context to use secondary data from UN SDG where PPP, rural population used for procuring energy, production and consumption. International donors are the main actors. Both PV, debt and equity ratio method mainly find population and governance can reduce financing cost and achieve a better credit rating. For standard industrial

and sustainable growth, RE provides the identification synergy effects and increase the quality of local financial domestic capacity.

Thiam Hee Ng and Jacqueline Yuijia Tao (2016) used both primary and secondary in context of Asia where the actors are RE infrastructure investment, LCY corporate bonds, Environmental regulations labelled green bonds, non-labelled green bonds, Environmental social Governance mandate (ESG), Asset backed project bonds, Financial green bonds. Average market risk, market risk. Investment risk, cross border bond transaction method shows that to reduce the financing gap in Asia, the lack of financial diversity and immature capital markets and proposed the expansion of bond instruments particularly LCY corporate bonds, Asset backed project bonds and financial green bonds. These countries could focus on reducing financial barriers towards RE projects which is the high risk of major concerns for investors in this region.

Changjie Zhan and Martin de Jong (2018) used the shenzan, China context to identify eco cities and low carbon cities, Longgang district is one of the six districts of shenzen, China. The result is based on secondary data where direct primary stakeholders, in direct primary stakeholders and secondary stakeholders are actors. Innovative investment and financing method shows to initiate innovative investment and financing method to avoid high compensation fees and public uproar to promote successful land acquisition. Preparing land through planning the village area as a whole appears to be a true process innovation. The metrot property development approach was adapted to facilities the development of eastern extension.

Jan Christoph Steckel and Michael Jakob (2018) used secondary data from both developed countries and developing countries where the actors were public investment, political interest groups, health education social security basic infrastructure,to get a result authors used WACC PV break even interest rate levelized energy costs NPV MRV (monitoring reporting, verification) method. The authors found that green bonds, loan guarantees and policy risk insurances are supporting the financial de-risking of private investments. Credible committing climate policy can achieve to improve the design of laws and regulations, increasing transparency, appropriately taking into account distributional concerns and implementing robust frameworks.

Helena koscielniak and AgataGorka (2016) used secondary data and tried to find PPP sustainable financing in Poland. The actors were environment protection, transportation, transportation and communication, sport tourism and recreation, housing developments, regeneration, science and technologies, water/waste, energy, buildings where the method was average project value. The authors found that PPP projects may be integrated and concern several areas. The Silesian PPP market is considered by a large number of projects co-financed from the EU sources, good project location features and anticipated introduction of revolving financial mechanisms.

Pasquale Marcello Falcone et al. (2017) used triangulationbased strategy, GF niche actors identify, landscape actors to measure method to find to access landscape pressures on the context of Italy. Socioeconomic development and innovation opportunity, climate change mitigation efforts, purely green actor, aligned green actor are the most important actors where using the primary data. Informal and institutional actors are operating and supporting a deeper strategic collaboration. For green innovation, green oriented financial initiatives and related dissemination are making a more proactive role in fostering finance.

J.D Gonzalez et al. (2016) tried to get a result on Colombia's water infrastructure systems to increase private participation on the basis of secondary data where the actors were government, private sector, capital market, research community. Here, authors hypothesis, new financial mechanism, ROA, ROE NPV, Weighted average cost of capital, equity profitability method to get decision. To create a primary and secondary market stock and debts issued by infrastructure projects, market led mechanisms could also drive on infrastructure market based on low carbon. The assessment of flexibility of making sustainable projects should be involving the future research of green financing by the Colombian government.

CocileTortajada (2016) used secondary data and tried to find the development and financing of water structure between India and China where the actors were micro environment, health and primary education, innovation, institution, infrastructure, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, political and economic structure. Policy alternatives, implementation process, investment mechanism, participation of public, private and social sector were methods which were used descriptively. Main challenges are limited sources of financing, policies, implementation of infrastructure development. But both two countries have impressive investment of water infrastructure specially in China though they have not enough efficiency for long term, inclusively supported and higher economic growth or improve social and environmental conditions.

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