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Financing Green Growth in Bangladesh:

Challenges & Opportunities

March 2017

Contents

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The report was commissioned by UKAID. The findings, interpretations, and conclusions expressed herein are entirely those of the authors. They do not necessarily represent the views of the UK Department for International Development (DFID).

Acronyms & Abbreviations

ADB	Asian Development Bank
AUSAID	Australian Agency for International Development
BB	Bangladesh Bank
BCCRF	Bangladesh Climate Change Resilience Fund
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BDT	Bangladeshi Taka
BIBM	Bangladesh Institute of Bank Management
BOT	Board of Trustees
BTS	Base Transceiver System
CCVI	Climate Change Vulnerability Index
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CFF	Climate Fiscal Framework
CFL	Compact Fluorescent Lamp
CIB	Credit Information Bureau
CIF	Climate Investment Fund
CNG	Compressed Natural Gas
COP	Conference of Parties
CPEIR	Climate Public Expenditure and Institutional Review
CRR	Cash Reserve Ratio
CSR	Corporate Social Responsibility
CTF	Clean Technology Fund
DFI	Development Financial Institution
DFID	Department for International Development
EDD	Environmental Due Diligence
ENDA	Emergency Natural Disaster Assistance
EOI	Expression of Interest
ERD	Economic Relations Division
ERM	Environmental Risk Management
ERR	Environmental Risk Rating
ESG	Environmental and Social Governance
ESMF	Environmental and Social Management Framework
ETP	Effluent Treatment Plant
EU	European Union
FAO	Food and Agriculture Organization
FCB	Foreign Commercial Bank
FCB	Foreign Commercial Bank
FCK	Fixed Chimney Kiln
FE	Foreign Exchange
FI	Financial Institution
FIP	Forest Investment Program
FSSP	Financial Sector Support Project
FY	Fiscal Year
GBCSRD	Green Banking and Corporate Social Responsibility Department
GBU	Green Banking Unit
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Gesellschaft für Internationale Zusammenarbeit
GOB	Government of Bangladesh
GPOBA	Global Partnership of Output-Based Aid

GRI	Global Reporting Initiative
GTF	Green Transformation Fund
GTFS	Green Technology Financing Scheme
HHK	Hybrid Hoffman Kiln
IDA	International Development Association
IDB	Islamic Development Bank
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
IPO	Initial Public Offering
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
KW	Kilowatt
LDC	Least Developed Country
LGED	Local Government Engineering Department
MFI	Micro Finance Institution
MIE	Multilateral Implementation Entity
MOEF	Ministry of Environment and Forests
MW	Megawatt
NAMA	Nationally Appropriate Mitigation Action
NAPA	National Adaptation Programme of Action
NBFI	Non-Banking Financial Instition
NEC	National Environment Council
NGO	Non-government Organisation
NIE	National Implementing Entity
NSDS	National Sustainable Development Strategy
NSP	NAMA Support Project
PCB	Private Commercial Bank
PET	Polyethylene terephthalate
PFI	Participatory Banks and Financial Institution
PKSF	Palli Karma Shohayak Foundation
PPCR	Pilot Programme for Climate Resilience
REDD++	Reducing emissions from deforestation and forest degradation
SCB	State Owned Commercial Banks
SDB	State Owned Development Bank
SDG	Sustainable Development Goals
SEC	Securities and Exchange Commission
SHS	Solar Home System
SLR	Statutory Liquidity Ratio
SME	Small and Medium Enterprises
SOCB	State Owned Commercial Bank
SPCR	Strategic Programme for Climate Resilience
SREP	Scaling Up Renewable Energy in Low Income Countries Program
T&D	Transmission & Distribution
TOR	Terms of Reference
TSL	Two Step Loan
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
VSBK	Vertical Shaft Brick Kiln
WRA	Wind Resource Assessment

Acknowledgements

We would like to express our deepest appreciation to the key informants who were interviewed for this study. In alphabetical order they are:

Asif Iqbal, Deputy Director, Bangladesh Bank

Farzana Rahman, Senior Vice President & Unit Head, Renewable Energy, IDCOL

Hosne Ara, Assistant Vice President, Sustainable Finance Division, Islami Bank

Ishtiaque Ahmed Chowdhury, Chief Executing Officer and Managing Director, Trust Bank

Mohammad Emdad Hossain, Senior Assistant Vice President, Prime Bank

Mohammad Iftekhar Hossain, Deputy Secretary, Economic Relations Division, Ministry of Finance

Mahmood Malik, Chief Executing Officer, IDCOL

Mohammad Nazrul Ahsan, Deputy General Manager, Risk Management Division, Sonali Bank

Mohammad Obayed Ullah Al Masud, Chief Executing Officer and Managing Director, Sonali Bank

Mohammad Shams-Ul Islam, Chief Executing Officer and Managing Director, Agrani Bank

Mohammad Sharfuzzaman, Deputy Director, Bangladesh Bank

Qazi Mutmainna Tahmida, Joint Director, Bangladesh Bank

Retani Talukdar, Trust Bank

Shahan-Ara Begum, Deputy General Manager, Sustainable Finance Division, Agrani Bank

Siddique Zobair, Joint Secretary, Power Division, Ministry of Power, Energy and Renewable Resources

Zainul Abedin, Deputy Director, Bangladesh Bank

In addition, two representatives of a foreign commercial bank were interviewed who wished to be not named.

Executive Summary

Many of the investments made in Bangladesh, especially in the manufacturing sector, have contributed to impressive growth in GDP over the last decade, but have presented the threat of locking in the country into an unsustainable development path. The tangible ramifications of such environmentally irresponsible investments are evident in the forms of air, water and land pollution that are damaging the natural ecosystems, eroding biodiversity and widening social inequity. Green finance, which means channelling investment to projects that benefit the environment, is forwarded as a tool to internalise environmental externalities and adjust climate change related risk perceptions in order to boost green and sustainable economic development. In Bangladesh, even though some policy alignments are evident towards achieving sustainable development goals, there are opportunities for creating an enabling environment for financial institutions, both formal and non-formal, to play a catalytic role for promoting green growth in the present and foreseeable future.

The present study reports on the different sources of green finance available in Bangladesh through grant, debt, and equity mechanisms; provides an insight into the green finance landscape in the country in general; presents the challenges financial institutions face in internalising green finance, and outlines the potential for greening growth of Bangladesh through identifying opportunities for accessing green finance from internal and external sources.

The study finds that although the initiatives of Multilateral Implementing Entities (MIEs) have enabled Bangladesh to make some progress in accessing international green finance funds, the amount of green international loans and grants that it has been able to secure to date is meagre compared to its funding requirement. Securing international climate finance for green growth by direct access mode has not yet been possible because of the lack of institutional readiness and weak fiduciary governance. Belatedly, some efforts were made to avail the benefits of the Clean Development Mechanism (CDM) under the Kyoto Protocol, but this did not pick up as the carbon finance market met with global economic recession induced changes that negatively impacted the value of Certified Emission Reduction (CER).

On the domestic front, Bangladesh Bank is leading with initiatives to introduce green finance in the local market with a clear vision to internalise green banking in the financial sector. It has introduced a host of policy decisions for environmental and social safeguards to be followed by banks and non-bank financial institutions while disbursing loans to commercial enterprises. Some programmatic efforts with external finance support are also introduced by the Central Bank for undertaking interventions that have co-benefits for green growth. Very recently, the Bangladesh Bank mandated the financial institutions under its jurisdiction to set up Sustainable Finance Units (SFU) with a view to achieving more effective green portfolio management. However, the study finds that at the strategic level there is a lack of clear understanding with regards to operationalising the newly set up SFU. In addition, there are host of challenges that are holding back the initiatives taken by Bangladesh Bank to popularise green debt finance from taking off. These include: low or insufficient investment demand for green projects, lack of skills in assessing financial implications of environmental risks, high risk associated with funding new green technologies and other untested green ventures, and high transactions cost in disbursing green loans to small scale entrepreneurs with no or poor prior credit records.

The study also sought to investigate whether the capital market, through an Initial Public Offering (IPO), could be an entry point to greening the stock market. It found that existing practice of public offering is not favourably disposed of incentivising the clean enterprises.

In regards to the supply side of green equity finance in the domestic market, the study noted that only a handful of venture capital and impact investment funds are in play in the market. Impact investment, investments made in projects with clearly defined objectives of generating social and financial returns along with financial profits, have tremendous potential to augment the supply of green equity finance in the country. The study found that this potential has not been met due to a lack of government support towards creating an enabling business environment and due to the regulatory framework for attracting impact investments being missing.

On the green finance policy front, a proactive engagement of government is strongly felt. It is clearly evident that at the higher policy level of the government the regulating ministry has to be on the driving seat to steer the leadership in internalising green growth perspectives in the financial sector of Bangladesh.

Based on the findings, the study recommends that:

- Setting up a dedicated Climate Finance Unit in the Ministry of Finance with a specific objective of improving access to international climate and green funds and ensuring oversight on the flow of funds. In the same vein, it can step in to formulate policy frameworks for use of financing instruments like bond, insurance, and venture capital for mobilising resources for greening growth.
- Private sector funds are leveraged in the capital and bond market to promote green growth.
- Bangladesh Securities and Exchange Commission (BSEC) initiate the process of green transformation of Stock Exchanges by requiring companies to meet specific Environmental and Social Governance (ESG) disclosure requirements in order to list initially and remain listed on an ongoing basis in the stock markets under its jurisdiction. Business and commercial enterprises which adopt cleaner production paths could be given some incentives in the form of concessional registration and transaction costs while IPO is released.
- Bangladesh Bank asks banks and financial institutions to publish an annual list of non-performing loans for environmental reasons as a proxy measure to quantify financial implications of environmental risks.
- Bangladesh Bank publish the list of banks and financial institutions having good green performance and award better CAMELS ratings in a verifiable way, and provide concessions in Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) based on green banking performance.
- Bangladesh Bank considers establishing a Green Technology Financing Scheme (GTFS) to steer green transformation of traditional industries by enhancing efficiency in the use of natural resources and energy.
- A strong fiduciary management system with sound parliamentary oversight on the use of public finance in place to have secured access to international finance dedicated to climate and sustainable development.
- Regulatory support provided by the government for attracting Impact Investments in the form of equity finance from foreign and local investors.
- A green financial system is needed to operate on market principles in the long run without requiring special concessional support of the government or regulatory agencies. Regulatory agencies may accommodate more space for the private sector in shaping policies and innovating new interventions to facilitate green finance being evolved as a private sector led model.

1. Introduction

1.1. Green Finance: Definitions and Conceptualisation

The promotion of green growth, growth that aims to minimise the negative environmental impacts of economic operations, requires substantial financial commitment. Green finance involves providing or enabling finance to projects that benefit the environment through grant, debt and equity mechanisms. For the purposes of this paper, we will adopt the definition used by the G20 Green Finance Study Group, which defines green finance as:

"…financing of investments that provide environmental benefits in the broader context of environmentally sustainable development. These environmental benefits include, for example, reductions in air, water and land pollution, reductions in greenhouse gas (GHG) emissions, improved energy efficiency while utilising existing natural resources, as well as mitigation of and adaptation to climate change and their co-benefits. Green finance involves efforts to internalise environmental externalities and adjust risk perceptions in order to boost environmentally friendly investments and reduce environmentally harmful ones. Green finance covers a wide range of financial institutions and asset classes, and includes both public and private finance. Green finance involves the effective management of environmental risks across the financial system."

Funding made available in the form of grants alone cannot fulfil the demand required to mainstream green growth. The ability of green projects to generate positive financial returns, along with environmental ones, is a pre-requisite of diverting debt and equity financing to green growth in capitalist market systems. Promulgation of green finance requires rethinking the way environmental risks are considered in making financial investment decisions. Traditional approaches to incorporating environmental concerns in making financial decisions are proving themselves to be insufficient as climate change presents us with environmental risks not experienced by previous generations. It is therefore of critical importance that policy makers and financial institutions respond effectively to the environmental challenges our world faces today with appropriate support and incentives for green finance.

1.2. Importance of Green Finance in Bangladesh

The Climate Change Vulnerability Index (CCVI), collated by the global risks advisory firm, Maplecroft, rates Bangladesh as the country most at risk of the adverse impacts of climate change among 170 countries. Maplecroft highlight that this is because Bangladesh struggles with the lowest adaption capacity to the predicted impacts of climate change, the highest risk of flooding, a high risk of drought, a large reliance on agriculture, and a poverty rate of 31.5%.

In spite of this, Bangladesh has recently emerged as a low middle income country and aspires to sustain the current trend of economic growth and social development which is reflected in the 'Perspective Plan of Bangladesh (2010-2021)', also termed as 'Vision 2021'. The plan aims to enhance sustainable agricultural production, fostering industrial growth, mobilising internal resources and attracting foreign investments for employment generation. It also targets addressing critical challenges like gaps in energy supply, infrastructure development and vulnerability to climate risks. The country aspires to increase investment from 28% to 38% of GDP over the decade, facilitated by both public and private investments. Public investment funds will mostly be deployed for infrastructure development, while the major increase is targeted through mobilising private sector resources from BDT 1.2 trillion (US$ 15 billion) in 2010 to BDT 4.8 trillion (US$ 61 billion) by 2021. A green mind-set is critical to help Bangladesh achieve the targets set out in these documents in a sustainable manner.

Bangladesh currently stands at the crossroads of accelerated economic growth and green transformation. There is a window of opportunity for Bangladesh to minimise environmental damage and use its natural resources efficiently by adopting a sustainable growth path. If implemented correctly, long term benefits of going green will include the opportunity for increased employment through innovation; increased energy security and industrial efficiency; and a reduction in the vulnerability of poor people to the adverse effects of climate change.

Greening the financial system will determine how Bangladesh faces its environmental challenges throughout this pathway of growth. Green transformation of major sectors of the economy through environmentally responsible production will depend on how regulators guide private sector finance flows in favour of sustainable finance. In the absence of strong regulation and supervision, there will be a high risk of accelerated environmental degradation, with an augmented flow of resources feeding into the building of unsustainable infrastructure and increased dirty industrial production.

1.3. Significance of this Study

Given that Bangladesh is one of the most climate vulnerable countries in the world and is also at a growth nexus planning to achieve middle income status by 2021, this paper assesses the current context for green finance in Bangladesh. It achieves this through identifying challenges, specific to Bangladesh, which are preventing the proliferation of green finance and also highlights opportunities to promote green finance in gaining traction in the future. This study is the first one of its kind to provide thorough insights on different sources of green funds available to Bangladesh. The paper also identifies policy recommendations for creating an enabling environment to mainstream green finance and foster green investment.

This paper is structured as follows: the second chapter identifies the agents of greening the financial system of Bangladesh and reports on their success in this regard. It provides a summary of the different sources of green funds Bangladesh currently receives financing from and the current green financing policies and programmes in place in the national financial system. The third chapter identifies the challenges that are required to be dealt with to mainstream green finance in Bangladesh. Chapter four identifies opportunities for Bangladesh to capitalise on whilst pursuing green growth. The final chapter concludes the report by providing recommendations based on our findings and analysis.

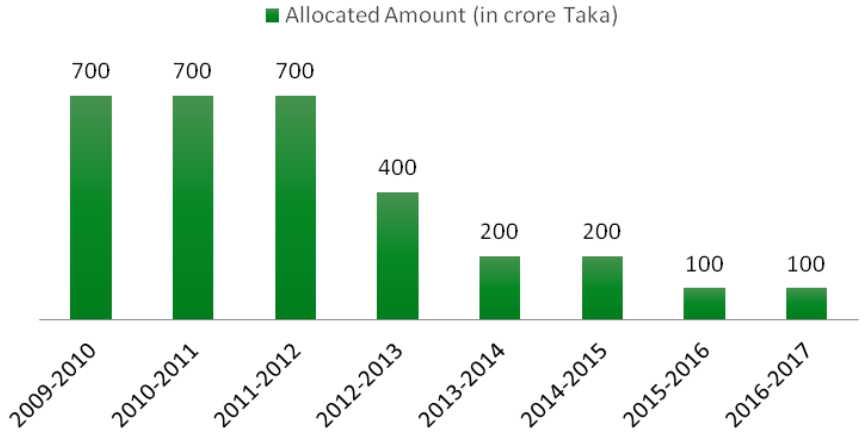
2. Green Financing Agents in Bangladesh

2.1. Government of Bangladesh as a Source of Green Finance

Bangladesh is the first country among the least developed countries (LDCs) to come out with a national strategy with a clear vision to effectively deal with climate induced challenges. The Bangladesh Climate Change Strategy and Action Plan (BCCSAP) identified 44 programmes under six thematic areas that demand proactive action from the GoB to better prepare Bangladesh to deal with the challenges introduced by climate change. The thematic areas are: food security, social protection and health; comprehensive disaster management; infrastructure; mitigation and low carbon development; research and knowledge management; capacity building and institutional strengthening. The strategy document attaches special importance to low carbon development in conformity with the UN Framework Convention on Climate Change (UNFCCC). BCCSAP paved the way for follow up actions to be taken up by line ministries including the need for a financing mechanism from domestic and external sources.

In 2009-10 the Government of Bangladesh through an Act of Parliament set up the Bangladesh Climate Change Trust Fund (BCCTF) under the Ministry of Environment and Forests (MoEF) to finance adaptation projects from its own resources. The intention behind setting up the BCCTF was to finance projects which improve climate resilience of the nation in key sectors as identified in the BCCSAP. The other objective was to reduce the gestation period of adaptation projects bypassing normal routes of the development project approval process of the government. A Board of Trustees (BoT) with a sizeable number of cabinet ministers and representatives of civil societies is constituted to approve the projects. The BoT is aided by a technical committee which recommends projects from sector ministries and agencies of the government. Between 2009-10 and the 2016-17 fiscal year, a total of BDT 3,100 crore taka (US$400 million approximately) has been allocated to BCCTF. The support to the fund has been reduced in recent times due to misdirected allocation of resources for non-adaptation purposes. Though the activities of the fund are ongoing the pace of climate finance to home grown adaptation projects has drastically slowed down.

Figure 1: Amount allocated by GoB to BCCTF[1]



From an institutional perspective, environmental policy, laws and regulations of the GoB are managed through the MoEF. The Five-Year Plan, initiated by the Planning Commission, activated the National Environmental Council (NEC), a cross-sector body headed by the MoEF. The National Sustainable Development Strategy (NSDS), 2008 was the first document in Bangladesh to frame strategies to address issues related to sustainable economic development and green growth. Since then a number of long term plans, including the Seventh Five-Year Plan (2015–2020) and the Perspective Plan Bangladesh (2010–2021), have incorporated different aspects of green growth. The Seventh Five-Year Plan acknowledges the urgency of strategic actions to minimise negative externalities of industrialisation and the adverse effects of climate change through the promotion of sustainable

[1] Data used to create the graph has been collected from the official BCCTF website.

development. The Perspective Plan of Bangladesh, also termed as Vision 2021, seeks to design strategies through the mainstreaming of environment, climate change and green growth issues across government policies.

Some fiscal initiatives have also been designed by the GoB, aligned with its medium-term budgeting perspective. The government is committed to providing tax incentives to encourage investment in renewable energy ventures. The proposed incentives include exemption from being charged 15% VAT on renewable energy equipment and materials used in the production of renewable energy; the establishment of a network of micro-credit providers in remote rural areas to provide funding for the purchase of renewable energy equipment; and corporate income tax exemptions for renewable energy projects.

A Climate Public Expenditure and Institutional Review (CPEIR) has been developed. The initial assessment detailed in the CPEIR indicates that approximately seven percent of total public expenditure contributes to green growth related activities.

Further, with the development of the Climate Fiscal Framework (CFF) the government has committed itself to integrating environmental and climate change coding into the budget system to enable the tracking and quantifying of relevant fiscal expenditures. Integration of the climate budget code will help to measure the fiscal allocation directed towards green transformation.

2.2. Government of Bangladesh as a Recipient of Green Finance

Climate finance, which often also supports green growth and sustainable development, comes through several bilateral and multilateral sources. Some international funding mechanisms, outlined in greater detail below, have explicit objectives to promote green growth. In the past, Bangladesh has encountered challenges to directly access international climate finance. Lack of preparedness from an institutional perspective and a poor track record of fiduciary governance are barriers which impact on the ability of Bangladesh to directly access external finance. Given its extreme vulnerability to climate change, some nations have shown their support in creating an innovative climate fund dedicated to supporting Bangladesh develop its resilience against the adverse impacts of climate change.

In the early years of global awareness building about the risk of climate change, Bangladesh, as a frontier country, was able to secure some early funding. This was through the formulation of two well drafted key documents during 2008-09: the UNFCCC guided BCCSAP and the National Adaptation Programme of Action (NAPA). Bangladesh Government's allocation of US$100 million each year in three successive years in the national budget for building its Climate Change Trust Fund for combating the impact of climate change was applauded internationally. The international community led by the UK, Denmark, Sweden and Switzerland responded to these gestures through a DFID-organised international forum in London where the Government of Bangladesh presented a 'Climate Change Strategy and Action Plan', and sought international support. The Government reiterated the Intergovernmental Panel on Climate Change's (IPCC's) estimate, that rising sea levels may permanently submerge six to eight percent of the coastal and low-lying lands of Bangladesh by 2050. Consequently, a US$110 million Bangladesh Climate Change Resilience Fund (BCCRF) was created in 2010.

This was further consolidated when Bangladesh was awarded US$110 million in grant and highly concessional loans through the Pilot Programme on Climate Change (PPCR), funded by the Climate Investment Fund (CIF), the proceeds of which are currently used under various green projects. Bangladesh was also a recipient of about US$135 million from an unknown Middle-eastern philanthropist which went mainly to the construction of cyclone shelters around the coastal lines of the country implemented under the supervision of Islamic Development Bank (IDB). The Global Environment Fund (GEF), managed by the United Nations (UN) and the World Bank is the other source of funding which is aimed at restoring ecological balance and the prevention of environmental degradation.

In the near future, there are indications that Bangladesh will be accessing the Forest Investment Programme (FIP), which is a US$250,000 technical assistance programme prepare bankable

projects. Further, a US$75 million loan-grant mix financing has recently been signed which will be used mainly for research in ramping up efficiency in solar irrigation pumps through promoting innovative practices. Finally, the World Bank has indicated it will make another US$400 million available to Bangladesh if profitable projects in renewable energy can be worked out.

A detailed discussion on the various international sources of green finance Bangladesh receives funding from is presented in the following sub-sections.

2.2.1. Bangladesh Climate Change Resilience Fund (BCCRF)

BCCRF, a multi-donor trust fund, was established in 2010 to finance adaptation and mitigation projects in Bangladesh, with the mandate of developing the country's resilience to climate change vulnerabilities. As of 2014, the fund drew around US$187 million in contributions from Denmark, the European Union (EU), Sweden, the United Kingdom, Switzerland, AusAID, and USAID over six years. The World Bank served as the trustee of the fund and the party responsible for providing technical backstopping to develop projects in line with the BCCSAP's core thematic areas. The World Bank provides technical backstopping to develop projects in line with the BCCSAP core thematic areas. The Government, through the Ministry of Environment and Forests, set up the BCCRF Secretariat and manages its day to day activities under the close supervision of the World Bank. The BCCRF is guided by an Operational Manual approved by the highest office of the Government. With a two tier governance structure the projects are approved by the Governing Council headed by the core Cabinet Ministers along with representation from the donors, World Bank and civil society. As per the guidelines, 10 per cent of the total funds are being routed through the Palli Karma Shohayak Foundation (PKSF) to NGOs. The BCCRF is set to end in June, 2017, with unmet objectives as originally schemed. However, the BCCRF Secretariat could still act as a window for accessing international climate finance.

2.2.2. Global Environment Facility (GEF)

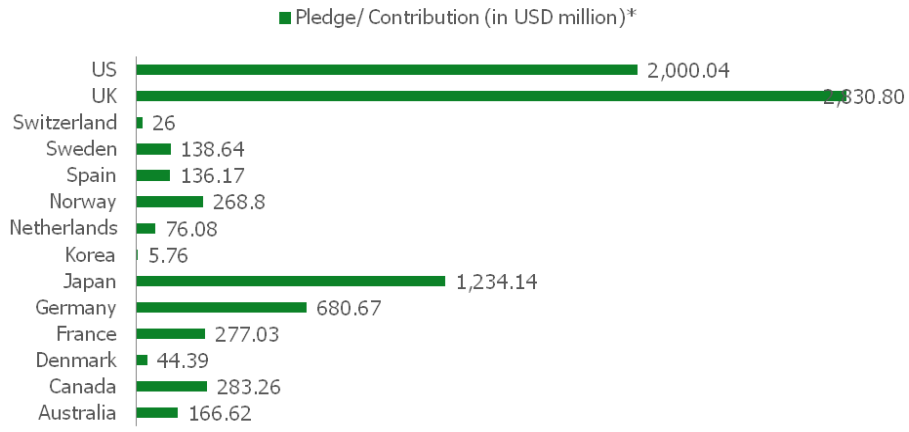
Established in 1991, the Global Environment Facility Programme is one of the largest and longest standing trust-fund programmes administered by the World Bank. GEF grants managed by the World Bank Group support low-carbon and carbon-resilient development in client countries that help them adapt to a changing climate by investing in climate resilient approaches. This is an unique funding mechanism which extends support to promote green growth and sustainable development in the areas of sustainable conservation and management of protected areas, integrating biodiversity conservation into production landscapes, and designing sustainable financing to encourage long-term biodiversity conservation The fund focuses on the prevention of carbon loss from forests, soil erosion and salinization; recovery of marginal lands; and the introduction of climate risk insurance through adaptation strategies to encourage sustainable land and water management. The fund is also enhancing trans-boundary cooperation and management of shared water resources in order to mitigate water pollution and build capacity and cooperation across river basins, aquifers, and seas.

GEF follows the STAR allocation principle under which it determines the amount of resources that a given country can access in a replenishment period. Since 1991, Bangladesh has received total grants worth US$143.59 million from GEF to implement 41 projects. Notably, Bangladesh accessed the fund to support in combating desertification in the country's drought prone Northern part and to support an ADB funded Sustainable Urban Transport project.

2.2.3. Climate Investment Funds

The US$8.3 billion CIF were set up by the World Bank in 2008. CIF accumulates funding from 14 developed nations and provides funding to 72 developing and middle income countries in urgent need of finance for battling climate change and reducing greenhouse gas emissions. Contribution of different developed countries to CIF is displayed in Figure 2.

Figure 2: Amount committed to CIF by developed countries[2]



The CIF is composed of four programmes: Clean Technology Fund, Pilot Programme for Climate Resilience, Scaling up Renewable Energy in Low Income Countries Programme, and the Forest Investment Programme. However, Bangladesh accesses the fund through three of these:

- **Pilot Programme for Climate Resilience (PPCR):** The PPCR is a major provider of grant support to climate vulnerable countries. Bangladesh first accessed the fund in 2010 and received US$110 million, of which 45 per cent was provided as a grant (US$50 million) and 55 per cent was provided as highly concessional loan support (US$60 million) for projects articulated in the Strategic Programme for Climate Resilience document submitted with the Fund Secretariat. The fund support is expected to contribute towards improving climate resilient agriculture and food security, strengthening the security and reliability of fresh water supply, sanitation, and infrastructure, and enhancing the resilience of coastal communities and infrastructure. The provision of funding through loan support received wide criticism from civil society because Bangladesh is an active member of the LDC forum in UNFCCC. As per the original setup of the LDC forum, developed countries should provide grants, not loans, to climate vulnerable countries for their adaptation needs.
- **Scaling up Renewable Energy in Low Income Countries Programmes (SREP):** The investment plan for Bangladesh under SREP was approved in November 2015 but the funding is yet to be disbursed. Bangladesh requested US$75 million of financing for scaling up the use of renewable energy in the nation. Up to US$35.75 million of the funding will be provided to Bangladesh as a grant.
- **Forest Investment Programme (FIP):** FIP provides funding to combat deforestation and forest degradation with the view to promoting sustainable forest management. Bangladesh, in January 2017, submitted an Expression of Interest to be selected as a Pilot Country for FIP. The FIP sub-committee selected 15 countries, including Bangladesh to receive investment support. Bangladesh with support of the World Bank is now in the process of preparing an Investment Plan with a list of projects for future consideration for the FIP sub-committee.

2.2.4. Green Climate Fund (GCF)

Within the framework of the UNFCCC, GCF was founded as a mechanism to assist developing countries in adaptation and mitigation practices to counter the adverse impact of climate change. Bangladesh is one of the first recipient countries to access the Fund for a climate adaptation project with support of KfW. The project, Climate Resilient Infrastructure Mainstreaming, received funding worth US$40 million. Meanwhile, the Government of Bangladesh has designated the Economic Relations Division (ERD), of the Finance Ministry as the Designated National Authority for direct access to the GCF, while four institutions have been identified as National Implementing Entities

[2]Data used to create the graph has been collected from the official CIF website. The amounts represent realised amounts plus unrealised amounts valued on the basis of exchange rates as of June 30, 2015.

(NIE). IDCOL, Palli Karma-Sahayak Foundation (PKSF) and the Department of Environment have lodged accreditation applications. Though the accreditation process is long, it is expected that IDCOL being in stage-3 may soon be accredited as a NIE.

2.2.5. Clean Development Mechanism (CDM)

The Clean Development Mechanism (CDM) is one of the flexible mechanisms defined in the Kyoto Protocol (IPCC, 2007) that provides for emissions reduction projects which generate Certified Emission Reduction units which may be traded in emissions trading schemes. The CDM helps developed countries with emission reduction targets under Kyoto in achieving compliance by allowing them to purchase offsets created by CDM projects. Under the CDM, projects are issued Certified Emissions Reductions (CER), with each CER unit equal to a reduction of one tonne of carbon dioxide equivalent. These CERs, or offsets, can be bought and used by developed countries to meet their Kyoto commitments.

Bangladesh has succeeded very little in accruing CDM benefits. It lacked robust institutional mechanisms to submit emissions reduction projects to the UNFCCC in generating CER. Due to the volatility in price linked with the recent global economic recession, the carbon market is yet to reap the benefit of CDM projects.

2.2.6. Adaptation Fund

All developing countries party to the Kyoto Protocol are eligible to nominate an entity for accreditation. Once the entity passes the Fund's rigorous accreditation review, it may apply for project funding, Through direct access, accredited NIE's can access financing and manage all aspects of climate adaptation and resilience projects, from design through implementation and monitoring. Bangladesh initially applied to be accredited to NIE but the application was unsuccessful.

2.2.7. REDD+

Reducing emissions from deforestation and forest degradation (REDD+) is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). It creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. Developing countries would receive results-based payments for actions. REDD+ goes beyond simply deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

The UN-REDD programme and other multilaterals including the Forest Carbon Facility and Forest Investment Programme facilitated by the World Bank support developing countries with financial and technical assistance to build the capacities to design and implement REDD+ strategies.

Bangladesh, meanwhile, with support of UNDP and FAO has already formulated the REDD readiness roadmap, but it is yet to join the Forest Carbon Partnership Facility to have access to REDD+ Readiness Fund.

2.2.8. Nationally Appropriate Mitigation Action (NAMA) Facility

This is a multi-donor programme that supports the implementation of Nationally Appropriate Mitigation Actions (NAMAs) that induce transformational change towards a low-carbon development pathway. It conducts open competitive calls for NAMA Support Projects. In the NAMA Facility's fourth Call for NSPs, national ministries and other legal entities were invited to submit NSP outlines for receiving support for their NAMA implementation.

NAMAs are considered to be voluntary climate change mitigation measures by emerging economies and developing countries to be embedded in their national development plans. By moving countries towards a low-carbon development trajectory, NAMAs have the potential to significantly contribute to global efforts to reduce greenhouse gas (GHG) emissions.

Bangladesh being a LDC could not avail the NAMA fund in consort to the INDC. Bangladesh did not submit any project till the third call.

2.3. Bangladesh Bank as a Source and Enabler of Green Finance

2.3.1. Policy Initiatives

Bangladesh has been one of the first movers in designing policy regulations and interventions to transform into a greener and more sustainable financial system. Bangladesh Bank, the country's central bank, has been at the forefront amongst government agencies in introducing green finance. Though Bangladesh has not yet adopted any comprehensive national green finance strategy, the central bank in recent years has promoted green financing through several measures that can be categorised as either policy initiatives or on-lending windows and refinancing schemes. These have included green banking policy guidelines, concessional refinancing schemes, donor supported sector specific transformational projects, and credit quotas for financial institutions.

Bangladesh Bank has issued comprehensive policy guidelines that guide the promotion of green banking in the country. Bangladesh Bank first issued Green Banking Policy Guidelines in 2011, which instructed commercial banks to adopt a comprehensive green banking policy in three phases. Green lending policy guidelines for non-bank financial institutions were issued in 2013. In phase one, banks were required to develop an environment policy, covering issues of internal operations and lending strategies along with the establishment of a separate green banking unit. It also required the banks to create high-level supervisory committees to review their designed policies and strategic interventions, and to allocate budgets for green finance, climate risk funds and internal capacity development.

In phase two, banks were directed to formulate sector specific financing policies for environmentally sensitive sectors, set up green branches, and develop an environmental risk management manual for assessment and monitoring of projects and public disclosure of green banking activities. In phase three, banks were required to take actions for designing new innovative products and start publishing reports on green banking activities in standardised formats.

Since the original issuance of Green Banking Policy Guideline in 2011, Bangladesh Bank has issued circulars in different times to augment it further. Salient features of Bangladesh Bank's Green Banking Policy Guidelines include:

- **Uniform Reporting:** In 2012, the Bangladesh Bank introduced a uniform reporting format to report green banking activities. In 2013, updated policy guidelines for green banking were issued for financial institutions and banks under a revised circular where a detailed format was provided for reporting relevant green banking activities. This updated format requires banks and financial institutions to submit information on green finance, green marketing, training and capacity development, utilisation of climate risk fund, strategic plans and steps for green banking, sector specific green finance policies etc. on a quarterly basis. This structured format for reporting updates of green banking activities to the Central Bank is now being used by all banks and financial institutions.
- **Mandatory credit quota for green banking:** A minimum target of direct green finance has been set at 5% of the total loan disbursement from January 2016 onwards for all banks and financial institutions to accelerate the promotion of direct green financing by Bangladesh Bank. The green banking policy guidelines also directed banks and financial institutions to form a Climate Risk Fund and allocate at least 10% of their Corporate Social Responsibility budget to this fund. The Climate Risk Fund can be utilised either through providing grants for implementing relevant projects or financing at a reduced rate of interest.
- **Greening the Banking Infrastructure:** Another circular issued by Bangladesh Bank in May 2016 instructed banks and FIs to set up solid waste management systems, rainwater harvesting and solar power panels within their buildings by December 31, 2018 (December 31, 2020 for state owned banks). This circular also suggests banks and financial institutions should encourage their clients to install environmentally friendly facilities in newly built infrastructure under financed projects. Educational institutions, hospitals and non-profit organisations providing education and health services will also be eligible for grants from the Climate Risk Fund and loans at concessional rates if they intend to install these facilities.

2.3.2. ERM Guidelines

The Environmental Risk Management Guidelines (ERM Guidelines) for Banks and Financial Institutions were first issued in 2011. It acknowledged the importance of assessing the environmental impact of projects before making loan disbursement decision.

The guidelines require banks and financial institutions to conduct a preliminary review, with due diligence checklists, and a detailed environmental review before making financing decisions about projects. The guidelines outline a General Environmental Due Diligence Checklist that must be used for assessing the environmental impact of every project before making a financing decision and Sector-specific Environmental Due Diligence Checklists for ten environmentally sensitive sectors which are: agro-business (poultry and dairy), cement, chemicals (fertilisers, pesticides and pharmaceuticals), engineering and basic metals, housing, pulp and paper, sugar & distilleries, tannery, textile and apparels, and ship breaking. It also requires collection of data on the environmental risk rating of projects financed under these sectors.

A baseline study was conducted in 2013 by Bangladesh Bank jointly with International Financial Corporation (IFC) to assess the implementation experience of ERM Guidelines. The outcomes of the study suggested the expansion of the scope of these guidelines by incorporating social issues. In response, Bangladesh Bank entered into a cooperation agreement with IFC for technical support to formulate a comprehensive framework on environmental and social risk management. The updated version to the ERM guidelines, now called Environmental and Social Risk Management (ESRM) Guidelines has been published by Bangladesh Bank in February 2017.

The new ESRM Guidelines intend to integrate environment and social risks in overall credit management. It has incorporated risk mitigation measures and streamlined features to make the reporting user friendly for banks and financial institutions. The new guidelines contain a robust quantitative risk rating system compared to the subjective qualitative risk assessment method of the previous ERM Guideline. It is more focused on contemporary social and climate risks relevant to Bangladesh.

2.3.3. Sustainable Finance Unit

The latest addition in institutionalising green banking within the operational framework of banks and financial institutions is the direction for establishing a Sustainable Finance Unit. This unit will be formed through merging previous green banking units and corporate social responsibility (CSR) units established under the Green Banking Policy Guidelines. From previous experience, it has been observed that officials in the Green Banking Unit perform reporting activities as additional duties beyond their regular responsibilities. Furthermore, focal point officials in charge of communication with the Central Bank are appointed on an ad-hoc basis, and often concerned officials are moved to new positions generating inconsistency in executing new policies and schemes. The new circular attempts to address this by recommending the banks and financial institutions form a unit with five fulltime officials headed by the Head of Credit Risk Management of the institution. It also instructs them to appoint a Focal Point Official with a minimum official rank of Senior Officer along with an Alternate (in absence of the Focal Point Official) to coordinate with the Bangladesh Bank in performing reporting and relevant activities.

A detailed Terms of Reference (ToR) has been outlined elaborating the scope of activities the unit will be mandated to perform. Compared to the previous green banking policy guidelines, this ToR is more specific in framing the range of activities this unit can perform. The circular also directs forming a Sustainable Finance Committee for each bank and financial institution, consisting of the senior most Deputy Managing Director as the President and all heads of core departments as members. This high level committee will supervise the activities and performance of the Sustainable Finance Units. This initiative indicates the Central Bank's attempt to institutionalise green finance within the operational framework of banks and FIs through the formation of a structured unit and a high level supervisory body.

Further, Bangladesh Bank is undertaking research and consultations with banks and financial institutions to introduce a new uniform reporting format termed the Sustainability Reporting Framework according to Global Reporting Initiative (GRI) standards. This new framework will enable banks and financial institutions to assess and disclose social and environment impacts of their investments in globally acknowledged standardised formats.

2.3.4. On-lending Windows and Refinancing Schemes

Refinance Scheme for Renewable Energy and Environmentally Friendly Financeable Sectors

The Bangladesh Bank Refinance Scheme for Renewable Energy & Environment Friendly Financeable Sectors targets the broadening of financing avenues for green products such as solar energy, bio-gas plants, and effluent treatment plants (ETP). This revolving refinance scheme was established by the Bangladesh Bank with BDT 2 billion from its own fund in 2009. Initially launched with 10 products, the product line has increased to 50 types under 11 categories (Renewable Energy, Energy Efficiency, Solid Waste Management, Liquid Waste Management, Alternative Energy, Fire Burnt Brick, Non Fire Block Brick, Recycling & Recyclable Product, Green Industry, Ensuring Safety & Work Environment of Factories and Miscellaneous). To date, 39 banks and 19 Financial Institutions have signed a participation agreement with Bangladesh Bank to avail finance from this scheme.

'Financing Brick Kiln Efficiency Improvement Project' funded by ADB

The US$50 million Asian Development Bank (ADB) funded Financing Brick Kiln Efficiency Improvement Project was launched in 2012. The project is reducing emissions of greenhouse gases and fine particulate pollution from brick fields through transforming existing traditional brick fields into energy efficient ones by promoting the use of modern technology. Under this scheme, USD 30 million has been allocated to the conversion of Fixed Chimney Kilns to Zigzag Kilns, and USD 20 million is allocated for the establishment of Vertical Shaft Brick Kilns, Hybrid Hoffman Kilns and Tunnel Kilns. The fund has been extended to the targeted clients through the Participatory Banks and Financial Institutions (PFIs) who signed agreements with Bangladesh Bank to participate in this scheme. PFIs manage the overall lending and reporting process of clients to Bangladesh Bank and fund disbursements to the brick field owners. The project ends in March 2017.

The initial circular published by Bangladesh Bank was later amended in June 2014 taking into account required changes for successful facilitation of the fund. The grace period for clients was extended from six months to eighteen months and the time span for the total payback period was increased from a maximum of five years to seven years. Borrowers were allowed to pay back their loan through 14 bi-annual instalments according to the revised circular. Brick industry owners were required to pay at least 30% of the total estimated costs of the project whereas financing institutions were required to finance 20%, the remaining 50% was covered under the refinancing scheme.

The rate of disbursement and number of interested clients has been low due to a short repayment period and time consuming strict documentation requirements, as opined by central and commercial bankers and brick field owners during key informant interviews. As of September 2016, Bangladesh Bank had only released total US$16.21 million (BDT 125.95 crore) to five participatory banks and financial institutions against their financing for eight sub projects. The initial target of the project was to disburse US$50 million. Initially, complications also emerged in the issue of choosing appropriate technology for financing between the fund provider and the facilitator. The issue had been later resolved through consultation between ADB and Bangladesh Bank.

Responses during key informant interviews with officials from Bangladesh Bank, private commercial banks and industry owners highlight that criteria for client selection, documentation and reporting requirements are less stringent and more customer friendly under Bangladesh Bank's Refinance Scheme for Renewable Energy & Environment Friendly Financeable Sectors compared to the ADB funded Financing Brick Kiln Efficiency Improvement Project. While brick manufacturers and owners were of the view that commercial banks did not accept the collateral small entrepreneurs were able to provide, as the combined value of the brick field and assets against the collateral guarantee fall far short of the loan amount. In many instances the brick manufacturers were not willing to invest their

share as the entrepreneurs were confident that they could continue to operate dirty brick kilns with tacit support of the law enforcing agencies. The entrepreneurs were sceptical about the sustainability and profitability of the cleaner technology the government was willing to offer. As a solution, some interviewees suggested that a revolving fund could be created with mix of international grant and internal resources for transformation of the brick sector under the leadership of the Bangladesh Bank.

Refinancing Scheme for Islamic-Shariah Based Banks

Islamic-Shariah based banking is gaining popularity in the Bangladeshi financial market landscape among private sector banks. Channelling green financing through these windows is important to expand outreach to the major clients of Islamic-Shariah based banks. Bangladesh Bank incorporated Islamic-Shariah based banks and FIs into the BDT 2 billion revolving fund for Refinancing Renewable Energy and Environment Friendly Financeable sectors through a guiding circular in September 2014. Thus, banks and FIs who operate under Islamic-Shariah based banking principles received access to the fund. They can utilise the fund for financing 50 enlisted products identified under the Bangladesh Bank Refinance Scheme. As of September 2016, four banks and one financial institution have signed participation agreements with Bangladesh Bank under this scheme. Bangladesh Bank is yet to explore innovative schemes which will allow convergence of Islamic-Shariah banking with green transformation contextualised in the domestic financial sector.

Green Transformation Fund for Export Oriented Textile and Leather Sectors

The latest refinancing scheme of Bangladesh Bank in supporting major industrial sectors is the Green Transformation Fund (GTF), which was announced in January 2016. To accelerate sustainable growth in export oriented textile and leather sectors, this fund will facilitate access to foreign exchange for importing capital machinery and accessories for ten categorised environmentally friendly initiatives. These are: water use efficiency in wet processing; water conservation and management; waste management; resource efficiency and recycling; renewable energy; energy efficiency; heat and temperature management; air ventilation and circulation efficiency; work environment improvement initiatives; and other fields as identified by Bangladesh Bank from time to time.

The GTF will constitute a revolving fund of US$ 200 million sourced from Bangladesh Bank's own resources. Participating banks will bear all risks associated with the financing and disbursing of funds to appropriate clients. GTF is a refinancing window which will facilitate green transition of two major export earning sectors of Bangladesh economy in the long run. Six banks have already signed participation agreements with the Bangladesh Bank for this refinancing scheme. Enthusiasm about this fund amongst banks and financial institutions indicates this fund will play a catalytic role in the green transformation of these sectors in coming years.

2.4. IDCOL as a Source and Enabler of Green Finance

Infrastructure Development Company Limited (IDCOL) emerged as a key player in bridging the financing gap for comparatively new medium and large scale environmentally friendly infrastructure and renewable energy projects in Bangladesh. IDCOL was established in 1997 by the Government of Bangladesh, licensed as a non-bank financial institution with the initial mandate of financing infrastructure and renewable energy projects. In recent years, IDCOL has been intermediating refinancing for promoting solar home energy systems, domestic biogas, solar irrigation systems, solar mini-grids, solar powered telecom BTSs in off-grid areas and bio-mass based power plants. IDCOL finances these sectors through different schemes mainly facilitated by partner micro finance institutions (MFIs). These schemes are usually composed of concessional refinancing bundled with appropriate technology assessment supports, quality control, monitoring and other technical support services. This collaborative model of project implementation with MFIs and rural non-government organisations (NGOs) has been proven effective in IDCOL's case and can be tested for executing other refinancing schemes.

IDCOL's Solar Home System Programme has installed about 4.1 million solar home systems (SHS) in off-grid rural areas of Bangladesh till October 2016. 18 million beneficiaries have been provided with solar electricity covering 12% of the total population of Bangladesh as part of this programme. IDCOL

initially received credit and grant support from the World Bank and GEF to launch the scheme. Later, GIZ, KfW, ADB, IDB, Global Partnership of Output-Based Aid, JICA, USAID and DFID provided additional financial support for expansion of the programme. At present, 56 partner organisations (POs) are implementing the programme in the field level. IDCOL provides grants and soft loans as well as necessary technical assistance to the POs. POs are responsible for selecting customers, extending loans, installing the systems, and providing after sale service. IDCOL's total investment under the programme is BDT 52,240 million (US$696 million) out of which US$600 million has been obtained from loans and the rest as grants. IDCOL has a target to finance six million SHS by 2021, with an estimated generation capacity of 220 MW of electricity.

IDCOL finance also supported the construction of around 42,800 domestic sized biogas plants till April 2016. The programme was launched with support from SNV Netherlands and KfW; later, the World Bank joined. This intervention saves 41,000 tons of firewood ever year worth US$3.5 million and also reduces the use of 25,000 tons of chemical fertiliser worth US$7.6 million by producing 165,000 tons of organic fertiliser. IDCOL plans to install 60,000 biogas plants in Bangladesh by 2018.

Approval for financing 459 solar irrigation pumps has been given by IDCOL so far, of which 324 are already operational while the remaining pumps will come into operation soon. IDCOL has a target to finance 1,500 solar irrigation pumps by 2018, which will largely contribute to green transformation of agricultural practices in rural areas.

IDCOL is also financing solar mini-grid projects to expand the use of renewable energy in off-grid areas. To date, 18 solar mini-grid projects have been approved for financing, of which seven are in operation and are providing grid quality electricity in remote rural areas. The company has a target to finance 50 solar mini-grid projects by 2018. IDCOL has also financed two rice-husk based power plants, with a total capacity of 650 KW, and provided solar powered solution for 138 telecom BTSs in off-grid areas.

IDCOL also extends support to its partner organisations for project assessment and provides intense technical support in monitoring and successful implementation of projects. A combination of sector specific financing products, intensive technical support, and collaboration with implementing partners in rural areas, has enabled IDCOL to achieve remarkable success in promoting green finance for renewable energy and infrastructure.

2.5. Banks and Non-Bank Financial Institutions as a Source and Enabler of Green Finance

All banks and financial institutions are required to comply with Bangladesh Bank's green finance regulations. In response to these regulations, banks and NBFIs are promoting both direct and indirect green finance through loan disbursements. Since January 2016, a minimum target of direct green finance has been set at 5% of the total loan disbursement for all banks and NBFIs. Subsequently, BDT 503.2 billion has been disbursed in green finance during FY 2016 by 46 banks and NBFIs.

During this period, indirect green finance (BDT 469.8 billion) exceeded the total amount of direct green finance (BDT 333.5 billion). Private commercial banks (PCBs) are playing the key role (80.4%) while the contribution of others constitutes 15.6% by Foreign commercial banks (FCBs), 3.4% by Non-bank Financial Institutions (NBFIs), 0.6% by State-owned commercial banks (SCBs) and 0.01% Development Financial Institutions (DFIs). The following table depicts the overview of direct and indirect green finance by different types of banks and NBFIs in FY 2016.

Table 1: Direct and indirect green finance in FY 2016 (million BDT)[3]

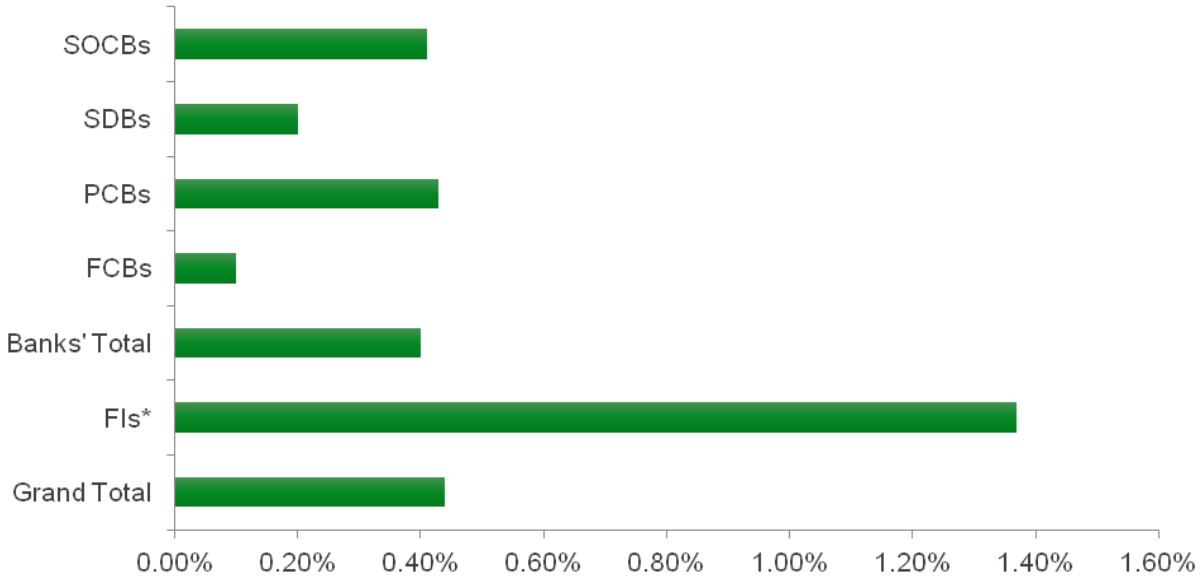
Type of banks/ NBFIs	Direct Green finance	Indirect green finance	Total green finance	Sector wise contribution
SCBs	2013.7	1234.5	3248.2	0.6
DFIs	30.1	0.0	30.1	0.01
PCBs	24597.4	379887.5	404485.0	80.4
FCBs	768.8	77547.3	78316.1	15.6
NBFIs	5948.2	11193.8	17142.0	3.4
Total	**33358.2**	**469863.1**	**503221.3**	**100**

As private commercial banks constitute the largest portion of the total loan disbursement, it is quite natural that the major contribution in green finance comes from these banks. 2016 was the first year following the imposition of the 5% direct green financing target, as such realising the impact of this regulation in increasing direct green finance over indirect green finance will take time. The annual target has been placed with the objective of increasing share of direct finance in the overall green finance. Increasing contribution of SCBs, FCBs and NBFIs will be instrumental in this regard.

The percentage of direct green finance as portion of total loans disbursed is very low. Data derived in September 2016 shows direct green finance as a percentage of total funded loan disbursement was only 0.44%. The following figure illustrates this:

[3] Source: Annual Report 2015-16, Bangladesh Bank

Figure 3: Direct Green Finance as % of Total Funded Loan Disbursement[4]



**If we consider FIs except Infrastructure Development Company Limited (IDCOL), then green finance of FIs became 0.42% of total loan disbursement*

The Table below demonstrates the trend in contribution of banks and FIs to green finance over the past three years. This is because most of the policies and interventions have been in place since 2013.

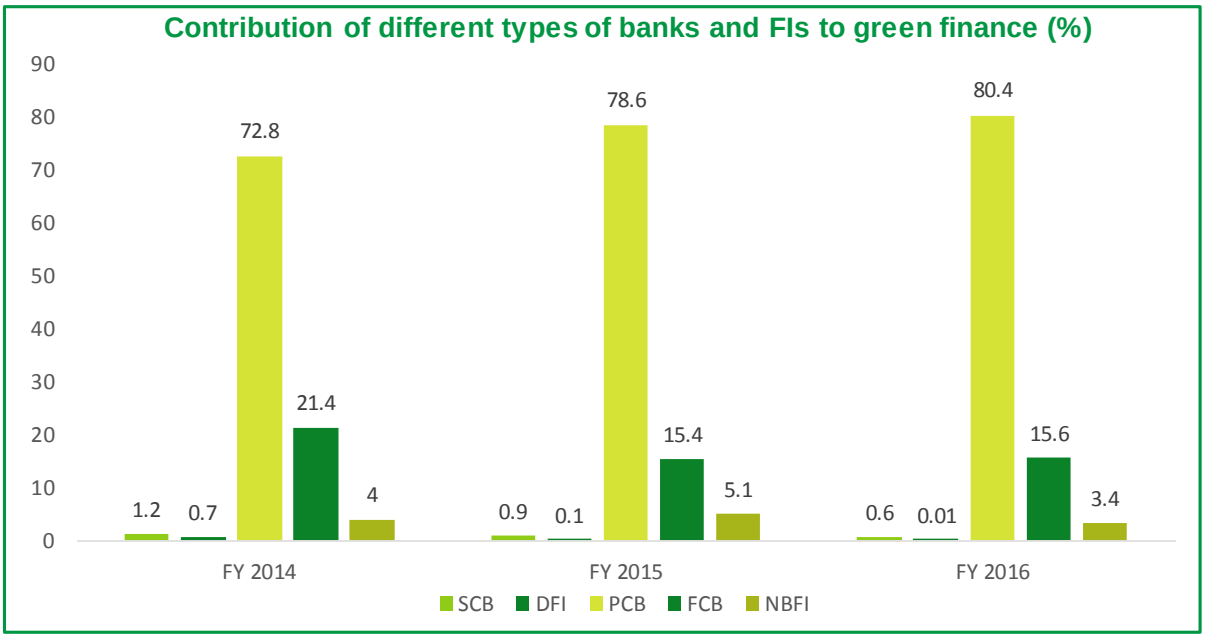
Table 2: Contribution of different types of banks and FIs in total green finance (%)

Types of banks/ FIs	Contribution of different types of banks and FIs to green finance (%)		
	FY 2014	FY 2015	FY 2016
SCBs	1.2	0.9	0.6
DFIs	0.7	0.1	0.01
PCBs	72.8	78.6	80.4
FCBs	21.4	15.4	15.6
NBFIs	4.0	5.1	3.4
Total	100	100	100

From the table above it can be seen that the contribution of DFIs is insignificant in overall green finance disbursements as these institutions constitute comparatively a smaller portfolio compared to other commercial banks and FIs. Share of funds disbursed by NBFIs in the total green finance disbursement had an increase in 2015 from 4% to 5.1%, then again it declined to 3.4%. So, the increase in the amount of total green finance combining both direct and indirect green finance is mainly driven by the increased contribution of PCBs in recent years. The trend is depicted in the following graph which shows the dominant role of PCBs in overall green finance promotion:

[4] Source: Quarterly Review Report on Green Banking Activities of Banks and Financial Institutions and Green Refinance Activities of Bangladesh Bank (July-September, 2016)

Figure 4: Contribution of different types of banks and FIs to green finance (%)



Considering total amount of loans disbursed in different green finance categories in FY 2016, data shows sectors like fire burnt brick, renewable energy, liquid waste management, setting up green industry etc. had the major uptake. Private commercial banks had the major share in financing most of the categories like energy efficiency, liquid waste management, fire burnt brick, recycling and recyclable products, setting up green industries and factory safety. NBFIs disbursed major portion of financing in renewable energy, a large contribution of which came from IDCOL. Most of these categories are included in various refinancing schemes of BB through which private commercial banks are incentivised to promote direct green finance. Data shows that in FY 2016, for most of the categories there have been increase in disbursements except renewable energy and solid waste management. Compared to FY 2015, the total amount disbursed under these categories had a slight reduction, from BDT 33389.7 million to BDT 33358.2 million.

Table 3: Green finance in different products (million BDT)[5]

Category of green finance	FY 2016	FY 2015
Renewable energy	5495.7	9201.3
Energy efficiency	2530.3	1574.4
Solid waste management	12.2	2127.6
Liquid waste management	4838.0	2032.0
Alternative energy	334.0	17.3
Fire burnt brick	7157.9	7182.5
Non-fire block brick	209.8	20.5
Recycling & recyclable product	4877.4	2536.8
Green industry	5025.8	3969.5
Safety and security of factory	1947.4	262.6
Others	929.6	4465.2
Total	**33358.2**	**33389.7**

Complying with Environmental Risk Rating (ERR) related guidelines of Bangladesh Bank, currently all banks and FIs are conducting risk assessments for applicable projects. In FY 2016, 70,707 projects

[5] Source: Annual Report FY 2015 & 2016, Bangladesh Bank

eligible for Environmental Due Diligence (EDD) were assessed, among which 60,175 were rated. 52,776 rated projects have been finally financed during this period, mostly facilitated by PCBs.

The following table shows the comparison between different types of banks and FIs in terms of the total amount disbursed in rated projects in between FY 2014 to FY 2016. The trend shows the total amount disbursed in rated projects by PCBs, FCBs and NBFIs have increased during this period. The amount disbursed by SCBs in rated projects declined in between FY 2014 to FY 2015, but it then increased in FY 2016. The total amount disbursed in rated projects by all banks and FIs also declined in FY 2015, but then it had a sharp increase in the FY 2016. Compared to the amount disbursed by PCBs, FCBs and NBFIs the disbursements of SCBs are low during the reviewed period.

Table 4: Amount disbursed in Environmental risk rated projects by banks and NBFIs (in million BDT)[6]

Type of banks/NBFIs	Amount Disbursed in rated projects (million BDT)		
	FY 2014	FY 2015	FY 2016
SCBs	30000	28896.8	48404.3
DFIs	24400	3824.3	2354.1
PCBs	1344300	1281527.1	1944815.5
FCBs	110700	109230.5	134839.3
NBFIs	71300	76578.3	112344.7
Total	**1580700**	**1500057.0**	**2242757.8**

Banks and NBFIs are also utilising 10% of their CSR budgets for the climate risk fund as dictated by BB guidelines. During FY 2016, BDT 455.7 million and BDT 3.9 million have been utilised by banks and NBFIs respectively for the climate risk fund. In addition, the allocated amount for green marketing by banks stood at BDT 53.5 million, while for NBFIs it was BDT 2.7 million during this period.

The overall scenario suggests banks and NBFIs are participating in the initiative taken by BB through promoting both direct and indirect green finance, but the major contribution to date has been from private commercial banks. As state-owned banks have large portfolio and greater outreach compared to most of the private commercial banks, there is scope for further increasing their loan disbursements in direct green finance. Also, indirect green finance still outweighs direct green finance in the total loan disbursements. As the 5% annual target has been introduced in 2016, it is important to closely monitor its impact in increasing direct green finance in upcoming years.

2.6. Sources and Enablers of Green Equity Finance

Banks, given their concern for safety of funds, by default prefer to provide funding to proven business ideas and often reject loan applications from companies in growth phases trying to launch new or unconventional products and services. Banks provide loans against collateral, judging past credit and business records. Equity financiers fill the void in the financial system of economies by providing funding to growth stage companies with high success potential that usually cannot secure loans from banks. Equity financiers share profit and loss with the entrepreneurs and provide funding without seeking any collateral against it.

Along with an unaccounted number of private investors, Bangladesh currently has 15 venture capital firms. The first venture capital firm of the nation, BD Venture, was established in 2012 even before Bangladesh had clearly laid out equity funding rules. Its first investment was in a green venture, Sustainable Power Limited, which offers innovative products like solar powered fans and lights.

[6] Source: Annual Reports, FY 2014 to FY 2016, Bangladesh Bank

Both local and foreign equity financiers are playing a critical role in greening the growth of Bangladesh. Global entrepreneurs and fund providers have in particular been showing an ardent interest in investing in green projects in Bangladesh as equity finance providers. The first recycled PET resin manufacturer of the country, Bangladesh Petrochemical Company Ltd., received equity funding from US based venture capital firm DEFTA Partners. A number of Nordic companies have expressed interest in investing in green energy and clean tech companies in Bangladesh. World Wide Recycling BV of the Netherlands established a joint venture with Bangladeshi firm Waste Concern to produce energy out of waste using no-burn technology such as biogas generation, landfill gas collection and electricity generation.

Impact investment, the most recent phenomena in the world of finance, is taking ground in Bangladesh. Impact investment is defined as “investments made into companies, organisations and funds with intention to generate social and environmental impact alongside a financial return. This inclusion of a financial return differentiates it from grant funding and the deliberate strategy for positive benefit to society separates it from traditional investments” by the Global Impact Investing Network. 15 impact investors have invested a total of US$1 billion in different projects in Bangladesh promising positive environmental, social and economic return. 30% of this impact funding is made in the form on equity finance.

3. Challenges in Accessing and Mainstreaming Green Finance

3.1. Challenges in Accessing Green Finance from International Funds

Despite early success in securing climate change financing, Bangladesh's success in accessing more funding as a frontline affected country has become somewhat limited. The challenges Bangladesh face include:

1) A poor understanding of global climate financing arrangements.

2) Lack of readiness on the part of the government in identifying National Implementing Agencies (NIEs) for accreditation of the GCF and other international financing mechanisms.

3) Poor fiduciary and governance track record in project design, implementation and monitoring.

4) Dependence on Multilateral Implementing Entities (MIE), like the World Bank, UN, and UNEP in formulating cases for lodging claims to climate financing forums.

5) Lack of internal capacity to prepare balanced and high-quality project proposals in line with funding agency requirements.

6) Lack of capacity to utilise funds within the stipulated timeframe.

7) Lack of confidence of funding agencies in fiduciary and institutional governance in place including lack of transparency. For example, a US$ 12.2 million World Bank Bio-diversity Conservation Fund in the Sundarbans project and another Aquatic Bio-diversity Conservation Fund were cancelled because of inept handling.

8) Slow processes in lodging claims for funds often result in applications being submitted post the application deadline.

9) Financing from these funds are often incremental. If a country misses one or two successive financing cycles, it can fall behind.

10) Frequent rotation of officials representing Bangladesh in various climate financing forums.

The above shortcomings have been corroborated by Bangladesh's poor performance in securing augmented green financing. For instance, Bangladesh received a grant of US$ 145 million from the GEF, whilst India, Nepal and Sri Lanka received larger grants of US$ 962 million, US$ 190 million, US$ 271 million respectively. Bangladesh has also been unable to make a case for itself under GEF's United Nations Convention on Combating Desertification, despite strong symptoms of desertification appearing in the north of the country. At the UNFCCC, Bangladesh could not secure any financing despite being a member in the Adaptation Fund Board. Similarly, Bangladesh's role as a representative of the LDCs at the GCF was not properly discharged as it failed to interact with its peer countries and was eventually dropped from this Board. Furthermore, Bangladesh was not able to claim in an effective manner much from IDCOL's flagship Solar Home System project. IDCOL negotiated carbon credit pricing of nine Euros per tonne and on that basis the reduction in carbon emissions due to the replacement of Solar Home Systems fetched only Euro 6 million. Following the expiry of Kyoto Protocol and in the absence of a contractual obligation to buy the carbon credits, the demand for the same has drastically reduced which has resulted in the carbon credit market buying rate dropping from Euro 9 to Euro 0.25 per tonne.

As time goes on, securing climate change financing from multilateral and global funds is becoming more and more competitive. Many countries are at various stages of preparation to qualify for accessing the GCF. Extensive technical assistance is provided to make countries ready for accessing GCF funds. Countries have to follow a prescribed process, substantiated by statistics and information to make a good case for their claim. The GCF will support projects, programmes, policies and other activities in developing countries using thematic funding windows. It is intended to be the centrepiece of efforts to raise climate finance of $100 billion a year by 2020. The GCF is gradually evolving to be the central pot of money through which all green climate financing will stem from. In 2016, GCF approved funding covering 19 projects totalling USD 1 billion. Climate funds are now branching out to

leverage funds through guarantees and equity investment, particularly as they seek to enable private sector investment.

Bangladesh continues to strive to access the GCF as a regular member. The Economic Relations Division (ERD) of the Ministry of Finance has been named as the National Designated Authority (NDA). This NDA has nominated six government departments and agencies for consideration as National Implementing Entities (NIE), out of which three: Department of Environment (DoE), IDCOL and Palli Karma-Sahayak Foundation (PKSF) have been cleared for stage two scrutiny. GIZ is supporting eight low income countries in preparations to access the GCF. The accession to GCF is still in process, but the NDA is making efforts to join it as a full member. To date, Bangladesh has received GCF funding of US$ 40 million for cyclone shelter construction in coastal areas through KfW as the Multilateral Implementation Entity (MIE), executed by the Local Government Engineering Department (LGED).

3.2. Challenges in Executing Green Banking Policies and Interventions

Green finance is a comparatively new issue in Bangladesh's financial sector landscape, so lack of capacity to execute policies and programmes in the private sector is expected. Although the green banking policy guideline has encouraged capacity building for banks and financial institutions, the improvement has been limited, which is evident from the slow growth of green finance promotion. Also, growth of green finance requires capacity development across sector stakeholders, including: capital market players, industry stakeholders, and regulatory agencies. To date, a cross sector capacity development strategy is still not in place which involves all the relevant stakeholders.

Bangladesh Bank's green banking policy guidelines set a minimum 5% target for direct green finance as a proportion of the total loan portfolio. To date, 50 sectors have been identified as being eligible for receiving direct green finance. The sectors identified to be eligible for receiving direct green finance usually require only small amounts of funds. Disbursing 5% of all loaned amount to these 50 sectors against the numerous medium and large size sectors have proven itself as a difficult target to be met by banks and financial institutions and as such, they have consistently failed to meet the quota every quarter since Bangladesh Bank set the requirement.

Among the 50 sectors identified to be eligible for direct green finance most do not have well-established investment demand in the socio economic context of Bangladesh, and the few that have do not usually need investment of more than 5 crore taka.. Modest demand is observed for investments in recycling ventures, solar home systems, biogas production, energy efficient lighting system, liquid waste management projects and further limited demand for solar irrigation pumping subsector. Investment demands for projects on wind power, solar cooker, solar water heater, solar air heater and cooling system, auto-sensor enabled switch assembly plant, waste heat recovery system, solid waste management, non-fire block brick manufacturing, vermicelli compost fertiliser production are next to none.

Bangladesh Bank's Green Banking Policy Guidelines also suggested banks to publish Green Annual Reports according to the Global Reporting Initiatives (GRI) standards. To date only Prime Bank and Bank Asia have been able to deliver on this requirement set by Bangladesh Bank. Other banks are still struggling to develop internal capacity to publish Green Annual Reports according to GRI standards.

3.3. Challenges in Mainstreaming Green Finance

3.3.1. Lack of skills in Assessing Financial Implications of Environmental Risks

Financial implications of environmental risks assumed by different projects cannot yet be conveniently quantified. Given the distant, inconsistent and unpredictable nature of impacts of climate change, most financiers tend to ignore the financial implications of being exposed to environmental risks while making investment decisions. Green projects need to compete for each taka of funding with polluting projects promising quicker returns. Without factoring in the environmental risks in determining the required rates of return, green projects often lose out in securing funding against their polluting competitors.

The ESRM guideline published in February 2017 has introduced a quantitative method to measure environmental and social risks of financeable projects in identified sectors. Bangladesh Bank is also working to introduce a Sustainable Reporting Framework to enable banks and FIs to report impacts of their investments in quantitative formats. Still, the absence of uniform techniques and formats to quantify financial implications of environmental risks is a major constraint to appropriately design incentives and disincentives for risky projects.

3.3.2. Inability to Internalise Environmental Externalities

Along with environmental risks, inability to internalise environmental externalities places itself as a barrier to mainstreaming green finance. As noted in the G20 Green Finance Synthesis Report:

"Such externalities can be positive for green investments as their benefits accrue to third parties, and negative when polluting investments inflict harm on third parties. Difficulties in internalising these externalities result in under-investment in "green" activities and over-investment in "brown" activities. Some manufacturing firms pollute the environment, but their negative externalities are not fully internalised. For example, if residents of the region whose health is affected are not in the position to seek compensation from the polluting firms, it would lead to excessive investment and production in polluting activities. Such cases are more common in countries where environmental rights are not well defined and the capacity of enforcing environmental policies is weak."

Most for-profit business ventures operating in Bangladesh focus on only short-term monetary gains without paying heed to the long-term environmental impacts resulted from their mode of operation. In conflicts between economic gains and environmental responsibility, economic gains are almost always prioritised. Weak enforcement of environmental laws means that for-profit ventures are not negatively impacted even after evidence emerges that their business practices are harmful to the environment. Without a robust environmental regulatory system, it is left to the good will and voluntary environmental commitments of private sector companies to ensure that industry moves towards less environmentally damaging practices.

3.3.3. Maturity Mismatch

Banks are tasked with the responsibility of fulfilling both the liquidity demands of suppliers of funds to the financial system, and the long-term investment demands of the borrowers. Green projects usually have a longer payback period than polluting projects in the same industry. For example, the initial cost of constructing an energy efficient manufacturing plant is higher than an inefficient plant. The larger initial investment demand of green projects results in them having a longer payback period and thus aggravates the problem of matching maturity from the financiers' perspective.

3.3.4. Risk-Return Disparity

The trade-off between risks and return is involved at the heart of any financial investment decision. Green projects are exposed to certain unique risks that increases the rate of return expected from them. A significant amount of operational risk is often associated with green projects as they often seek to deploy new technology in Bangladesh that has not been vastly used before. Plus, the market risk attributed to being the first mover in an underdeveloped market adds to their risk profile. Moreover, where green projects are reliant on specific green financing mechanisms or incentives laid out by Bangladesh Bank, they become vulnerable to changes in policy. Both debt and equity fund suppliers to such projects consider them higher risk as small changes in policy may render them no longer profitable.

3.3.5. High Transactions Costs

Green projects requiring high initial investment struggle to secure the required funding to take off. Green projects requiring low initial investment experience a different set of challenges unique to them. Small-scale local green entrepreneurs find it difficult to prove their credit-worthiness and thus to secure funding in the form of either equity or liability. Banks and financial institutions often receive applications for green funds from small-scale enterprises that do not have proper documents. Receiving green finance application from owners or directors with poor Credit Information Bureau

(CIB) report is also not uncommon. Green projects of all scales experience high transactions costs which cast a shadow on benefits provided by them.

3.3.6. Insufficient Entrepreneurial Interest in Green Projects

Even though the Government of Bangladesh is strategically committed to promote climate consciousness and due to the initiatives taken by Bangladesh Bank green debt financing is taking ground in the nation, local business owners are yet to play any significant role in the country's green financing scene. Since private investors are not subject to regulations set by Bangladesh Bank, the only way to motivate them to invest in green project models is to prove that green projects can be equally profitable as their carbon intensive counterparts.

3.3.7. Lack of Shared Ownership among Stakeholders in achieving green growth

The consumer groups in Bangladesh are critically vulnerable to risks posed by climate change but are not sufficiently aware of it. There is very little demand from the consumer side for green products or green solutions and thus businesses are not drawn to undertake green projects. It is unsurprising that all seven of the top 10 green factories located in Bangladesh are from the export oriented garments sector. As a result of consumer demand in the western world for ethically sourced clothing, the best performing Bangladeshi garments factories make it a point to operate as greenly as possible. For Bangladeshi manufacturing firms serving primarily the local market the demand is negligible, with firms motivated to only fulfil the most basic environmental regulations set by the government. Thus, such businesses do not place any demand for green financing to the financial system.

4. Opportunities for Enhancing Green Finance

4.1. Leveraging Private Sector Financing

Going beyond the banking sector, green financing can be promoted through leveraging private sector funds in the capital and bond market. Listed companies can be directed to disclose information about the social and environment impact of their investments in standardised formats in their annual financial report. Regulations can be formulated to incentivise better performing companies in this regard through giving better rating in various market indicators. This step can open a new window where a significant portion of the enlisted private sector participants will be made accountable for their investment impacts. It will also create additional demands of direct green finance from banks as companies will be more interested in investing in environment friendly projects. Companies introducing IPO/ debt issuance for a green project can be also incentivised through concessional registration and transaction costs.

Developing new equity and debt instruments can be considered as another way of raising green finance through private sector funds. Bangladesh should consider introducing green bonds as a next step in green financing. Though it will require set of standards and support mechanisms to properly function, regulators should consider it a priority intervention.

Encouraging banks to develop long-term loan products for green financing, especially in areas like green infrastructure and large scale renewable energy projects would be vital in the next phase to promote green finance. Large scale green projects require long-term flexible financing and involving private sector in innovating suitable products for this purpose is crucial to take market led green finance in the next stage.

The insurance sector can be integrated to support promotion of green finance through risk minimisation of green projects. Green insurance solutions can help investors to minimise risks of low carbon projects, thus attracting private investors to invest more in environment friendly productions.

4.2. Promoting Green Market Innovations

The development of green finance is directly linked to market innovations. The demand for greener and cleaner industries has led to the need for, and development of, environmentally friendly technology. However, replacing existing technology is expensive and incurs risks from the viewpoint of the sustainability of businesses. As a result, introducing incentives for manufacturers through financing mechanisms is crucial for promoting green transformation. Green banking incentives and green refinance schemes provide private sector manufacturers and service providers the means to become greener, minimising the risks of transition. Thus a sustainable private sector led green transformation can only happen if there is a supportive financial system is in place (UNEP Inquiry, 2016).

4.3. Integration of SMEs

Bangladesh Bank has introduced several support schemes for Small and Medium Enterprises (SME) in recent years with a special focus on women SME entrepreneurs. Utilising the grants received from different development partners and funds derived from own sources, financing mechanisms like credit wholesaling, credit guarantee, refinancing through concessionary fund supply etc. have already been in place to support emerging small and medium enterprises. This is the appropriate stage to start ensuring these facilitative financing schemes also contribute to greening of the SME sectors.

Several priority sectors have been identified by BB for extending SME financing supports. The list includes sectors like renewable energy production, light engineering, plastic industry, jute made products, leather industry, agro-product and food processing etc. which have direct linkage with the economy's green transformation. It is also important to ensure at this early stage of SME growth that expansion of these sectors do not compromise with associated environmental risks, SME industries grow as both competitive and green at the same time. This requires a tricky mix of enabling SME policies and green financing supports. The very first step can be aligning both ongoing and upcoming SME support schemes with existing green finance policies. It will help the SME industries grow in a

sustainable way complying to environmental risk management requirements. In future, strategies to integrate semi-formal and informal SME sectors into green financing mechanisms can be explored as well.

4.4. Exploring New Potential Sectors for Promoting Green Finance

Increasing impact of green finance will depend on identifying new potential sectors and taking necessary initiatives to design appropriate strategies and schemes. Potential sectors have been identified and discussed here which can be prioritised in channelling funds for green transformation in the near future.

Manufacturing

A sizeable number of small and medium industries in ready-made garments, leather and ceramic sectors with strong forward linkage are yet to adopt cleaner production paths. Unlocking dirty to cleaner production paths requires retrofitting or new technology along with a switch to minimum use of water from underground which will require access to finance to transform the sector.

Transport

Transport infrastructure is a major sector in which large scale investments have been made in the last decade, mostly sourced from public sector finance. In parallel, rapid urbanisation has led to manifold increases in the number of motorised and non-motorised vehicles in urban areas. It has also become a major cause of urban air quality degradation and pollution. At present, it is the second largest contributor to urban air pollution after brick kilns in Bangladesh. However, few measures have been taken to initiate green transformation in the urban transport sector in response.

Green transformation of transportation system requires long term coordinated strategic actions between different agencies. The initial step can be carefully designing public sector funded projects to minimise long term environmental risks. Innovations for promoting green transportation especially in the urban areas can be experimented. A set of policy mix combining incentives and disincentives is also essential to channel private sector funds in this sector.

Urban Building Construction and Housing

Greening urban building construction and housing will be another priority sector as one-third of the population of Bangladesh will be living in urban areas by 2020. Complemented by lack of adequate housing for rapidly growing urban population in big cities, this will emerge as a major issue to tackle in near future. Housing deficit in urban areas has grown from 1.13 million units in 2001 to 4.6 million units in 2010 (7th Five Year Plan, 2016-2021). The deficit is projected to reach 8.5 million units in 2021 if investment does not increase proportionately in this sector. In response to this need, large scale investments will be made in the next decade. A large portion of this investment will be sourced from private sector credit. Thus, devising mechanisms to utilise this potential credit flow as a major driver of green transformation in urban housing sector is an immediate urgency.

Promotion of green urban housing also requires coordinated action plans to address associated issues like waste management, drainage system development, air and water pollution, access to safe water and sanitation etc. Another important part is green and safe industrial construction. For example, the Government of Bangladesh has constituted a Two Step Loan (TSL) fund in Bangladesh Bank in this regard targeting the strengthening of the building safety of RMG factories in Dhaka, Narayanganj and Gazipur District and Chittagong City. This is a refinancing facility through short to long term finance under the Urban Building Safety Project sponsored by Japan International Cooperation Agency (JICA). Similar schemes and sector specific initiatives are crucial to foster green construction in the industrial sectors.

The success of green housing will ultimately depend on how the real estate sector is incentivised through promotion of green finance. It is the fourth largest contributor to services GDP and a major receiver of loans from the private sector financial institutions. Motivating the urban real estate sector for promoting green housing will not only rely on concessional green financing mechanisms, a regulatory mix of disincentives imposed by concerned agencies have important role to play. Once

there are regulatory obligations for green construction in place to comply with, facilitative green finance schemes will generate faster uptake by the real estate stakeholders. This requires coordinated effort between regulatory agencies, financial regulators and market players at every stage of policy design for successful implementation.

Clean Power Generation

Several plans and interventions have been devised to accelerate the implementation of scalable power generation through renewable energy in Bangladesh. Also, strategies and schemes to promote green finance for expanding renewable energy have been introduced. But at the same time, the government has planned for substituting gas with coal as the primary fuel for electricity generation. The 7th Five Year Plan (2016-2020) also assumes increased share of nuclear based power in future. Sharp increase in use of coal has been projected, the projected share of coal goes up from only 3 percent at the end of the Sixth Plan (FY2015) to 21 percent by the end of the Seventh Five Year Plan. Subsequently it will rise to 50 percent by 2030, when it will be the major source of power. A significant increase in the share of nuclear power has also been projected, from zero in 2015 to 8 percent by the end of the Seventh Plan and consequently to 10 percent by 2030.

Increase in coal and nuclear based electricity generation will incur environmental trade-off and risks. As expansion of renewable energy is far short of the growing demand for electricity, coal and nuclear based power generation are the limited options the country can think of in the short run. In such a case, efficiency in production and distribution is the key issue to address in minimising negative effects on the environment. Reduction in transmission and distribution (T&D) losses can be regarded as a priority area for immediate intervention. Bangladesh has made remarkable progress as the T&D losses have been reduced from 28.43% in 2000 13.03% in 2015. Though this is an encouraging progress considering international standards, there are scopes of further efficiency gains in distribution.

Also, many gas based plants are using backdated technology till now, efficiency can be increased through investing in technology replacement. In setting up new coal power plants, it is crucial to ensure latest efficient technology has been used. Mostly public sector funds will be required in this regard, but supportive financing schemes are also required for private sector investors investing in power sector.

Energy Efficiency

With very old power generation, transmission and distribution systems in place, Bangladesh can avail the opportunity to use global public resources to ensure energy efficiency of the power sector. Facilitating finance for more efficient production, transmission and distribution, and technology replacement can play an important role in this regard.

Renewable Energy Technology

The Government has conducted a comprehensive assessment of renewable energy technologies in consultation with the relevant stakeholders, including MDBs. The technologies include: utility-scale solar PV; grid-connected solar rooftop; solar home system; solar irrigation; solar mini-grid; wind; biomass; biogas; waste-to-energy; small hydro; geothermal; hydrokinetic; tidal; and improved cook stoves. This is an area where Bangladesh has already achieved great success, but there is scope to scale up renewable energy programmes with the use of the right mix of technology and finance.

Waste Treatment and Recycling

The urban centres in Bangladesh are hotspots of solid and liquid wastes. A large volume of liquid waste is released from households and industries into the water systems around Dhaka. The solid waste is often dumped in open air. Both the solid and liquid wastes have huge potential to pollute water, soil and air. In this capacity, green finance could be an option to clean the cities following the 3R (Replacement, Reduction, Refinement) principle.

4.5. Learning from Peer-Country Experiences

The United Nations Environmental Program (UNEP) has commissioned a global inquiry for designing a sustainable financial system to advance policy options to improve resource mobilisation towards a green and inclusive economy. GHG emissions, extreme forms of climate change, sea surges and sea-level rise are all evident in their manifestations. Affected countries can benefit from an appreciation of the findings. Participating countries in the Inquiry will aim to inculcate a socially responsible institutional ethos in the financial sector.

In India, the climate finance landscape remains fragmented with tiers of government: central, state, private sector and civil society. A sound policy choice for solar and energy-efficient markets draws in climate finance from domestic and international sources. A Climate Change Finance Unit has been set up at Ministry of Finance to negotiate and receive funds for multilateral and bilateral sources while the Ministry of Environment is tasked to selection and oversight of projects. No formal coordination mechanism yet exists around climate finance and there is a need for a coherent strategy on climate finance in India. Apart from budgetary and subsidy allocation, India increasingly uses market mechanisms, private finance, and commercial instruments for renewable energy. It successfully taps resources from different international funds such as GEF, Special Climate Change Fund, the Adaptation Fund and the Clean Technology Fund (CTF). India focuses less on adaptation fund and more on Clean Technology Fund. It aims to reduce its GHG emission by 20-25% by 2020 compared to the 2005 level. India Investment Plan targeted to tap USD 775 million from CTF to improve hydro power, solar power and improve efficiency.

In Sri Lanka, successful institutional reforms through setting up of a Climate Change Secretariat headed by a Director in Climate Change Division, have offered an effective national platform. A dedicated institutional mechanism exists for climate response and to facilitate research. Resultantly, Sri Lanka is the first country in the region to get US$38.1 million approved from the Green Climate Fund (GCF). Sri Lanka was able to secure at an amazingly short period Emergency Natural Disaster Assistance (ENDA) from the World Bank following the Tsunami that ravaged the coastline of Sri Lanka.

Nepal also highlights climate response as a priority in its 3-year plan. The Nepalese cabinet made a point about its importance by holding a meeting at a high plateau at the Himalayas left bare by the receding snow-line. It claims national readiness in place for accessing GCF: i) capacity building of NDA and Accredited Entity direct access to GCF readiness program ii) formulation of investment framework for adaptation and mitigation to reduce climate chance risk, and iii) building capacity for a project pipeline of bankable green projects and program. Climate financing negotiations are often impaired due to lack of adequate preparation, lack of institutional memory, frequent rotations of negotiators, poor sectoral coordination and weak involvement of stakeholders.

The Maldives archipelago of coral islands is projected to be destroyed by rising water levels. The Maldives Cabinet held a cabinet meeting under the sea, drawing huge media attention, an effective portrayal of the islands sinking into the sea. Their bid to purchase land on the mainland drew international empathy. The Maldives Government sends a strong team, picking up expatriate Maldivians, to effectively bargain international climate change negotiations to press their case.

5. Recommendations

5.1. Recommendations for Improving Access to International Green Finance Funds

1) **A Climate Finance Unit may be set up in the Ministry of Finance with the specific purpose of securing green finance so that Ministry of Environment can devote their resources to selection and implementation of projects.**

   Bangladesh as one of the most climate vulnerable countries, must keep up to date with international developments in order to secure maximum financing from climate funds, and follow the new dynamics of leveraged financing aiming to convert challenges to opportunities. GoB should consider a division of labour in this important area. A Climate Finance Unit could be set up in the Ministry of Finance for securing climate and green financing while the Ministry of Environment oversees the selection and implementation of projects. This arrangement, prevailing in India would free up personnel in the Ministry and Department of Environment to devote their time to project selection and implementation.

2) **Proactive and astute climate diplomacy for accessing competitive global funds allocated for promoting green growth is essential. Evidence of impacts created by existing policies and programmes should be showcased in international forums to strengthen Bangladesh's case for global funds.**

   Care must be taken to bring in professionalism in the work of making funding applications to international green finance funds and rotation of officers engaged in the mainstream work should be generally avoided. Good record keeping of deliberations, discussions, and minutes of the meetings have to be carefully maintained and updated. Bangladesh must ensure that personnel preparing the submission for green financing must have a very good understanding of green financing with ability to independently lodge submissions and strongly pitch their case in international fora.

3) **Bangladesh may aim for a strong fiduciary management system with sound parliamentary oversight of public expenditure targeted towards green finance. It has to introduce an internal audit system for project implementing entities to stay on track on fiduciary aspects.**

   Improving Climate Finance governance capacities will be key in the successful utilisation of available funds and securing more funds in the future. Establishment of effective parliamentary oversight to monitor implementation of relevant projects funded by donors and from domestic resources is crucial. Institutional capacity building and having well prepared human resources is of critical importance in this regard. The academia may cooperate with the policy makers in developing such capacity.

5.2. Recommendations for Improving the Effectiveness of Green Credit Finance

1) **In light of the tremendous potential that green technology has to offer solutions for environmental problems and to steer green transformation of traditional industries by enhancing efficiency in the use of natural resources and power, Bangladesh Bank should consider establishing a Green Technology Financing Scheme (GTFS).**

   High risk associated with funding large scale green projects that will use new technologies has been identified as barrier towards spread of green finance in our analysis. Sovereign or Bangladesh Bank backed guarantee provided to the banks and financial institutions for funding high risk green projects requiring large amounts of funds could be considered. This would give the banks and financial institutions confidence in financing green projects aspiring to introduce novel clean technology in the country by minimising their risk in granting loan to such.

In this regard, learning from Malaysia's tremendous success with Green Technology Financing Scheme (GTFS), Bangladesh Bank should consider launching a similar programme to promote use of green technology in the nation. The Malaysian GTFS is structured to reduce the risk associated with financing green technology ventures borne by Malaysian banks and financial institutions, as the government guarantees 60% of the financing amount and bears 2% of the total interest rate for conventional banks or 2% of the total profit rate for Islamic-shariah based banks. This scheme has enabled Malaysian banks and financial institutions to channel RM2.96 billion in funding to viable and innovative green technology companies. Launched in 2010, the RM3.5 billion scheme was slated to end in December 2017 but given its mega success has been extended till 2022 with allocation of additional RM5 billion funding. Bangladesh Bank should consider designing a similar scheme appropriate for the context of Bangladesh to spread the use of green technology in the nation.

2) **Bangladesh Bank may consider allowing banks and financial institutions to set their own annual green finance disbursement target following a yearly demand analysis of green finance by different sectors.**

   Rather than setting an annual quota of disbursing a certain percentage of total disbursed loans as direct green finance , Bangladesh Bank may consider assessing the overall uptake capacity of major sectors every year where green finance can be channelled and set the annual target based on data and evidence. Banks and financial institutions should analyse demands of funds for their clients, generate data on potential demand of green financing and set the annual target of green loan disbursement based on consultation with Bangladesh Bank. Determining their own annual target would provide banks and financial institutions a sense of ownership to take green financing forward compared to the imposition of a lump sum credit quota by the regulator agency. It would also enable financial institutions to review their green financing strategies every year and explore new sectors for fulfilling annual targets of green loan disbursements.

3) **Bangladesh Bank may consider setting the target of direct green finance disbursement as a percentage of total term loan disbursed, not total loan disbursed.**

   Green investments are made usually in the form of term loans which don't revolve over time. Revolving credit schemes often end up receiving multiples of the pre-approved loan amounts. Thus, as disbursement under revolving credit schemes increases, percentage of loan disbursed as direct green finance (usually as term loans) decreases.

4) **The Sustainable Finance Units established in banks should have well defined business development functions to promote investments in green ventures.**

   Majority of the sectors identified as eligible for receiving green finance has low investment demand. Encouraging more entrepreneurs to take up green businesses can help in overcoming this challenge. For example, a vermicelli compost fertiliser producer may need only a 1 million taka loan, when the bank wants to disburse 100 million taka loan to green businesses. In such a case the bank could disburse the whole amount to 100 vermicelli compost producers. Of course, for that the entrepreneurs would need to be aware of the potential of such green businesses. For this, the banks will have to work as both knowledge-brokers and promoters. The new green entrepreneurs will have to be hand held in the initial period.

5) **Commercial banks may be allowed to reach the green finance market in the rural regions through agents and other micro-level implementing partners.**

   Bangladesh Bank currently allows commercial banks to disburse agricultural loans in rural region by the means of agent banking. The same option could be offered for disbursing green

loans to small scale green projects in rural regions. This would particularly help foreign commercial banks that do not have ground presence beyond the urban regions of the country.

6) **To eliminate the high transaction costs involved with making green loan available to small scale entrepreneurs, a coalition scheme should be introduced so that small scale green entrepreneurs can come together and make collective application to banks and financial institutions for green funds.**

   Many green projects require only small amounts of funds and the loan applications for them are made by small scale entrepreneurs who do not have any credit record. The paper work and due diligence performance associated with disbursing such small scale of funding that many green projects require result in high transactions costs discouraging banks to make financing available to them. A scheme should be introduced so that small scale green entrepreneurs can come together and make collective application to banks for green funds. This will reduce transactions cost and also risk associated with funding small scale entrepreneurs who do not have solid credit record as the group of borrowers will be collectively responsible for repaying the loan.

7) **Banks and financial institutions may publish an annual list of non-performing loans for environmental reasons as a proxy measure to quantify financial implications of environmental risks.**

   The inability to quantify financial implications of environmental risks has been identified as a barrier towards mainstreaming green finance in our analysis. As a proxy measure to quantify financial loss caused by environmental reasons banks and financial institutions should start publishing a list of non-performing loans (NPLs) for environmental reasons. Such a list would give the bankers a tangible measure of what they risk to lose financially by not making environmentally prudent business decisions.

8) **Bangladesh Institute of Bank Management (BIBM) may launch training program to coach bankers on preparing Green Annual Reports following Global Reporting Initiative (GRI) standards.**

   The requirement to produce Green Annual Reports according to GRI standards laid out in Green Banking Policy Guideline of 2011 needs to be enforced. Most banks have till date failed to comply to the requirement and the severe need of capacity development of bankers to produce and comprehend GRI reporting standards has made itself evident. BIBM should promptly consider launching a training course on GRI reporting standards for bankers. Research organisations with the necessary capacity may also help the banks in this regard.

9) **Socially Responsible Investment (SRI) and Green Sukuk[7] , Green Mudarabah[8], and Green Musharakah[9] products may be introduced in the market for promoting green finance through Islamic-shariah based banks of the country.**

   Islamic-shariah banking principles based on risk sharing and mutual aid are in many ways relevant to the philosophy of sustainable development. Islamic-shariah based banks also constitute significant portion of clients in the financial market, so linking them with appropriate policies, schemes and instruments needs to be considered as a core part of the green finance promotion in near future. Characteristics of the refinancing scheme of Bangladesh Bank are not compatible with the Islamic banking guidelines and thus currently Islamic-shariah compliant banks of the nation, including Islami Bank-the most profitable bank of Bangladesh-are deprived of its benefits. Innovative products and schemes like SRI and green sukuk,

[7] Sukuks are financing products similar to bonds that are compliant with Islamic-shariah law.
[8] Mudarabahs are Islamic-shariah compliant trade contracts where one party provides capital for a business venture and the other expertise and management skills.
[9] Musarakah are Islamic-shariah compliant joint ownership structure with profit and loss sharing implications.

green mudarabah, green musharakah may be introduced for promoting green finance through Islamic-shariah based banks.

10) **While making financing decisions for real estate industry, maintenance and operation expenses of green vs. conventional buildings may be included when comparing costs.**

Urban building construction and housing has been identified as a priority sector for making green financing available in our analysis. Even though green buildings may require higher construction costs compared to their conventional counterparts, in a study jointly published by the Northeast-Midwest Institute and the Delta Institute in 2008, it was identified that "green building and infrastructure cost less than conventionally built infrastructure over their lifetime." Thus, while making financing decisions for real estate industry maintenance and operation expenses of green vs. conventional buildings may be included when comparing costs.

11) **Bangladesh Bank may take adequate measures to incentivise banks and financial institutions to make green investments by publishing the list of best performing green banks in their website, awarding Managing Director of the bank with the best green performance annually, having good green performance reflect on better CAMELS ratings of the banks in a verifiable way, and providing concessions in Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) based on green banking performance.**

In Bangladesh Bank's Green Banking Policy Guideline it was noted that banks will be rewarded for their green banking performance with favourable CAMELS ratings and active consideration of green banking activities while evaluating application for opening new bank branch. It was also noted that the list of top ten banks for their overall green banking performance will be posted in Bangladesh Bank's website. However, Bangladesh Bank discontinued the practice of publishing the list of best green performing banks after only two cycles. Further, banks are not quite clear about how their green banking performance reflects on their CAMELS ratings. It is highly recommended that Bangladesh Bank reinstates the practice of publishing the list of top ten green performing banks in their websites and issues notification making it clear to banks how exactly their green banking performance impacts their CAMELS ratings. Further, as new measures of motivating banks to excel in their green banking activities Managing Director of the bank with the best green performance should be awarded annually. Tying the bank's green performance with its top manager will give him/her personal motivation to make sure his/her organisation is operating in the most green way possible. Additionally, Bangladesh Bank may consider providing banks concessions in CRR and SLR based on the amount of money they disburse as green loans to give banks monetary incentives for mainstreaming green finance.

5.3. Recommendations for Popularising Green Equity Finance

1) **Securities and Exchange Commission (SEC) may initiate the process of green transformation of Dhaka and Chittagong stock exchanges by requiring companies to meet specific Environmental and Social Governance (ESG) disclosure requirement in order to list initially and remain listed on an ongoing basis in the stock markets under its jurisdiction.**

Investors in the stock markets have right to full disclosure about the financial health and prospects of the company they invest in. If the climate-related financial risks a company faces and the actions taken to mitigate them are not properly disclosed the impacts of climate change may not be correctly factored in setting the price of stocks in financial markets. Given the changing global climate and investment environment ESG factors are increasingly playing a critical role in determining the financial future of business organisations. There is a strong business case for Securities and Exchange Commission to introduce ESG disclosure requirements to list in the stock exchanges under its jurisdiction as it has the potential to help

investors make investments in companies that are taking active measures to protect itself against the negative externalities of and prevent further climate change.

2) **Government of Bangladesh may strengthen its efforts to ensure the country has a conducive business environment and regulatory support for attracting impact investments in the form of equity finance from foreign and local investors.**

Green projects being able to secure equity finance in its early stage is critical for promoting green market innovations in Bangladesh. However, a study conducted by the Global Impact Investment Network (GIIN) titled The Landscape of Impact Investing in South Asia notes that in general in Bangladesh:

"…both investors and entrepreneurs express that debt is preferable given their needs and expectations. Investors, unsurprisingly, are looking to minimise their risks in the nascent impact investing market of Bangladesh, and debt allows them to assume less risk than other instruments. While one may expect early and growth stage entrepreneurs to seek equity investments, as these are often appropriate for their stage of growth, entrepreneurs tend to be more familiar and comfortable with debt structures and are reluctant to give up stake in their company. Many business owners do not recognise the value of instruments beyond debt and are unaware of the risk mitigation that equity structures can allow.

Regulatory structures surrounding equity investments, particularly those around exits and legal protection of the investor and investee, also fuel the preference for debt. The regulatory process for exits through IPO is unclear, and investors face a three-year lock-in of their investment following a public listing. Investors and investees are also uncertain of the legal framework for addressing disputes that might arise."

GoB may take required measures to ensure the country has a conducive business environment and regulatory support for attracting impact investments in the form of equity finance from foreign and local investors which is critically important for stimulating green market innovations in the nation.

3) **Securities and Exchange Commission may like to issue an addendum to "Bangladesh Securities and Exchange Commission (Alternative Investment) Rules, 2015" with favourable provisions for funds making green investments.**

While Bangladesh Bank has been actively taking measures to green the sources of debt financing in Bangladesh since 2011, SEC is still to take any action to green the sources of equity financing in the nation. SEC may consider issuing an addendum to "Bangladesh Securities and Exchange Commission (Alternative Investment) Rules, 2015" with favourable provisions for funds making green investments so that green equity finance can take firm ground in Bangladesh along with green debt finance.

5.4. Recommendations for Mainstreaming Green Finance across all levels

1) **Under the supervision of Bangladesh Bank, Annual National Green Business Plan competition sponsored by the CSR budget of commercial banks may be organised to create mass awareness about green business models and green finance.**

Lack of entrepreneurial interest in green projects has been identified as a major impediment to popularising green finance in the nation. To foster nationwide awareness about green business projects an Annual National Green Business Plan competition targeting participation of the youth of nation can be organised. A third party even management company can be entrusted with organising the competition while it will be funded by the CSR budgets of banks and financial institutions. Five banks can be selected by Bangladesh Bank to co-sponsor the competition in any particular year so that they can share event sponsorship cost among themselves. The sponsorship costs should be allowed to be categorised as CSR expenditure

of the banks. The best business ideas to emerge out of the competition should be considered to be supported with the direct green finance budget of the banks sponsoring the competition that particular year and provided with incubator services if required.

Bangladesh Bank's initiative of mainstreaming CSR practices in the financial sector of Bangladesh has already demonstrated tremendous success in increasing direct and indirect budgetary CSR commitments of banks and financial institutions since its launch in 2008. Bangladesh Bank should prudently consider issuing a new circular about launching the Annual National Green Business Plan competition funded by the CSR budget of the banks to popularise green entrepreneurship and thus the spread of green finance in the nation.

2) **University Grants Commission may require universities to introduce a course on Sustainable Financial Analysis and Reporting in the BBA and MBA programme curricula to ensure the country has a sound supply of next generation of green finance professionals.**

   Business Administration is the most popular degree programme among Bangladeshi university students. Students majoring in Finance in the current curriculum of BBA and MBA programs currently are not at all initiated with the principles of sustainable finance. Incorporating a 3 credit hour course on Sustainable Financial Analysis and Reporting in the curricula of Business Administration degrees in the undergraduate and graduate levels on the instruction of University of Grants Commission will ensure the country has a sound supply of next generation of green finance professionals.

   GoB is firmly committed to enhance the quality of tertiary education in the nation. The Higher Education Quality Enhancement Project (HEQEP) currently being undertaken by Ministry of Education with the assistance of the World Bank can be an appropriate entry point for developing the proposed university level course in Sustainable Financial Analysis and Reporting and developing the capacity of current educators in teaching the materials.

3) **Green finance and green banking related data covering the macro level of the nation and the micro level of individual banks, financial institutions, and green projects and enterprises may be collected and made publicly available so that empirical research can be conducted to analyse the efficacy of green finance related interventions.**

   Data on every detail aspect of green finance, overall green banking performance of individual banks and financial institutions, and green projects and enterprises should be collected and made publicly available so that academics and researchers of the nation can perform empirical research for commenting on the effectiveness of green finance interventions. Output of such research will enable GoB and Bangladesh Bank to make strong evidence based policies for mainstreaming green finance in the country in the future.

4) **Regulatory agencies may accommodate more space for the private sector in shaping policies and innovating new interventions to facilitate green finance being evolved as a private sector led model.**

   Strategies may be devised to give more ownership to the private sector banks and financial institutions for making green finance a market oriented sustainable model. In determining annual targets, action plans and corporate governance strategies, more ownership should be given to banks and financial institutions. It will encourage innovation and address existing barriers faced by financing institutions more effectively.

   Leveraging private funds along with public funding would be important to transform current initiatives into actions based on market practice. A policy mix of financial incentives and regulatory disincentives are required to mobilise private sector resources for green investments. Environmental regulations and disincentives like imposition of pollution taxes may be bundled together to make green production more viable to the manufacturers.

5) **Green should be the new normal and in the long run a green financial system should operate based on market principles. A plan should be in place to eventually phase out government supports provided to popularise green finance in the early stage.**

A green financial system should operate on market principle in the **lon**g run without requiring special concessional support of the government or regulatory agencies. With the sincere support of GoB and regulatory initiatives of Bangladesh Bank, green finance has started to take ground in the country. Even though there is a long way to go towards sufficiently popularising green finance in the nation, a plan should be in place to ensure that in the long run all finance in Bangladesh is green. Bangladesh Bank has taken the remarkable initiative of introducing the ESRM guideline just last month in February 2017 which will mandate environmental and social due diligence check of every loan application before any funding is disbursed. This has laid the ground work preparing the financial institutions for eventual adoption of Equator Principles when the socio economic environment of Bangladesh is ready for it near future.

Sustainability of green finance will solely rely on developing it as a private sector led market oriented model in the long run. Interventions in recent years have attempted to incentivise private sectors towards a green transition though financing mechanisms. These interventions have tried to shift the drivers of motivation not affecting the current growth of the targeted sectors. For ensuring sustainability of green finance promotion, it is crucial that private sector takes ownership of innovation. It is important to determine how long the concessional schemes of Bangladesh Bank will be operated before handing over the baton to the private sector financial institutions.

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