

Janata Bank Journal of MONEY, FINANCE AND DEVELOPMENT

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Editorial Note

On the advent of publishing the third issue of *Janata Bank Journal of Money, finance and Development*, we feel much delighted to see that a number of creative, and thought-provoking papers have been included in this issue. We comprehend some of the articles written by the prophetic academicians and young thinkers definitely have merits to attract our attention. Considering the merit, we have selected sixteen from a basket of articles for this issue and we feel much encouraged regarding this effort. We hope, widening our horizon of knowledge will make the journal acquainted across the national level and attract more illuminating papers from academicians, development thinkers, researchers and professionals around the world in near future. We gratefully thank to the Advisory Board and Editorial Committee of the journal and also all the contributors and personnel involved with its management and publication. Finally, we thank Janata Bank Limited for its noble endeavour in publishing such research-based journal which will enlighten us and reshape our thoughts.

Shaikh Md. Wahid-uz-Zaman

Editor, *Janata Bank Journal of Money, finance and Development*, and
Chairman, Board of Directors, Janata Bank Limited.

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CSR Initiatives in Banks and Sustainable Development: Bangladesh Perspective

Atiur Rahman*

Md. Habibur Rahman*

Abstract Banks and other financial institutions in Bangladesh are maintaining generally benign and safe working environment. Community engagements of financial sector CSR programs focus both on one-off emergency humanitarian and disaster relief, and on continuing support of initiatives for the weaker and less fortunate population segments in healthcare, education and training. Besides these engagements involving sizable direct expenditure, CSR initiatives of banks include reaching out in financial inclusion campaigns to the under-served rural and urban population segments with financial services including financing for their productive farm and non-farm micro, small and medium sized enterprises. Their lending support for environment-friendly output practices in renewable energy, effluent treatment and adoption of energy efficient output processes etc. have also been growing rapidly. Banks have also embraced green banking with BB's CSR guidance. They are weighing environmental risks while making financing decisions, and extending funding support for adoption of environment-friendly output processes and practices. Over the past few years, direct and indirect expenditure of banks on CSR initiatives have increased manifold.

Keywords Corporate Social Responsibility, Financial Inclusion, Green Banking, Corporate Governance, Pro-poor Inclusive Growth, Sustainable Development.

1. Introduction

Corporate Social Responsibility (CSR) has recently been in the center of attention of policymakers, researchers and academicians around the world due to its long-lasting impact on the well-beings of people,

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The views expressed in the paper are strictly of the authors' own and do not reflect the views of the bank or any other organization they represent.

nature and the globe as a whole. The value of social responsibility, either individually or collectively, has been evolving throughout history and major organizations around the world, as corporate social responsibility (CSR) is an important part of an organization's operations. CSR does not mean just taking part in charitable activities and events. It means holding the responsibility to develop the society by envisioning plans for socio-economic justice and be conscious about their responsibility for the welfare of society around them. The International Organization for Standardization (ISO) has recently attached an international standard to it to provide guidelines for adopting and disseminating social responsibility called 'ISO 26000 - Social Responsibility' encouraging voluntary commitment to social responsibility with common guidance on concepts, definitions and methods of evaluation.

The ISO 26000 standard giving guidance on social responsibility is the result of the collaborative effort of industry, government, international organizations (including UN bodies such as UN Global Compact and the ILO), academia, NGOs, service providers, consumer representatives and other stakeholders. The ISO 26000 and the UN Global Compact are promoting the notion that there is a need for organizations to behave in a socially responsible manner, which are both a strategic voluntary policy initiative and a practical framework for entities willing to establish responsible business practices. They encourage the engagement of business activities in the areas of human rights, labor, environment and anti-corruption. The key goals are to set principles in business activities as a global norm and thus rally action and support for UN mandates, more so with the MDGs. During the last UNGC Leaders Summit of June 2010 in New York, leaders from all sectors promoted the need for responsible business.

Sustainable development is precondition for financial, economic and social stability. The introduction of the triple bottom line (TBL) concept-'social equity, ecological prudence and economic efficiency' foreseen by Maurice Strong at the Rio's 1992 Earth Summit emphasized the necessity of attaining simultaneous sustainability in all three dimensions (ISO Focus+, 2011). Former UN Secretary General, Kofi Annan (2007, IISD) very rightly quoted that the biggest challenge of this century is to attain sustainable development for sake of the world's all peoples. If sustainable development be the main goal of CSR then financial inclusion, IT based and environment-friendly green banking and good governance with high ethical standards and norms must be the useful instruments to achieve that goal. There is growing recognition of the significant effect the activities of the banking

sector have- on employees, customers, communities, the environment, competitors, business partners, investors, shareholders, governments and others through their engagement in CSR activities in various forms.

It has been shown in various theories and practices of CSR that businesses can be operated in socially responsible and profitable way. Given the nature and horizon of services, banks are participating increasingly through their drives of financial inclusion, IT based and environment-friendly green banking following standard norms and ethics. Banks in Bangladesh as a one of fastest growing economy in the world are no exception. With the proper guidance and effective support from the central bank, they are playing praiseworthy role spontaneously in various socially responsible activities of the government making significant contribution towards achieving sustainable development.

Bangladesh Bank (BB) has been emphasizing socially responsible business ethos in our financial sector institutions by mainstreaming of CSR in their corporate goals and objectives. BB also guides them into in-house and community-based CSR engagements towards fostering inclusive, equitable and sustainable socioeconomic growth and development. Keeping these in mind, the objectives of this study are to review the concept of CSR from theoretical and practical perspectives with special emphasis on banks before outlining various facets of recent CSR initiatives of banks in Bangladesh in the form of financial inclusion, IT based and environment-friendly green banking and good governance towards achieving pro-poor inclusive economic growth.

The plan of paper is as follows: While Section 1 contains the study objectives, Section 2 reviews the concept of CSR from the theoretical as well as practical perspectives. Section 3 highlights various CSR Initiatives in Banks of Bangladesh. Finally, the paper concludes with Section 5 following the major outcome of the study of Section 4.

2. The Concept of CSR: Theoretical and Practical Aspects

The application of institutional theory to understand CSR-related activities is a recent phenomenon. The concept of CSR has already generated huge attention with lots of discussion and debate among researchers, academicians and policy makers. Developments of concepts and theories of Corporate Social Responsibility (CSR) are relatively recent and still going on. Definitions expanded during the 1960's and grew during the 1970's. In the 1980's, there were some new definitions, more empirical research, and alternative themes began to mature. These alternative themes included Corporate Social Performance

(CSP), stakeholder theory and business ethics theory. In the 1990's CSR continues to serve as a core construct but transformed into alternative thematic frameworks.

Due to the evolving nature of CSR, there is a great diversity of theories and approaches, mainly because no uniformity could be arrived. In discussing CSR, there are various competing theories such as ethical, economic, legal, charity or stewardship. Each theory will lead to different perceptions on CSR. The ethical theory suggests that business must be carried out in accordance to the ethical principles such as fair and justice. As for the economic theory, it suggests that CSR could be implemented through a successful company and therefore, the responsibility of a company is to maximize its wealth. A well-performed company could assist the society through providing jobs, basic amenities and contribute to thriving economy. A company according to the legal theory is a nexus of contract. Therefore, companies are required to operate in a legal manner within the stipulated law. The charity theory, however, suggests that companies make voluntary contributions to society and in return, it will enhance their reputation. Contrary to that, the stewardship theory suggests that companies are trustees and must ensure that the benefits will be returned to the society. The existence of a company according to the stewardship theory should lead to a better condition for the society and not otherwise.

Broadening the array of conceptual tools used in CSR research, Brammer, et al. identify emergence of some useful literature (i.e., Aguilera et al., 2007; Campbell, 2007; Matten and Moon, 2008) only in the mid-2000s of which study like Campbell (2007) argues that the CSR literature has been mostly either descriptive or normative. Whether CSR can come from mandatory responsibilities, such as legal compliance, or refer to societal expectations, the issue of voluntary behavior of companies describing CSR in terms of practices that improve the workplace and benefit society in ways that go beyond what companies are legally required to do (Vogel 2006 and Carroll 1999).

Howard (1953) defines CSR as obligations of businesspersons to pursue those policies, to make those decisions, or to follow those lines of action, which are desirable in terms of the objectives and values of our society. Some academics even argue that CSR goes against the basic notion of a free economy in which the main task of the corporation is to seek economic profits. The argument of Milton Friedman (1970) in this regard is noteworthy as he writes – “business as a whole cannot be said to have responsibilities”. Maignan and

Ralston (2002) define the CSR policy of a firm as the principles and processes present to minimize its negative impacts and maximize its positive impacts on selected stakeholder issues. This idea is shared by the Commission of European Communities of the European Union (2001) through their 'Green Paper' defining CSR as a concept whereby companies voluntarily integrate social and environmental concerns in their business operations and in their interactions with their stakeholders.

Recent emergence of ISO 26000 was mainly to respond to a growing world need for clear and harmonized best practice on how to ensure social equity, healthy ecosystems and good organizational governance, with the ultimate objective of contributing to sustainable development. An organization's performance in relation to the society in which it operates and to its impact on the environment has become a critical part of measuring its overall performance and its ability to continue operating effectively. This is, in part, a reflection of the growing recognition of the need to ensure healthy ecosystems, social equity and good organizational governance. In this regard, good corporate governance with standard ethics and norms, the drive of financial inclusion with pro-poor growth strategy, IT based paperless-green communications and environment friendly green banking are thought to be basic ingredients of ensuring sustainable development.

Organizations around the world, and their stakeholders, are becoming increasingly aware of the need for and benefits of socially responsible behavior. The objective of social responsibility is to contribute to sustainable development. The ISO 26000 identifies an interrelated and common platform for economic growth, societal equity and environmental integrity with eighteen specific economic, social and environmental actions making ethics, business and environmental management interrelated.

Bangladesh Bank (BB), as the central bank of Bangladesh is extending its all-out support and guidance to ensure incremental participation of banks to various CSR activities through financial inclusion, IT based and environment friendly green banking and good governance. BB is providing necessary supports to government's poverty alleviation drive so that the benefits of growth can reach to the bottom large portion of country's population pyramid in addition to its mandated duties.

3. CSR Initiatives in Banks of Bangladesh

CSR initiatives in banks of Bangladesh mainly concentrated in the areas of financial inclusion for less privileged population segments and underserved economic sectors. This includes emergency relief in humanitarian distresses, health promotion, education and cultural/recreational activities along with supporting well being of under-privileged population segments, promotion of environment friendly projects, adoption of energy efficient and carbon footprint reducing internal processes and practices. Besides, all banks have indirectly participated actively in promotion of lending to SMEs and agricultural. For broader, deeper financial inclusion, banks voluntarily engaged themselves on multiple fronts including increased rural bank branch presence, mobile phone banking and opening of bank accounts for low-income population free of charge with nominal initial deposit.

3.1 Direct CSR Contribution of Banks

Banks' direct engagement in CSR initiatives involves in direct contribution of banks in the above mentioned activities. Direct CSR expenditure of all banks stood at BDT 5105.46 million in 2014, which were BDT 4471.49 million in 2013 and BDT 3046.69 million in 2012 showing a sharp increase from BDT 2188.33 million in 2011. It may be seen from the Table 1 that CSR expenditure in education (29.54%), health (27.10%) and humanitarian and disaster relief (18.60%) persistently getting major shares (75.24%), alongside art and culture (7.97%) continued to get significant share. Expenditure on sports (4.06%) decreased and expenditure on environment increased in 2014 from 2013.

Table 1: Trends of Sectoral Pattern of CSR Expenditure by Banks

(in million BDT)

Sectors	2011		2012		2013		2014	
	Amount	%	Amount	%	Amount	%	Amount	%
Education	612.48	27.99	983.69	32.29	1295.18	28.97	1508.00	29.54
Health	520.42	23.78	435.43	14.29	481.68	10.77	1383.70	27.10
Humanitarian & Disaster Relief	188.03	8.59	788.37	25.88	1385.83	30.99	949.47	18.60
Sports	359.07	16.41	183.85	6.03	384.02	8.59	207.37	4.06
Art & culture	171.52	7.84	213.31	7.00	124.75	2.79	407.11	7.97
Environment	138.07	6.31	140.23	4.60	106.59	2.38	164.55	3.22
Others	198.73	9.08	301.81	9.91	693.41	15.51	485.24	9.50
Total	2188.33	100	3046.69	100	4471.49	100	5105.46	100

Source: Bangladesh Bank, CSR Report

Banks in Bangladesh enthusiastically come forward in helping generously the cold hit people of the country with warm-clothes and blankets in a recent CSR drive of Bangladesh Bank.

3.2 Financial Inclusion Drive in Banks

BB has launched a comprehensive financial inclusion campaign to reach out with services hitherto un-served and underserved population segments and economic sectors (like small-holder agriculture and SMEs). Motivated about their Corporate Social Responsibility (CSR) obligations banks have enthusiastically engaged themselves in the financial inclusion campaign, innovating cost effective service delivery modes to reach out to diverse new customer segments. These initiatives have been supported by developments in IT infrastructure with nationwide connectivity for online banking, with introduction of mobile phone based banking, and with fully automated inter-bank clearing and settlement of paper based and electronic fund transfers.

The initiatives of financial inclusion include extending branch and ATM networks into rural areas, mass scale opening of no-frills bank accounts with nominal deposits for poorer people, adopting new cost saving remote delivery modes for financial services like mobile phone/smart card based banking, agricultural and SME financing, financing schemes for renewable energy generation projects and so forth. BB has supported these initiatives by putting in place necessary enabling infrastructure, including a fully automated interbank clearing and settlement platform for paper based and electronic payment instruments, an upgraded online credit information bureau, and some refinance lines for banks against their SME and environment focused lending.

3.2.1 Agricultural Lending

All commercial banks operating in Bangladesh (state owned or private sector owned, domestic or foreign) are now extending agricultural credit, directly or indirectly through regulated Micro Finance Institutions (MFIs) or through intermediaries in value chain. Total disbursements of agricultural credit are on steadily rising trend reaching at BDT 160.37 billion in FY14 from BDT 92.84 billion in FY09. Alongside close monitoring of credit volumes, a specialized BB department exercises oversight on hassle free credit disbursement and other customer interest protection issues. Mobile phone based financial service delivery processes promoted by Bangladesh Bank is expanding rapidly, and is expected to facilitate cost effective agricultural credit delivery and recovery to and from farmers in remote rural locations.

3.2.2 Credit for Sharecroppers

Sharecropper farmers had long been excluded from formal financial system because of lack of collateral. In FY10, BB launched a refinance scheme worth BDT 5.0 billion for landless sharecroppers in partnership with BRAC, the largest non-bank MFI in Bangladesh. This is a first ever initiative for this productive group of farmers. The scheme is promoting social collateral where peer pressure ensures loan repayments and mitigates default risks. Under this scheme, BRAC has provided loans to almost 906 thousand sharecroppers in 250 upazilas in 48 districts and refinanced BDT 14.34 billion till September 2014. BB has provided BRAC with refinance facility against this. Apart from this, state-owned banks also extend loans to sharecroppers, a sizable number of whom are women farmers. Some privately owned banks too are also coming forward to provide such loans to the sharecroppers recently, prompted by their CSR obligations.

3.2.3 Credit at Concessional Interest Rate

Agricultural credit at concessional 4 per cent interest rate per annum is being extended by banks to farmers for growing of pulse, spices, lentils and oilseeds. Banks get six per cent interest subsidy from government through BB against these loans. Local productions of these specialized crops are already contributing significantly towards reduction of import dependence.

3.2.4 Credit for Crop Diversification

An ADB assisted crop diversification credit project is extending credit for growing of higher value crops (vegetables, fruits, flowers, spices, oilseeds) in the country's poverty ridden North-Western region. The new second version of the project is disbursing these loans through BRAC, under oversight of two private sector banks (BASIC, and Eastern Banks).

3.2.5 Credit for Environmentally Benign Projects

BB has introduced a refinance line for banks against their loans to environmentally beneficial projects. In FY14, BB enhanced the product line under this scheme from 6 to 44 and segregated these products into 9 categories which are: renewable energy, energy efficiency, solid waste management, liquid waste management, alternative energy, fire burnt brick, non fire block brick, recycling & recyclable product and miscellaneous. Total disbursement of refinance

scheme for green products through BB decreased by 24.6 per cent to BDT 381.5 million in FY14 which was BDT 506.1 million in FY13.

3.2.6 No-frill Accounts for Farmers and other Underprivileged People

In a major financial inclusion initiative, banks have opened more than fifteen million new bank accounts in names of small farmers and other rural and urban people of small means at no charge, with nominal initial deposits as low as Taka ten (about twelve US Cents). These accounts are being used by the account holders for receipt of agricultural input subsidies, social safety net payments etc., besides use as savings and payments medium.

3.2.7 School Banking and Financial Literacy Initiatives

With a view to fostering savings habits and financial literacy among the young, banks have launched 'School Banking' initiatives in schools. Till 31 December 2014, 49 scheduled banks have opened around 8.5 lac accounts for the school students. Besides, a DFID supported financial literacy campaign is underway to create mass awareness of benefits of opening bank accounts and using to best advantage of account holders.

3.2.8 SME Credit Programs

Considering SME development as one of the important development agenda of the country, BB has initiated a comprehensive policy and programs on SME credit with the following special features:

- Setting up an indicative target for SME loan disbursement.
- Following the Area Approach Method with cluster development policy.
- Prioritizing small entrepreneurs, women entrepreneurs with special emphasis for manufacturing and services sectors.
- Following a separate business strategy in financing SME with speedy loan sanction and disbursement.

Accordingly, an indicative yearly target of disbursing SME credit by the banks and financial institutions were fixed for every year since 2010. Till June 2015, about BDT 563.73 billion (about 53.9 per cent of the target) were disbursed to 4,29,834 enterprises. The SME activities of all banks and financial institutions are under the purview of strict monitoring of BB.

3.2.9 Refinance Schemes for SME Sector

BB, with the help of government and different development partners, is now implementing five refinance schemes (Bangladesh Bank Fund, IDA Fund, ADB-1 Fund, ADB-2 Fund and JICA Fund) for banks and financial institutions against their disbursed SME credit. All these funds are of revolving in nature. Till 12 October, 2015 an amount BDT 50.89 billion has been refinanced against 49,298 enterprises. Against the disbursement, BDT 35.42 billion has been recovered and the outstanding amount of SME credit was stood BDT 15.47 billion as on 12 October, 2015. Besides, with the assistance of JICA, a two-step loan scheme amounting to JPY 5.0 billion has been formed to provide medium to long-term fund to small and medium enterprises through refinance and pre-finance facilities. Under this scheme, refinancing has been commenced since 12 October, 2015 having priority in productive manufacturing and service sector; and BDT 3.2 billion has been refinanced so far to 437 enterprises.

3.2.10 Women Entrepreneurship Development

For mainstreaming women in economic activities, BB has taken a number of initiatives to ensure women entrepreneurs to have access to financial facilities on simple terms and conditions. To ensure loan facility for the women entrepreneurs, at least 15 per cent of total BB refinance fund for SME sector has been allocated for them at a reduced interest rate of 10 per cent. Banks and financial institutions may sanction loan up-to BDT 2.5 million to women entrepreneurs without collateral but against only personal guarantee under refinance facilities provided by BB. A policy of group based lending of up to BDT 50 thousand or above has been initiated in order to include a higher number of women entrepreneurs in the micro SME credit facilities.

BB has been providing refinance facilities to improve the existing SME loan environment and to make it more women friendly. The share of women entrepreneurs in total SME loan disbursement has been increasing successively. The number of women entrepreneurs and amount of financing by banks and financial institutions in 2010 were 13831 and BDT 18.05 billion respectively. In 2011, banks and financial institutions collectively disbursed BDT 20.48 billion to 16696 women entrepreneurs. In 2012, banks and financial institutions collectively disbursed BDT 22.24 billion to 17,362 women entrepreneurs. In 2013, banks and financial institutions collectively disbursed BDT 33.51 billion to 41,719 women entrepreneurs. In 2014, banks and financial institutions collectively disbursed BDT 39.38 billion to 42,730 women entrepreneurs. At the end of June 2015, BDT

18.20 billion has been disbursed among 1,66,317 women entrepreneurs through banks and financial institutions.

3.2.11 SME Cluster Development

With a view to mainstreaming SME credit, banks and financial institutions are advised to adopt cluster development policy. The objectives of this policy include strengthening of the existing cluster, development of new clusters in special sector, development and expansion of sustainable and competitive technology, skill development of entrepreneurs, development of marketing channels, reduction of credit risk and enhancement of overall product development. There are some localities in Bangladesh with conducive environment for producing distinct manufacturing goods and again there are some localities that are famous for producing certain manufacturing goods. BB has taken various initiatives for identifying different clusters around the country and is encouraging all stakeholders for further development of such clusters. As per directives of BB, banks and financial institutions are also coming forward for SME cluster development. Various small-scale manufacturing clusters have already been identified by this time in 20-25 districts of Bangladesh.

3.2.12 Customer Interest Protection

With a view to prompt resolution of the complaints against banking services at the customer level, to observe the level of satisfaction of the bank customers and to ensure improved customer services the 'Customers' Interest Protection Centre' (CIPC) was established in the head office of BB and in its branch offices in last March 2012. Since the inception of the CIPC, complaints have been coming to this centre everyday through telephones, mobile phones, e-mail and by post too. In the CIPC with other devices of electronic communication a separate dedicated (hot line) number '16236' has also been provided. This hot line has been proved most fruitful for standardization of banking services. Recently a new department named 'Financial Integrity and Customer Services Department' has been opened for dealing with the complaints of the customers and clients of banks and financial institutions more quickly and easily.

Besides, for the improvement of the standard of customer services, the banks have been advised to rationalize the charges realized from the customers, as far as possible and to display the chart of the deposit and the interest rate as well as the schedule of charges in the suitable

and easily noticeable places in the banks including their respective web-sites.

3.3 IT Based Initiatives in Banks

BB has taken numerous innovative initiatives to build a countrywide modern IT based, efficient and more secured banking system supported by automated payment systems, online banking system, online CIB service, mobile banking, e-commerce, and new services in the Information Technology (IT) sector especially outsourcing facility. The initiation of National Payment Switch (NPS) software, on the other hand, opens a new horizon of e-commerce in Bangladesh.

3.3.1 Modernization of Payment Systems

To address the growing demand for a fast, secure and state-of-the art payment system in Bangladesh, BB has introduced fully automated clearing settlement of interbank paper based and an electronic fund transfer, which is vastly facilitating branch based and mobile phone/smart card, based banking. Bangladesh Automated Clearing House (BACH), the first ever electronic clearing house came into operation on October 2010 with two wings namely Bangladesh Automated Cheque Processing System (BACPS) and Bangladesh Electronic Funds Transfer Network (BEFTN) bringing down the operational cost, reduces risk and increases the efficiency of the payments process. Approximately 10,04,846 EFT transactions are processed per month from January, 2015 to April, 2015 with an increasing trend.

3.3.2 On-line Banking and CIB Service

BB has started its highly desirable the Credit Information Bureau (CIB) online reporting on 19 July 2011 with the financial assistance of DFID. Banks, financial institutions and entrepreneurs are already getting the benefits of this service. This service has been a great saver of time and cost of doing businesses for all banks. This is a web-based online solution through which banks and financial institutions can furnish credit information at any time around the year and they can access credit reports by searching online very quickly from their respective workstation. Due to this system, banks and financial institutions are now able to collect credit information quickly through searching from their own institutions. With the help of online service, now it is possible to get a CIB report within few seconds. Banks and

financial institutions are now able to disburse credit to their clients quickly because of quickening the process of getting CIB report.

3.3.3 Mobile Banking Services

The mobile banking has been introduced to modernize the banking system of Bangladesh. This has been done for extending the banking services using the network of mobile operators in order to substitute conventional branch banking systems. Mobile Financial Services (MFS) are acknowledged worldwide for their cost-effectiveness and rapid transaction to extend opportunity of banking services in the remote rural areas. In order to bring the vast unbanked/under-banked population under the umbrella of formal financial service BB has taken steps through issuing 'Guidelines for Mobile Financial Services' to introduce bank-led mobile financial services. Disbursement of inward foreign remittance and domestic fund; payment of utility bills, salary, allowances, pension; buying and selling of goods and services; balance inquiry; tax payment; Government subsidy payment and payment of the benefits of social safety nets can easily and quickly be provided through mobile financial services. The opportunity to provide this service 24 hours a day 7 days a week made it up-to-date and admired.

Banks are offering different mobile services through 531 thousand bank-agents countrywide. The total amount of transaction is about BDT 128 billion per month and the daily volume of which is more than 4 billion taka. The mobile network operators are collecting utility bills worth half a million per month, which is increasing day by day. Approximately twelve thousand railway tickets are sold per month using mobile financial services.

MFS has created the opportunity of fast and cost-effective transaction even to the remotest corner of the village as well as it has given access to modern banking services to the rural poor including the social safety net beneficiaries. It is also promoting the habit of savings of the rural people. In this way, each mobile phone is turning out to be a small bank contributing positively to the increased fund-flow to the rural areas of the country. As a result, rural economy is being rejuvenated widening the real base for participatory growth of the country.

3.3.4 E-Commerce

BB issued a circular in November 2009 stating specific e-commerce operations, which can be offered by the scheduled commercial banks

of Bangladesh for online utility bill payment from client's accounts to recipient's accounts, and online money transfers from one account of a client to his/her another account in the same bank. It would also allow the collection of money from/to buyer's bank account to seller's bank account for purchase/sale of products under e-commerce system and transaction via internet using credit cards in local currency, etc. Two banks have started e-commerce activities whereas the remaining banks are getting ready to start e-commerce at the earliest.

3.3.5 National Payments Switch (NPS)

National Payments Switch has recently been started its operation in view of making the payments system of Bangladesh more efficient and dynamic through creating a single, integrated and effective platform for settling interbank electronic payments derived from different channels such as Automated Teller Machine (ATM), Point of Sale (POS), credit card (domestic/international), internet, mobile application, etc. Because of which, country's e-commerce activities are expected to be safer, faster, sophisticated and reliable through the electronic settlement of all financial transactions connecting all the switches nationwide along with e-payment gateway of Public Accounts Department (PAD) of BB.

3.3.6 Automation in Bangladesh Bank

Bangladesh Bank, as the regulator of financial sector, has emerged as a lead organization in the country in implementing the government's vision of establishing '*Digital Bangladesh*'. BB is firmly committed to transform the banking sector the country into a full-digitalized sector. In order to provide financial services with highest efficiency and skill, BB undertook a five year strategic plan (2010-14) to develop a modern technology based banking/financial sector. Almost 85 software including Net-working, ERP, banking application, enterprise data warehouse, open data initiatives, web-site and intranet development, e-tendering, e-recruitment have already been activated in order to build up a 'Digital Bangladesh Bank' through ensuring modern information-technology. The Central Bank Strengthening Project (CBSP) started in late 2003 with financial assistance of the International Development Association (IDA) to achieve the goal of automating its business process along with infrastructural and capacity building of BB, which has ended in December 2012. This project has made substantial progress in the area automation, real time connectivity, IT infrastructural development, capacity building during the last four years in the way of making Bangladesh fully

automated and a lead organization in the pace of technological development. The World Bank considers this project of BB as the most successful one of all projects taken in Bangladesh in recent time.

3.4 Green Banking Initiatives

Development strategies of Government of Bangladesh laid down in the Perspective Plan and the Sixth Five Year Plan declare clear commitment of pursuing sustainable growth. The country's vulnerability to floods, cyclones and to the threat of inundation of large coastal areas from global warming driven sea level rise makes sustain-ability a prime development concern. Bangladesh is committed to pursue low-carbon green development without compromising the imperative of faster economic growth and social development.

Financing practices can crucially influence the speed of adoption of environmentally sustainable output practices in the real economy. Aware of its responsibility of putting in place socially and environmentally responsible practices in the financial sector, the central bank of Bangladesh has spearheaded adoption and promotion of green banking practices throughout the financial sector, towards safeguarding environmental sustainability. As a regulator of financial sector, the central bank already proceeded a long way in implementing green banking. Banks in Bangladesh have passionately responded to Bangladesh Bank's guidance towards green banking, with steps in environmentally responsible financing that are beginning to make profound impact on environmental practices in the real economy.

The central bank issued policy guidelines for green banking in February 2011. According to the guidelines, all operating banks and financial institutions need to take effective measures to conduct environment friendly banking activities in the country. Bangladesh Bank has also issued a common reporting format to all the commercial banks to report green banking activities including the extent of carbon footprint in a structured way. Banks and financial institutions now regularly submit a quarterly report to Bangladesh Bank on their performance of green banking activities.

Under green banking initiative, BB has launched a revolving refinance scheme amounting to BDT 2.0 billion so that banks and financial institutions may provide financing facility to solar energy, bio-gas, Effluent Treatment Plant (ETP) and Hybrid Hoffman Kiln (HHK) sector at a very convenient as well as concessional rate. 37 banks and 15 Financial Institutions so far have signed participation agreement with Bangladesh Bank. The disbursement scenario of this scheme during April-June, 2015 quarter is furnished below:

Table 2: Sub-category/Product-wise Disbursement

Sl. No.	Sub-category/Product	BDT in million
1	Bio gas	11.09
2	Solar Home System	45.70
3	HHK	7.50
4	Vermicompost	0.57
	Total Disbursement	64.86

Source: Bangladesh Bank, CSR Report

Proper compliance of green banking policy has taken into consideration to judge the management capacity of banks and financial institutions while computing CAMELS rating. The top 10 banks have been graded annually on the basis of their overall green banking activities. Green banking activities of a bank are being considered seriously at the time of approval of its new branch. BB's IT based green banking initiatives through online banking, e-banking, e-commerce, online CIB, automated clearing house, mobile banking, e-tendering, e-recruitment, etc. have reduced the use of paper which eventually save our valuable forest. On the other hand, it reduces printing and postal costs significantly. BB has issued the Environmental Risk Management (ERM) guidelines in 2011 for banks and financial institutions to adopt risk management practices to safeguard against inevitable environmental concerns. Financing to establish ETP in any industry has considered as CSR activities of banks and financial institutions. To face the challenges of global climate change, BB has given several instructions to banks and financial institutions through the Agricultural and Rural Credit Policy.

3.5 Corporate Governance

Drawing upon the possible connection between CSR and corporate governance, Harjoto and Hoje Jo (2011) cite from Hopkins (2001) that there is increasing advocacy of a broader and more inclusive concept of corporate governance that extends to corporate social responsibility. Their study convincingly demonstrates that there is an effective and meaningful nexus between good corporate governance and CSR. Good corporate governance enforces discipline in the relation between managers and shareholders. Company's policies, strategies, reporting system, board of directors, appointment of independent non-sponsored directors in the board, establishing audit and executive committees are vital components of good governance, as it comprises market, legal

and institutional arrangements that reduce costs of the principal-agent problem. The corporate governance mechanisms are markets, institutions and legal settings that protect outside investors from opportunistic behavior of managers or controlling shareholders. In the absence of such protection, asymmetries of information and difficulties of monitoring faced by outside investors enable managers to misallocate corporate resources, often at the expense of long-term performance. Thus, efficient corporate governance provides better corporate performance creating opportunities for corporations for increased CSR engagement.

In Bangladesh, the issue of corporate governance came into light in the wake of the stock market debacle in 1996 through organizing of seminars, conferences and discussions facilitated by the Bangladesh Enterprise Institute (BEI) published codes of corporate governance for private sector, financial institutions, State Owned Enterprises (SOEs) and NGOs. In order to establish good corporate governance in banking sector, Bangladesh Bank always remains vigilant and, time-to-time, issues circulars and guidelines specifying qualification of a Bank Director and a Chief Executive Officer (CEO) with to do and not to do list for them. It issued directives clarifying authorities and responsibilities of Chairman, Board of Directors, Chief Executive Officer and adviser to the bank in respect of overall financial, operational, policymaking, administrative and executive affairs. As a result, the banking sector in Bangladesh is now in healthier position than any time before in terms of capital base, profit, asset quality and capacity to manage internal as well as external shocks.

4. Major Outcome

The benefit of CSR related activities like financial inclusion, IT based green banking and good corporate governance is remarkable for Bangladesh. Bangladesh has made commendable progress in various aspects of sustainable economic, human and social development reflected through various socio-economic indicators. Substantial improvement in the well-being of the rural population is evidenced by tightness of the rural labor markets with sharp rise in real wages, and by decline of poverty at annual rate of around two per cent of population. Bangladesh's real economic performance has shown tremendous buoyancy in recent time despite multiple rounds of global economic crisis.

The economy has been growing at a steady pace (six per cent plus real GDP growth annually over the past decade). Aided by sustained

macroeconomic stability, the economy maintained low and sustainable single digit fiscal deficits as per cent of GDP, tolerable CPI inflation, stable domestic currency and growing foreign exchange reserves, private sector dynamism, social consensus and civil society activism for inclusive socioeconomic growth. Poverty is on steady decline with consistent pro-poor stance in social sector public expenditure and improvements attained in social development indicators are superior on some counts to those of higher income neighbors. The World Bank's latest estimates of Gross National Income per capita (GNI) continue to show improved economic performance of Bangladesh, now becoming lower-middle income country, joining those with annual incomes of USD 1,046 to USD 4,125 (World Bank 2015).

Bangladesh has achieved sovereign credit ratings of BB- and Ba3 in 2010 respectively by two international credit rating agencies namely, Standard & Poor's (S & P) and Moody's exclusive evaluation regardless of the worldwide recession. Bangladesh has been able to keep that credit rating unchanged for the 6th consecutive years even though the rating has been lowered in many rich countries of the world.

A UN report (2013) on "World Economic Situation and Prospects 2013" ranked Bangladesh second in South Asia, just behind Sri Lanka, which tops the region in economic growth during 2012. The report points that Bangladesh has had strong growth in private investment and consumption backed by steady rise in remittance inflow that boosted growth, while Asia as a whole including India suffers because of high inflation, political uncertainty, fuel and investment crisis. The recently published UN report (2015) "World Economic Situation and Prospects 2015" also predicts that the Bangladesh economy will continue its multi-year streak of solid growth of more than 6 per cent in 2015 and 2016, driven by strong external demand for textile products and robust domestic demand.

5. Concluding Remarks

Banks in Bangladesh are engaged in the financial inclusion drive, reaching out to new customer segments with new cost effective service delivery modes through locally active Micro Finance Institutions (MFIs), and off branch mobile phone/smart card based arrangements. State-owned banks have achieved a major breakthrough into new customer base by opening around ten million new bank accounts of small holder farmers and other rural and urban people of small means, free of charge and with nominal initial deposits as low as BDT 10 (about twelve cents) only. This has enabled direct delivery of

agricultural input subsidies and social safety net payments from the government into these accounts, besides usual savings and payment transactions. Moreover, while the financial inclusion campaign promoting socially responsible financing, BB's green banking initiatives promoting environmentally responsible financing.

Bangladesh Bank is also working to bring financial services for the un-banked people i.e., to enhance financial inclusion activities by ensuring visible credit facility to agricultural, SME, environment friendly and productive sectors of the economy. Loan facility has been increased significantly in agriculture and SME sectors. Appropriate loan policies for agriculture and SME have been adopted. Those who did not access to banks like extreme poor, landless, sharecropper, marginal farmer, poor women, small businessmen, women entrepreneur and the deprived from financial services are now able to get bank loans and financial services up-grading their living standard substantially. Despite some drawbacks in some internal CSR issues like gender fairness in working conditions regarding length of paid maternity leave, access to crèche facilities for children and so forth, Bangladesh has made considerable progress in terms of women empowerment reflected in increased women participation in job markets and in secondary & higher secondary education.

The social responsibility driven financial inclusion campaign serves to keep productive sector away from involvement in speculative financing that eventually leads to asset price bubbles creation. Central bank's developmental role to promote CSR in banks with developmental bias, therefore, act as an in-built stabilizer of the financial system; helping avert situation like those creating the global financial crisis like one we had in 2008-2009.

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Worker's life and Wal-Mart's Pocket Garments Global Chain: From Savar to New York

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Abstract Global capital, in its expansion process, has globalized production and distribution chain. This has redefined division of labour throughout the world, shifted factories from north to south, created structural unemployment in the north and used peripheral countries to act only as sources of cheap labour. In this process, Bangladesh has become the second largest readymade garments exporter in the world after China with more than USD 20 billion industry that supplies garments to major western clothing brands. On April 24, 2013, the collapse of Rana Plaza that housed five garment factories killed at least 1134 workers and injured many more. This was one of the worst industrial disasters in the world that exposed vulnerability of the industry as well as global lack of responsibility and accountability.

1. Introduction

The ready-made garments (RMG) in Bangladesh are a part of larger global chain of investment, employment, market and profit. This is now more than USD 20 billion industry in Bangladesh that supplies major western clothing brands, including Marks & Spencer, Tesco, Gap and Wal-Mart, while paying workers the lowest wage that garment workers across the world get. When the workers spend days and nights in factories in Savar, Bangladesh, that unfed hours make the pockets of companies in New York, Toronto, London, thousands of miles far from here, heavier.

Different estimates show that, every garment that is sold at USD 100 in the western market, the governments of those countries earn

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around USD 25, brands and buying houses make at least USD 50 and the rest goes to the owners, raw material suppliers, production cost etc. For workers it comes to less than USD 1. Monopolies like Wal-Mart use their leverage to beat down prices of garments that have disastrous effects for workers' lives in supplying countries. In order to keep their profit at the highest possible rate, the local owners cut their cost in wages and security measures. Therefore it becomes a global vicious chain of high profit and cruel deprivation. Local and global profiteers share cake in different proportions at the cost of millions of workers.

This article aims at investigating the rise of the industry and its global chain to understand the linkages between the life of workers and the profit of the monopolies like Wal-Mart. This article will also look into the roles played by local and global groups in the process, and consequences for the workers after the industrial disaster in Rana Plaza.

2. The Beginning

Bangladesh is now the second largest readymade garments exporter in the world after China. Emergence of Bangladesh as the source of large export-oriented garments industry could happen because of both internal and external factors that favoured the rise of this industry. It happened in a time when local industries were facing structural onslaught on the one hand and when the global industry was looking for new area where huge cheap labour is available.

When the Multi-Fibre Arrangement (MFA) in the North American market was introduced in 1974, Bangladesh did not have export-oriented garment industry at that time. This arrangement affected many garment exporting countries as the MFA imposed quotas on garments exports from the countries including South Korea, Taiwan. As a result, entrepreneurs from quota-restricted countries like South Korea were looking for countries that could become new manufacturing sites. By 1977 they reached Bangladesh to get joint venture and to take advantage of quota free country. That was the beginning for Bangladesh. Very soon rapid expansion of RMG changed the industrial landscape of the country. The end of MFA restriction in 2004 was not a problem any more, Bangladesh could continue to grow in this sector with low cost production.

Since early 1980s, like in many other countries, structural adjustment programmes caused many big industries to close in Bangladesh. Deindustrialization put millions out of work when, due to

favourable global and local policies and incentives, export-oriented industries expanded very fast. Low wage, no trade union, low security employment became the main livelihood of surplus labour, especially for young women.

The evolution of the export oriented RMG industry in Bangladesh, therefore, coincided with these reforms, with rising unemployment and new international division of labour. In addition to policy and material support from both the government and the international financial institutions, it also had other favourable factors including continued supply of workers with the lowest wage in the world.

The export of ready-made garments (RMG) increased from USD 3.5 million in 1981 to USD 20 billion in 2013. Despite export growth the industry did not enough linkage industry. Therefore its import component has always been high. This industry created almost 4 million labour force, young and mostly women, with lower wage and higher insecurity compared to earlier industrial factories specially Jute, Cotton, and Sugar. After many incidents of fire and collapse of factories over the years, deadliest two in Tazreen and Rana Plaza brought worker safety and violations of their minimum rights to world attention. That also brought the responsibility of big global clothing brands and retailers in discussion.

3. Industrial Reform: Export or Perish

Globalized capitalism, in its expansion process, has globalized production and distribution chain. In that setting RMG sector is developing as a global industry. Today's globalization has redefined traditional labour relations throughout the world, shifted factories from north to south, created structural unemployment in the north and choose peripheral countries to act only as sources of cheap labour.

The neo-liberal policy and institutional reforms that had shaped the government actions in Bangladesh also had a strong ideological-political dimension. These reforms were intended to dismantle old industries, not only to expand rule of private capital, but it was also aimed at breaking workers stronghold. Increasing influence of neo-liberal policy resulted in privatization of state owned enterprises, downsizing industrial units, closing down so-called 'loss making' enterprises and retrenchment of workers have been the high priority of successive governments in Bangladesh¹. Erosion of public enterprises, in the process of de-industrialization created widespread

¹ For analysis on the direction of Bangladesh economy see Muhammad (2006).

unemployment. The process reached its peak in 2002 with the closure of Adamjee Jute Mills, the largest Jute industry of the world. The demise of this enterprise was arranged in the name of 'Jute sector development' with a USD 250 million loan from the World Bank². The reform process created a large pool of labour- disorganized, scattered, unable to assert its rights, and forced to accept low wages. A huge pool of young women from unemployed and/or poor families, ready to work for rock bottom wages and longer working hour, made up the new workforce. The new rising rich were looking for high-profit investment, they became new owners.

All governments since early 1980s have maintained SAP policy to offer the long list of incentives for export-oriented industries and foreign investment. That was supported by export or perish argument: poor countries must increase export options, take export oriented development paradigm, otherwise they will perish. For export oriented industries these incentives included duty free import of capital machinery for 100 per cent export oriented industries, establishing the export processing zones (EPZs) to give exporters more benefits, creation of an export promotion fund (EPF) for product development and market promotion of new items, exemption from payment of 50 per cent of income tax on income derived from export, exemption from payment of import license fees by exporters who import raw materials exclusively for export production, and retention of up to 10 per cent of earnings for general business purposes (soon to be raised 20 per cent). In later years, on many occasions, garment exporters could pull more benefits and favour from the governments.

This 'export or perish' model has been hailed by corporate economics since 1950s. First critique of this model has been articulated independently by economists Raúl Prebisch and Hans Singer in almost same time. Their almost similar findings, on the basis of data on international trade between developed north and post colonial south, gave birth to famous 'Prebisch-Singer thesis', that made the point that "the countries that export commodities (developing countries) in time would import fewer manufactured goods relative to a given level of exports of primary goods". They further argued that "there was and would continue to be secular decline in the terms of trade of primary-commodity exporters due to a combination of low income and price elasticities of demand" (Todaro, Smith, 2006).

² For details of jute sector destroying project of the World Bank, see Muhammad 2002

Later East Asian and few other countries have developed capabilities to export manufactured goods that created expectation of change of the scenario. But, “unfortunately, this structural change has not brought as many benefits to developing countries as they had hoped, because relative prices within manufacturers have also diverged. Over the last quarter century the prices of the basic manufactured goods exported by poor countries fell relative to the advanced products exported by rich countries. The price of textiles fell especially precipitously, and low-skilled electronic goods are not far behind. “(Todaro, Smith, 2006; 524) The UN study also shows that, during the 2000s, the terms of trade of East Asia (with much of its export to be manufactured goods) has deteriorated terms of trade. (UN 2008). Therefore transition from primary goods to manufacturing goods garments did not change relative vulnerability of countries like Bangladesh. In fact, time has shown that the relative positions of the countries do not depend on the goods, but on the global power structure.

Therefore the model has become a double-edged sword for peripheral economies. On the one hand these countries have little option left but go with the export oriented growth chosen by the north, on the other hand these countries always face risk in taking this path in many ways.

Firstly, terms of trade often work against these peripheral countries. The value of Bangladeshi exported garments, for instance, compared to that of imported items from centre economies is always failing. In other words, the country must sell more of its items to import the same amount of goods (GOB, 2013). On the other hand, in order to keep up with its export, the country has to keep the export price as low as possible and to take measures like artificial depreciation of its own currency that inevitably hurt other areas of the economy.

Secondly, the fates of export-oriented economies are dependent by conditions in centre economies. Financial crisis, rise of unemployment in those economies, tariff and non-tariff barriers, and political manipulation keep countries like Bangladesh under constant threat. Moreover, in many ways the importer countries, especially the USA, regularly use export dependence of Bangladesh as a tool to bargain for other privileges.

Thirdly, about 60 to 80 per cent of the sales value of garments in the retailer market goes to the international buyers and retailers. Retailers' aim is two-fold:

- (i) keeping prices as low as possible;
- (ii) Increasing their profit at the highest possible level.

In order to satisfy these two objectives local owners make the whole industry vulnerable through cost cutting behaviour, that keep workers under constant stress and often turn factories into mass graves.

4. Factories Turned into Death Trap: Who are Responsible?

Since the early 1990s, more than two thousand workers, mostly teen aged girls, lost their lives in different garment factories in Bangladesh. That happened because of either fire, or collapse of unauthorised or faulty factory buildings. Also there have been number of secret killing by goons or police firing, in addition to rape and killing of over a thousand of women workers on the way to and from the work place.

This is necessary to mention some cases of fire and collapse to understand the factors behind these fatal 'accidents'. 32 killed at Saraka Garments, Dhaka, 1990; 22 killed at Lusaka Garments, Dhaka, 1996; 20 killed at Jahanara Fashion, Narayanganj, 1997; 24 killed at Shanghai Apparels, Dhaka, 1997; 12 killed at Globe Knitting, Dhaka, 2000; 23 killed at Macro Sweater, Dhaka, 2000; 23 killed at Chowdhury Knitwear, Narsingdi, 2004; On 6 January 2005, during a fire at Shaan Knitting and Processing Ltd in Narayanganj, all the gates of the building were kept locked. The incident claimed at least 23 lives.

Eight years before Rana Plaza disaster, there was another collapse of a nine-story garment factory (Spectram) building at Savar on April 11 2005, which caused nearly 100 workers dead and another 100 workers still missing. This factory also had been producing for the markets of Europe and the US. This building too was constructed without proper authorisation. In another incident, fire in a building that housed Saiem Fashions and other garment factories, killed three workers and injuring 50 workers in March 2006. Three more factory accidents occurred in early 2006, two in Dhaka and one in Chittagong-- leaving at least 142 workers killed and more than 500 injured, many of them became disabled for life. At least 62 killed at KTS Garments, Chittagong, 2006. However, clearly the list was incomplete and the number of death was underestimated. We are not sure about the number of uncounted dead in many cases (Muhammad, 2011).

Various reports and studies made it clear that all these accidents took place due to lack of proper safety measures at the factories.

Reports also revealed the fact much before that, “according to official statistics, only three inspectors are engaged in inspecting safety measures at as many as 15,000 factories under Dhaka divisional factory inspection office. And only 20 inspectors are now deployed to inspect around 50,000 registered factories in the country. Of them, four are working at the head office, six at Dhaka divisional office and three at Chittagong, Khulna and Rajshahi divisional offices.” (*The Daily Star*, February 28, 2006)

Four years later another report quoting fire service officials pointed out the fact that ‘a large number of garment factories do not have emergency lights, which can be turned on without electricity during the crisis. This is why the whole factory falls into total darkness during a fire’. (*The Daily Star*, February 27, 2010)

On 12 December 2010, police opened fire on garment workers of a factory owned by a South Korean group in Chittagong, Bangladesh, killing at least three. The firing took place during several days of protest in which thousands of workers participated. They were protesting the factory owners’ refusal to pay wage agreed earlier.

Two days after the police killings, a fire in the Ha-Meem clothing factory in Ashulia near Dhaka killed between 26 and 31 workers and injured at least 100 more. Exact number of dead in both the fire and the police killings has not been clear till today. Recently industrial police has been formed, obviously not to save workers from atrocity but to suppress workers.

On 23 November 2012, horrific fire in a factory owned by Tazreen Fashions Ltd. turned more than one hundred workers along with the factory into ashes. This factory used to make clothing for several retailers around the globe including Wal-Mart, Sears and The Walt Disney Co. No action was taken against the owner till the end of 2013. However, consistent campaign by different workers organization and legal action by a group of activists (“activist anthropologists”) could bring the owner to the court in late 2013, and with the court’s order he was arrested after 13 months of the Tazreen fire.

That all these fatal accidents including Tazreen fire could not wake up the owners, Bangladesh Garment Manufacturers and Exporters Association (BGMEA) or the government, was manifested by their lethargic inaction or irresponsible indifference to fix the problems in the industry. Therefore, Bangladesh witnessed the worst industrial disaster on April 24, 2013, only five months after Tazreen fire, that killed more than 1135 workers, missing hundreds, injured many more.

Garment factories suddenly turned into a mass grave, were set in Rana Plaza, Savar.

This eight-story building, owned by Sohel Rana, associated with the ruling party had approval for five floors only. On the day before its collapse an engineer raised safety concerns while he noticed cracks in the Rana Plaza complex. But these factories were kept open to fill overdue orders. Authorities forced workers to join or face punishment. When generators were restarted after a power blackout the building collapsed immediately with thousands of workers. Five garment factories were in operation in the Rana Plaza – ‘New Wave Style Ltd’, ‘New Wave Bottom Ltd’, ‘Phantom Apparels Ltd’, ‘Phantom Tac Ltd’ and ‘Ether Tex Ltd’. After the collapse 2,438 workers were rescued, about 330 workers were initially found missing of which 207 workers were later identified through the DNA test.

Several studies show that, with some of the world’s lowest wages and no job security for its workers, the industry maintains one of the highest profits for owners, buyers and global retailers. Inhuman working conditions, low wages, verbal and physical abuse, irregular or non-payment of dues and the inability to organize are common in many of the factories supplying world-class garments. Additionally, most of the so-called ‘accidents’ since 1990 reveal the faulty structure of factory buildings including weak electrical wiring, lack of fire exits and fire alarms, narrow stair and exit paths, poor foundation, and locked doors. These problems could continue for inadequate or non-existent regulation and lack of monitoring by the relevant government agencies and also ignorance or indifference of convenience on the part of global brands and agents.

Therefore if we scan to determine the responsible parties for these death traps, then we find at least three groups from home and abroad. They include:

- (i) *Owners of factories, buildings and the BGMEA:* No irresponsible owner has ever faced legal action for their wrong doings; it seems that they have a free hand to do whatever they like. As an umbrella organization of garment owners, (BGMEA) has the responsibility of monitoring compliance and advocating for high industrial standards. Instead, this organization appears as the collective muscle of owners to protect them from the law.
- (ii) *Relevant government agencies:* There are ministries, directorates, and divisions within government those are supposed to monitor the industry, and to take action

whenever necessary for the abuse and irregularities but their presence has been little felt. Even the number of factory inspectors shows the government's indifference. That has not changed even after the worst disaster. For example, budget of 2013-14 was declared within two months of Rana Plaza disaster, but no allocation was made for the appointment of necessary number of factory inspectors and/or strengthening rescue facilities. Instead 'industrial police' was mobilized to suppress workers agitation demanding wage and security.

- (iii) *International buyers and brand retailers:* Things on the ground are not supposed to be unknown to them. Factories often accept abnormally low prices in an effort to attract buyers and grab orders. In turn, and in order to maintain a profit rate, low cost suppliers often avoid safety measures and reduce workers real wage (through increasing working hour, cutting their benefits, not spending on other facilities). This cost cutting behaviour deepens the deprivation and vulnerability of workers.

5. Global Chain: Brands, Agents and Subcontractors

The global chain for RMG works as follows:

Subcontractor → Factory → Agent/Buying house → Brand Retailer

Savar → Dhaka/Chittagong → London/Berlin/Stockholm/NY/DC/Toronto

Tazreen/Rana Plaza → Topson Downs/Li Fung → Wal-Mart/Gap

A recent study reveals that, some of the largest multinational companies are heavily reliant on agents, 'matchmakers' between buyers and factories, to source their products. "These agents offer buyers a one-stop-shop that simplifies their supply chain but, in turn, reduces transparency to buyers and their control or understanding of their supply chain. The BGMEA members' guide lists about 1,000 agents in operation throughout Bangladesh, servicing the 4,417 factories listed in the guide. BGMEA president estimated that fully 80% of orders are run through agents, though like all statistics in Bangladesh, it is very difficult to independently assess the actual breakdown". (Labowitz and Pauly, 2014).

The agents who work in between factories and global brands are from North America, Europe, Hong Kong and India. Many Indian companies, big and small, have invested in joint ventures in Bangladesh. Their role is expanding in RMG sector. One investor

estimated that nearly 400 garment buying houses from India are operating from Bangladesh (Narayanan, 2013).

As leading global agent we find 'sourcing giant' Li & Fung Ltd, that has been working in Bangladesh RMG sector since 1996 to supply Bangladeshi products to dozens of major retailers, including Wal-Mart. Its control extended deeper into the supply chain since 2006. In January, 2010 Li & Fung (Trading) Limited formed a new subsidiary company called WSG group, a sourcing stream servicing Wal-Mart globally. Li & Fung President explained that direct sourcing is a huge, volume-driven, lower-margin business resulting in the lowest prices which is an advantage to Wal-Mart (Cheng, 2001). Leading agents such as Li & Fung offer buyers a package that includes quality and labour compliance audits.

These agents allow buyers to expand or contract their supply base at will. This put local factories in a highly uncertain situation. This can result in factory owners "foregoing investments that would improve working conditions", fire and building safety, and productivity. The loss of transparency and control that agents facilitate, coupled with a "lack of long-term commitments and a heavy reliance on subcontracting", contribute to the risks of indirect sourcing. But that makes product cheap, the main attraction of global brands like Wal-Mart. (Labowitz and Pauly, 2014)

According to BGMEA, "30 per cent of Bangladesh's garments exports to the US went to Wal-Mart, the world's largest retail chain. The US is the single largest importer of Bangladeshi garments. The Wal-Mart CEO came to visit readymade garment industry, as Bangladesh becomes one of the important sourcing countries in recent years for the company". (BGMEA, 2010)

Monopolies like Wal-Mart and France-based Carrefour use their leverage to beat down prices and wages all over the world. Both called up the Bangladesh government for assurances on deliveries when 1,000 factories were shut down during the strike actions in May 2006. Therefore, it is correct to note that, 'behind the low wage scale in Bangladesh is not only the drive of the local capitalists to maximize their profits, but the pressure of the giant retail monopolies like the US based Wal-Mart Stores, Inc., the world's largest retailer.' (Workers World, 2006)

These are the cases for many years, many parties, local and global, are there to extract profit on the value created by garment workers, and 'for the factory owners the only thing left to squeeze is the wage of the garment worker and they are hardly going to invest money in

proper factories with functioning fire escapes and sprinkler systems unless failure to do so precludes them from getting orders. Inevitably, as buyers from our high street stores drive down the price, the slack is picked up by the most vulnerable in the chain– the garment workers.’ (Guardian, 2010)

Therefore chain of subcontractors and agents work beside global brands and approved factory owner. Research on the sector found the largest factory groups in Bangladesh as featuring ‘showcase’ factories with “higher safety and production standards as the face of the group to foreign buyers, while maintaining additional, less compliant facilities as the productive engine of their operations”. According to their study, “people across the sector acknowledge the reality that an extensive network of small, less compliant factories undergirds the production capacity of the big factory groups that maintain the primary, direct relationships with Western buyers”. (Labowitz and Pauly, 2014)

Comparatively subcontracting seems easier because, “mother” factories take care of banking, transport, managing bureaucracy. “Despite strong language in their policies about non-transparent subcontracting” many buyers pay little attention to the practice of subcontracting. They want only “98% on-time shipment”. Sometimes they ask for “alternative source” to ensure timely shipment. (Labowitz and Pauly, 2014).

All these factors make create a chain of deprivation and make Bangladeshi products cheaper at the cost of human lives.

6. Lowest Wage Cheapest Product

Wage or unit labour cost in Bangladesh has been the lowest in Bangladesh compared to other RMG producing countries from the very beginning. This status has not been changed despite upward revisions of minimum wage. During the 1990s, unit labour cost in Bangladesh was USD 0.11 (USD/shirt), where the same was 0.26 in India, 0.43 in Pakistan and 0.79 in Silence (BIDS, 2000).

According to the Brussels-based International Textile, Garment and Leather Worker Federation, in ‘February 2005 a garment worker in Bangladesh received only 6 cents as wage per hour, compared to 20 cents in India and Pakistan, 30 cents in China, 40 cents in Sri Lanka and 78 cents in Thailand.’ (Asian Tribune, May 28, 2005)

Average monthly wage in PPP terms was also found to be the lowest in Bangladesh. The annual minimum wages in PPP in different countries were found in 2008-9 as follows- Taiwan: 955, China: 204,

Cambodia: 156, Indonesia: 142, Vietnam: 120, Pakistan: 118, India: 113 and Bangladesh: 69 (ILO, 2009).

In 2006 and again in 2010, collective actions of the workers have forced the owners to revise existing wage structure. If we look at the wage structure in Taka (Bangladeshi currency) term, it increased from 78.8 per cent (grade 1) to 9.4 per cent (grade 7) between 1996 and 2006 wage scales. However, the 2006 wage scale in fact decreased compared to 1993 in the US dollar (CPD, 2010). After long protest and demonstration the minimum wage declared in July 2010 was still a malnutrition wage. Exchange rate of taka with USD has been stable between 2006 and 2010, but price level increased more than 50 per cent, more than 100 per cent increase in rice price took place during this period. It shows decrease of real income even with new wage scale.

New scale of wages was declared on November 21, 2013. Minimum wage was fixed at BDT 5300 when the poverty line income of a family is BDT 18000. In both nominal and the US dollar terms wage in new scale increased compared to 2010 scale. Nevertheless, it remains the lowest in the world, below the poverty level of income of a single person and less than one third of that for three members' family. As is usual many owners keep opposing this scale, many factories are yet to implement this low wage, not to mention about still operating subcontractor factories.

In an interview to Business Line, an Indian proprietor, who has been in apparel outsourcing business for over three decades, felt that the garment buyers 'will still do business in a big way' with Bangladesh despite the unfortunate accident. This was because the country offered several advantages like low making charges and duty free export opportunity to Canada, Europe/UK. Elaborating on the cost-benefit of doing business in Bangladesh, he said the cost of making a 5 pocket jeans is approximately USD 1.30 to USD 1.40 per piece while in India, it costs USD 4 to USD 5 a piece (Narayanan, 2013).

In one estimate we find that if any cloth is sold at USD 14 at any super market in NY or Toronto or Sydney or London, around 60% of that value usurped by international buyers and retailers. Governments of western countries also earn a good amount as vat or sales tax. Therefore major pie is grabbed by those who have no role in producing the good. Out of rest 40%, costs for imported and local materials, for establishment take nearly 35%. Less than only 1% left for workers. Fabric and trimmings make up the largest costs. Wages

ultimately get squeezed most because businesses can easily control them, unlike the price of cotton or shipping.

Therefore, it is no surprise that, present wage level is much lower than the living wage, even much below than poverty level of income.

When a polo shirt is sold in Canada at USD 14, costs structure in Bangladesh is shown in the table below:

Table 1: Cost structure of a Polo Shirt in Bangladesh (figure in USD)

Worker	Materials (finishing)	Shipping tariff	Factory margin	Agent	Establishment cost	Sale Price to Canada
0.12 (0.85%)	3.69 (26.35)	1.03 (7.36%)	0.58 (4.14%)	0.18 (1.28%)	0.07 (0.5%)	5.67 (40.5%)

Source: Consulting firm O'Rourke Group, 2011

<http://www.prothom-alo.com/detail/date/2013-05-04/news/349443>

North American retailers prefer Bangladeshi products over US ones, because it gives them much higher profit, consumers also get cheaper product. Why? The table below gives the answer.

Table 2: Cost of a T-Shirt In US and Bangladesh (figure in USD)

Costs	US	Bangladesh
Materials	5	3.30
Industrial Laundry	0.75	0.20
Labour	7.47	0.22
Total	13.22	4.70

Source: Institute for global labour and human rights

<http://edition.cnn.com/2013/05/02/world/asia/bangladesh-us-tshirt/index.html>

The table shows that, when a T-shirt costs USD 4.70 in Bangladesh, it costs USD 13.22 in the US. In costs of materials, both countries differ little. Material costs for the US is USD 5, and for Bangladesh it is 3.30. When it comes to the labour cost, it reveals the real source of difference. It is labour cost, wage. While labour cost for a T-shirt is USD 0.22 in Bangladesh, it is USD 7.47 in the USA, more than 33 times than in Bangladesh.

Since garment global market is a buyers' market, i.e., few buyers many sellers, buyers actually determine the price. Garment buyers and brands become the price maker. They always keep their efforts to bring the price down even more. Recent report reveals a case, 'A Dhaka-based manufacture exports cotton long sleeve tops for a Spanish buyer for decades. The buyer comes back every year with repeat order, lowering the price further. Though manufacturing cost including wages doubled within this span of eight years, the price was pushed down to USD 2.40 a piece this year from USD 3.40 in 2005.' (<http://www.thedailystar.net/beta2/news/secret-cuts/>)

To grab the order, garment owners i.e., sellers often accept abnormally low price. Despite this fall of price they find ways to maintain high profit rate, cutting cost in every possible area. One possible option for low price supply is to work done by the sub contractor; and others include cutting cost in safety measures and reducing workers real wage (through increasing working hour, cutting their benefits, not spending on other facilities). All of these options increase workers deprivation and vulnerability.

It is important to keep in mind that, "certain global name brands said that they did not know that their products were being made at Rana Plaza, thus indicating problems of traceability in the supply chain" (FIDH, 2014).

7. Post Rana Plaza: How are Things on the Ground?

According to the Export Promotion Bureau (EPB), total export has maintained a double digit growth during July-March FY2014 (11.9 per cent). And "in the 12 months that ended in March from the period a year earlier Bangladesh's clothing exports jumped 16 per cent, to USD 23.9 billion". (<http://www.nytimes.com/2014/04/28/opinion/one-year-after-rana-plaza.html?src=recg>)

After one year of Rana Plaza disaster main concerns of workers conditions have changed little. We have heard loud promises, but little progress on the ground. There are many initiatives not reaches real problems on the ground. Unbelievable becomes true that even after one year no compensation policy has been formulated yet. Therefore nobody from nearly 4 thousand families has received compensation. Only money they received from Bangladesh government, Primark and some donor agencies is charity support and health care facilities for severely injured. Many of the alive workers who lost their job have not get any job despite many promises from BGMEA and others.

One survey among total of 2,222 victims, including 1,436 survivors and 786 family members, by Action Aid Bangladesh found that “around 66 per cent, of the Rana Plaza tragedy are leading an inhuman life in the face of difficulties to meet their daily needs”. Of them, 2.4 per cent cannot make ends meet at all, the survey found. The Survey further found that, 73.7 per cent of the survivors are yet to return to work, mainly due to physical ailment (63.74 per cent), trauma (23.76 per cent) and employers' unwillingness (7.54 per cent) (AA, 2014).

Another survey was conducted by Centre for Policy Dialogue (CPD) among families of 834 workers killed in Rana Plaza disaster, revealed that majority of them were married and 56.7 per cent of them had children. Children of dead or severely injured workers have been directly affected. Majority of them are still living without any support (CPD 2014).

A review study done by Transparency International Bangladesh identified progress in different fields and found that (1) government has failed to take legal actions against owners of buildings, factories and government agencies, (2) No progress in compensation, (3) No progress in formulating comprehensive plan to rehabilitate problem factories. They also found failure of BGMEA and global brands in implementing their promises (TI-Bangladesh, 2014).

8. Governments from Dhaka to Washington: What are They Doing?

In a year after Rana Plaza disaster The US government has earned at least USD 800 million as duty imposed on imported garments from Bangladesh. It did nothing to make US brands accountable, but suspended GSP from Bangladesh to punish BD garment owners where garments' have never enjoyed GSP facility!

On 27 June 2013, President Obama declared the withdrawal of the GSP facility for Bangladesh and said that, “I have determined that it is appropriate to suspend Bangladesh ... because it is not taking steps to afford internationally recognized worker rights to workers in the country.” It sounds worker-friendly, actually it is not. Although the US suspended GSP facility ‘to punish’ garment industry, but garments, the main export item from Bangladesh to the US, did never enjoy this facility! On the contrary it has been a victim of discriminatory and high tariff barrier from the US authority.

According to Oxfam USA, an average tariff rate on imports into the US is 1.7%. France, UK and Saudi Arabia pay less than 1%. But for

Bangladesh it is on average 16%. Bangladesh pays nearly 60% of all the tariff revenue by the US collected from the LDCs. Even International Monetary Fund (IMF) earlier admitted that, “poor countries like Bangladesh—face the highest effective tariffs, on average, four or five times those faced by the richest economies” in the USA. (www.imf.org/external/pubs/ft/fandd/2002/09/smith.htm)

Ambassador Terry Miller and Ryan Olson of the US correctly argued that, “this move (to suspend GSP facility) is punitive and off-target. In reality, the GSP covered only 118 products and USD 34.7 million in imports from Bangladesh in 2012. This is less than 1 per cent of the USD 5 billion in total imports that Bangladesh ships to the U.S. each year. In particular, it will have little effect on the garment industry, which is largely exempt from GSP duty-free status.” (<http://www.heritage.org/research/reports/2013/07/punitive-trade-sanctions-on-bangladesh-not-the-way-to-improve-labor-conditions>)

Therefore, not only the action on GSP was misleading, it was fraudulent too. If the US accepts WTO principles and stop discriminating and protectionism, Bangladesh would have more leverage to incentivize change within the industry. Rather it has been used to pursue other agenda of the US. In November 2013, the governments of Bangladesh and the USA signed TICFA (Trade and Investment Cooperation Framework Agreement), ‘to find a platform to negotiate for reinstating GSP facility’!

Although Government of Bangladesh did little to change the condition of the industry, owners succeeded to take more from the government. Different export incentives over the years have provided up to 5% cash credits on the basis of total export volume. In January 2014, the finance minister announced a 0.25% cash incentive based on the freight on board value of export of all types of RMG items. Number of sales contracts is considered the basis for credit-worthiness. “Therefore, the biggest factory groups get the largest number of orders and subcontract actual production to a network of other facilities” (Labowitz and Pauly, 2014). Furthermore, duty on source was reduced from 0.8% to 0.3% (TIB, 2014), only this decision add BDT 20 billion benefit for the owner in single year. But government failed to hand over even donation money of BDT 1.2 billion to the workers, deposited to Prime Minister’s fund by different individual and groups for the victim workers, even in one long year.

9. The Brand Role: Accord and Alliance

After Rana Plaza disaster, citizens around the world demonstrated their discontent and anger on the conditions of workers in billions

dollar industry. In response to citizens' protest we see some initiatives by global brands and retailers in garments importing countries. Most important are the formation of the 'Accord' and the 'Alliance'. Both initiatives are planned for five years.

The Accord of Fire and Building Safety (Accord) was established on 15 May 2013 with initiative from Industri All, (HQ Geneva), UNI Global Union (HQ Geneva). (<http://www.bangladeshaccord.org/>)

Accord is an agreement between labour unions and over 150 apparel brands and retailers. While the vast majority of Accord signatory companies are European, some North American brands also joined the agreement. Many of the industry's biggest companies refused to sign the Accord including Wal-Mart for its binding nature.

The Accord companies are required to fund and participate in independent safety inspections and renovations. It is claimed that the Accord obligates companies to maintain order volumes in individual factories.

The American Apparel and Footwear Association and several US senators, took initiative to establish a non-binding program, the Alliance that was formed in July 2013. (<http://www.bangladeshworkersafety.org/>) North American big brands including Wal-Mart and GAP are part of this alliance. USAID, IFC of the World Bank are also member of this alliance. Unlike Accord, the executive leadership of the Alliance consists of industry heads and company representatives. Its board of directors include Wal-Mart VP, BGMEA President, US ambassador to Bangladesh, GAP boss. Li Fung representative participates in Alliance in an advisory capacity.

Core programme elements for Accord are described as: "safety inspections, remediation and building safety training, member-sponsored funding for factory improvements." For Alliance it goes as follows, "safety inspections, safety and empowerment training, voluntary loans for factory improvements."

While the Accord is a legally binding agreement between Companies and trade unions, the Alliance is not legally binding and has no role for trade unions and workers and worker representatives. However, the Accord and the Alliance serve very similar functions in Bangladesh: they create a short-term inspection and monitoring system among some selected factories, 'conduct trainings for management and workers on fire and building safety, and provide some level of resources to their primary suppliers for remediation efforts'. It is interesting to note that, supplying companies of these facilities are already having sales show in Bangladesh.

According to the April 2014 data, Accord targeted 1626 factories for inspection, according to their claim, completed nearly 300 and published some inspection reports till April 2014. The Alliance declared its plan to inspect 626 factories, but they published no details of 247 factories they claim to have inspected. (TIB, 2014) Therefore, the two initiatives cover nearly 1873 factories between them. But there are between 5,000 and 6,000 factories, both registered and unregistered. Therefore this is a genuine concern that, “the Accord and the Alliance’s inspection and remediation regimes are unlikely to reach the factories where workers are most at risk” (Labowitz and Pauly, 2014).

These initiatives, however, do not cover the issue of compensation. International Labor Organization (ILO) has taken initiative to organize funds for compensation. Based on the compensation estimates for the victims of Spectrum Garments using the benchmark of ILO, an approximate total of USD 74.5 million has been estimated to be required to compensate the victims of Rana Plaza. A single approach has been established in accordance with the ILO Convention 121 and the Bangladesh Law to compensate 3600 Rana Plaza victims. ILO targeted to organize USD 40 million, while “current total available for awards about USD 17 million.” (<http://www.ranaplaza-arrangement.org/fund/donors>)

According to Human Rights Watch, “15 international retailers officially implicated in the collapse have not yet paid into the fund”. Human Rights Watch reached out to 14 brands for an explanation as to why they didn't contribute to the fund. It is important to note that all funding from the brands are still voluntary, no legal system has been formulated to force brands to fund as compulsory liability.

10. Conclusion

Many companies looked at all fatal ‘accidents’ discussed above as a brief ‘PR disaster’, but these leave permanent trauma for the thousands of workers families. In all considerations, national and multinational both enterprises have failed to uphold their responsibilities, but they did make their profit more than before.

Therefore in investigating global chain, we find number of groups in Bangladesh and in many western countries who are getting fatter over the value created by workers of garment industry in Bangladesh. All of them must bear responsibility for failing to secure a minimum standard in the factories.

In a sentence, madness for more and more profit by groups from home and abroad, without caring its costs for the workers and for the industry, created these horrific experiences of Rana Plaza and Tazreen. The global net of injustice allows factory owners, BGMEA, agents and global retailers to avoid responsibility, even after murder of the thousands. This shows a failed system of accountability in global scale, from Savar to New York. Questioning, monitoring this unjust system and raising collective voice to uphold rights of the deprived millions are our responsibility, from Savar to New York.

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Diplomacy of Cooperation: Way out for Resolving Water Sharing Issues

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Abstract Historically, water is an indispensable component of human life and civilization. Water forms anywhere – oceans, rivers, lakes, streams, ponds, wetlands etc. Water bodies within a country do not create any conflict to manage and share. In case of transboundary water bodies, sometimes water conflict is created among diverse nations. If we consider the strategy of sustainable wellbeing, proper water sharing treaty among nations is highly needed. In general, South Asia is globally known for its poor sanitation, huge population, limited land resources and anthropogenic and natural hazards. There are about 54 transboundary rivers between Bangladesh and India. Apart from that, the river system of Ganges, Brahmaputra, and Meghna (GBM) flows in the course of five countries– Bangladesh, Bhutan, China, India, and Nepal. In this context, for the development of poorest region effective water diplomacy is an urgent necessity. Global forward looking agenda is poverty alleviation, and obviously, the economy and human development of South Asia depend on water. This study explains why water is an integral part of development taking into consideration how ‘cooperative diplomacy of water’ can lend a hand towards energy security, regional security, poverty reduction and inclusive growth.

1. Introduction

Diplomacy refers to the art and science of international relations between countries, carried out by diplomatic representatives. Diplomacy is commonly bilateral in character. However as a result of the growing importance of international conferences, international organizations, regional negotiations, it has now also developed a plural character. Diplomacy works in a situation involving both cooperation and conflict. A certain degree of cooperation among

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nations is essential for the working of diplomacy. Absence of cooperation diplomatic relations cannot be maintained. Diplomacy concerned with all issues and problems among nations. Professional diplomats of nations negotiate on national and international security, economics trade, peacemaking, culture, environment, human-rights, and water resource sharing and so on.

Though late, but water resources sharing between the countries situated in the same basin of a particular international river has occupied a significant place in the diplomatic relationship between the countries for obvious reason. In a study, by Washington-based group Population Action International says, 40 countries faced chronic water shortages at the beginning of the 2010's. It predicted that the number would increase to nearly 60 by 2050. History shows, since 1948 at least 37 major incidents of acute conflict over water.

There are approximately 276 transboundary river basins on the planet with a geographical area covering almost half of the earth's surface. 145 states have territory in these basins, 30 country lie entirely within them. But around two-thirds of the world's transboundary rivers do not have a cooperative management framework. History shows, since 1948 world faces 37 incidents of acute conflict over water. Many of the world's great rivers flow across national frontiers, and over the centuries there have been disputes. These have only sharpened as environmental issues have compounded age-old conflicts over water-sharing.

In this context, UN Committee on Economic, Social and Cultural Rights (CESCR) adopted the General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant) that declared water is a human right. The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. The right to water clearly falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival. Water is a prerequisite for the realization of other fundamental human rights. This declaration was a decisive progress, at the international level, in terms of legal protection of the right to water. But this was not a legally binding document. There is no way to force sovereign states to comply with it, and there is no obligation to settle disputes. This is why co-operational approach between countries plays a vital role in water sharing issues.

2. Ground Reality of Water Resources

At a glance, let us look at the ground reality. The world runs on water. There are approximately 276 transboundary river basins on the planet with a geographical area covering almost half of the earth's surface. 145 states have territory in these basins, 30 countries lie entirely within them. These shared international rivers are the sources of 60% of freshwater supplies and provides home to at least three billion people, 40% of the world population. World population grows day by day. So the demand of water grows in all countries and these shared resources be increasingly drawn upon to meet the competing needs of billions of people for drinking water, food, energy and industrial production. Less water would be left, often of much lesser quality to sustain ecosystems and to meet people's future demands.

When we look back to the Himalayan Region, we find that the countries of the region offer vast opportunities for optimal water resources development and management through collaborative efforts. Water should be treated here as a social and cultural good, and not primarily as an economic good.

Improved water resource management in this Himalayan and downstream countries is essential for the sustainable development. The Himalayan region extends 3,500 km over all or part of eight countries (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan) from Afghanistan in the west to Myanmar in the east. The Himalayan is the source of ten large Asian river systems – the Amu Darya, Indus, Ganges, Brahmaputra (Yarlungtsanpo), Irrawaddy, Salween (Nu), Mekong (Lancang), Yangtze (Jinsha), Yellow River (Huanghe), and Tarim (Dayan), which provides water, ecosystem services, and the basis for livelihoods to a population of around 210.53 million people in the region. The river basins of these rivers provide water to 1.3 billion people, a fifth of the world's population.

3. India-Bangladesh Water Sharing Initiatives

Bangladesh is a riverine country. Water will be the major factor for Bangladesh's future development. It will also be the number one issue in Indo-Bangla relationship. That's why cooperational approach is essential, especially for countries such as Bangladesh where vast areas are vulnerable to the impacts of climate change. Probably, this prescient thought as the leader of a newly born state the Father of the Nation of Bangladesh Bangabandhu Shaikh Mujibur Rahman pressed the then Indian Prime Minister of India Srimati Indira Gandhi to set

up a bilateral working group to work for the common interests and sharing of water resources, irrigation, floods and cyclones control. When Indo-Bangladesh Treaty of Friendship, Cooperation and Peace signed on 19 March, 1972 the two leaders agreed to include Article VI of the treaty provides, as stated “both the nations agree to take joint action in the field of flood control, river basin development and development of hydroelectric power and irrigation”. Pursuant to this treaty an Indo-Bangle Joint River Commission (JRC) was established in 1972 for carrying out a comprehensive study of the river system. From 1975 to 1996 in a changed perspective, India diverted as much as 60 to 90 per cent of the Ganges's dry-season flows. In 1996 under the initiative of the Bangladesh's elected Government headed by Sheikh Mujibur Rahman's daughter, Sheikh Hasina Wazed, India and Bangladesh signed the Ganges Water Sharing Treaty, which regulates the Ganges sharing waters at Farakka. Bangladesh is ensured a fair share of the flow reaching the dam during the dry season. And it is now recognized that the studies and reports of the JRC contributed directly to resolve the dispute over the sharing of the Ganges Waters.

Though the center of Indo-Bangla disputes over the Ganges waters sharing has been solved, these two countries still has other 53 transboundary river problem to solve. So water is the main concern between these two countries. The Teesta, Tipaimukh dam on the Borak River and India's river linking project have been now a bone of contention between two countries. Since, Bangladesh is the downstream country the quantum of water; it has access to dependent on India which is the upper riparian.

4. Potential Issues for Cooperative Development

Back to the potentialities of the cooperative development of the Himalayan countries, we see that The Ganges, Brahmaputra, and Meghna (GBM) river system flows through five countries – Bangladesh, Bhutan, China, India, and Nepal – characterized by large population, limited land resources, and frequent floods and natural hazards. Although the GBM region is well endowed with water sources, this is one of the poorest regions in the world. Its economy and human and environmental health depend on water, and water is thus at the heart of sustainable development, economic growth, and poverty reduction. Unified effort can enable the people of this region to achieve multiple benefits through multi-purpose river projects that store monsoon water, mitigate the effects of floods and droughts, augment dry season river flows, expand irrigation and navigation facilities, generate

hydropower, and enhance energy and environmental security. For example, there is tremendous potential for construction of reservoirs in Nepal which would augment the dry season flows of the Ganges by about 188,500 cusecs. The dams in Nepal would also provide multi-purpose benefits like hydropower having a potential of about 83,000 MW, flood moderation, irrigation expansion and navigation. Bhutan too has a hydropower generation potential of about 30,000 MW. The GBM has an excellent opportunity for generating an enormous amount of hydropower. In total, the GBM river system is estimated to have about 200,000 MW of hydropower potential, of which half or more is considered to be feasible for harnessing.

Exploitation of the region's hydropower potential could meet the energy requirements of the region and the surplus could be exported. The production of such hydro-electricity will not only meet the needs of Nepal and Bhutan, but will also meet power demands of Bangladesh and India. Regional cooperation can help to overcome the main impediments to hydropower development. An initiative for regional cooperation among the Himalayan countries to open the eyes the people of the region has begun since 2006 with commendable support of the World Bank. The initiative known as the Abu Dhabi Dialogue Group (ADDG) was formed with seven Himalayan countries namely Afghanistan, Bangladesh, Bhutan, China, India, Nepal and Pakistan. The ADDG has so far held quite a number of meetings (more than eight meetings) and in its second meeting held in Bangkok in July 2007, it adopted a long term vision:

"A cooperative and knowledge based partnership of states fairly managing and developing the Himalayan River Systems to bring economic prosperity, peace and social harmony, environmental sustainability from the source to the sea."

5. Bangladesh Perspective

As far as our Bangladesh is concerned, we all know that it is a low lying delta formed by the alluvial deposits of the three mighty Himalayan rivers- the Ganges, the Brahmaputra and the Meghna. Bangladesh has 57 Trans Boundary Rivers, 54 are common with India meaning that all these rivers have mostly originated in India and only 03 are common with Myanmar. In fact 51 rivers, common between Bangladesh and India are within the catchment areas of the Ganges, the Brahmaputra and the Meghna. The catchment areas of these three mighty rivers are The Ganges-Brahmaputra-Meghna (GBM) river basin is a transboundary river basin with a total area of just over 1.7 million kilometer, distributed between India (64 per cent), China (18

per cent), Nepal (9 per cent), Bangladesh (7 per cent) and Bhutan (2 per cent). The life and livelihood of the millions of people in Bangladesh have been revolving around the waters of these rivers over the ages. The present Government of Shaikh Hasina has planned to construct the Ganges Barrage to meaningfully utilize the Ganges Waters that it receives as per the Ganges Water Treaty. Dredging of all the major rivers of the countries under a nationwide mega project has been undertaken. The healthy effects of such dredging is already being felt as the country has not witnessed any major flood during the last five years resulting in protection of crops and establishments including railway, roads and highways worth roughly BDT 700,000 million. On the other hand we have seen all other countries in the neighborhood like India, Pakistan, China, Thailand- all these countries have encountered several severe floods during the last five years.

6. Conclusion

In this connection before I conclude I shall cite a number of glaring success stories of regional cooperation for management of International Rivers like:

- a. Mekong River Commission (Cambodia, Laos, Thailand and Vietnam)
- b. Convention and Protection of the Rhine (Germany, France, Luxembourg, the Netherlands, and Switzerland under EU Framework)
- c. Nile Basin Initiative (Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, Congo and Eritrea-observer)
- d. Senegal River Basin Water and Environmental Management Project (Guinea, Mali, Mauritania and Senegal).

Finally, I would point out that Bangladesh, India, Nepal and Bhutan-four countries of this region offer vast opportunities for optimal water resources development and management through collaborative efforts and the key to prosperity in the region is the basin wide development of the rivers following the principles of Integrated Water Resources Management. The immediate need is a pragmatic approach to the management of water resources in the region and for this to happen, political commitments of the leadership of the countries concerned are required. The Governments of this region, would, therefore need to agree on broad framework for regional cooperation by fostering mutual understanding and accommodation. As such, diplomacy of cooperation is the need of the hour.

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Ancient Banking System and Mahasthan Inscription

Abul Kashem*

Abstract Many historical evidences discovered in different parts of the world have been identified as banking activities dating back to ancient civilizations. But the royal practice of documentation for the purpose of offering credit has been found only in the inscriptions of Mahasthan, not anywhere else. The subject matter of credit offered from the royal treasury at the state level that Kautilya stated in his Arthashastra, was found nowhere in India but in Bengal and in Mahasthan, in greater sense in Pundavardhana. At the same time, the identity of credit or banking system, not only in terms of grains but also in terms of money was revealed too. The next step of 'Grain Banking' was 'Money Banking' which is in practice throughout the globe at present. That is why the MahasthanLipi bears the authenticity of the advance position of ancient Bengal in the history of world civilization in the matter of banking practice in terms of money.

It's quite difficult to determine when the banking system started. Because bank was not, hence, invented by a stroke of genius, but stemmed from a need, and its evolution reflects, at each time, the willingness of man to harmonize its monetary work systematically to the reality of its economy. Bank or financial institution as we know it today, is the result of a long process. At the beginning, there was no money. People engaged in barter, the exchange of merchandise for merchandise, without value equivalence. This elementary form of trade prevailed at the beginning of civilization. Later man introduce cattle, salt, cowry, etc. as commodity money. Later, commodities became inconvenient for commercial trades, due to changes in their values.

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As soon as man discovered metal, it was used to make utensils and weapons previously made of stone. For its advantages, as the possibility of treasuring, divisibility, easy of transportation and beauty, metal became the main standard of value. It was exchanged under different forms. In the 7th century BC the first coins resembling current ones appeared: they were small metal pieces, with fixed weight and value, and bearing an official seal, that is the mark of who has minted them and also a guaranty of their value.

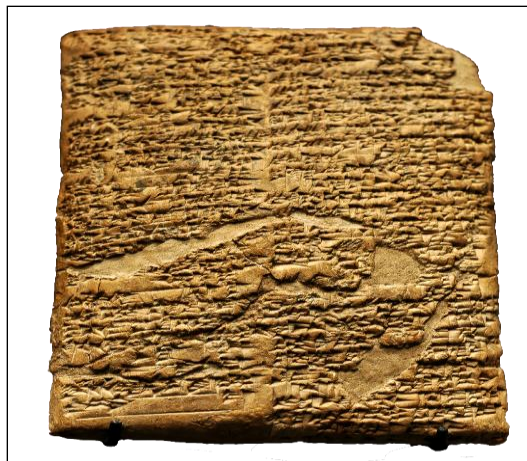
Gold and silver coins are minted in Greece, and small oval ingots are used in Lydia, made of a gold and silver alloy called electrum. These are the early stages of banking system.

So, the history of financial transactions, lending-borrowing, preserving money and resources, mortgage or system of preserving valuable things relating to profit is very much primitive. Rondo Emmett Cameron (February 20, 1925 – January 1, 2001) an American professor of economic history says in his book, 'A Concise Economic History of the World: From Paleolithic Times to the Present' that about twelve thousand BC, in the context of socio-economic changes, the practice of 'Hunting and gathering' of the strong economic confidence and trust from the transition of agricultural evolution, the exchange of food enters into the transactions. The system was introduced ten thousand years ago in the 'Fertile Crescent' area (Syria, Lebanon, Jordan, Sindh Basin, Egypt and Turkey); 9,500 years ago in China and 5,500 years ago in the United States. Jesus Huerta de Soto Ballester (23 December 1956-), in his book 'Money, Bank Credit and Economic Cycles' says, 'The history of banking is intertwined with the history of money (Cash in kind)'. In the primeval time, 'money' meant 'Grain-Money' and 'Food-Cattle-Money'. It has been workable from nine thousand years ago (Huerta de Soto 1998: 32). There is no doubt that banking in Asian countries is relatively very old.

Two thousand years BC, in ancient Babylon, people used to keep gold deposited on the condition of paying one-sixteenth of it as interest (Bromiley 1995: 48). There was also a tendency to store food grains in temples. This system lasted up to 209 centuries BC (Anthon 1885). At that time, food grains from mandir or temples were provided to the people—which would have to be returned with profits after taking new crops. There is evidence of providing loan from the Athens Temple from 433 to 427 BC (Budin 2006: 113). In the 18th century BC, People in the territory of the Egyptian Temple used to pledge gold for security [(B. Gascoigne 2012: 28) History of Banking]. In the fourth century BC, during the time of Ptolemy, scattered grain-banking was concentrated in Alexandria under royal grain banking.

Huerta de Soto thinks that, in the management of the state, the government bank (Abbott 2006: 11) was established first in the world by the central administration of such endeavor. Seleucus, nephew and contemporary of Ptolemy established Greek rule in the Middle East, Afghanistan including the Basilica of Sindh. During his time, there was no identity of the bank in this region including 'fertile crescent' area of the world. It is because he spent most of his time in war. Maybe the former system was going on.

There is a history of savings accounts from the eighth thousand BC to up to fifteenth century BC, the maintaining of saving accounts of agricultural commodities is known (Liverani, 2006: 12). The first payment in the business was made three thousand and two hundred years ago. A clay sheet documented the raw materials and working days are available in the box making factory. The document was from the two thousand forty years ago (Kurt 1995: 63). A very ancient script inscribed on the soil made biscuit is called 'Code of Hammurabi', the most complete and perfect extant collection of Babylonian laws, developed during the reign of Hammurabi (1792–1750 bce) of the 1st dynasty of Babylon.



Code of Hammurabi

There is some brief indication on banking activities such as prices, tariffs, trade and commerce, debt with other topics on the script. From information of seventeenth century BC, the bank system, with the introduction of interest, was in a very firm condition, following befitting laws (Williams 2012: 123). Later, more evidence was found in the banking system of the Mesopotamian's. In ancient Greece, evidences of deposits, currency exchange, currency and time and

credit transfers are found in the temples of Artemis, Hera and Apollo (Cohen 1992: 47). The identity of private banking system was found in the second century BC in the 35 Hellenistic Cities (Roberts 2011: 130). Hellenistic administration was on going in Seleucus empire (including Sindh Basin). There is prudent reason to think that private bankers were also operating in the cities of Sindh like other Hellenistic cities.

The history of lending in ancient Athens is interesting. The loan was given at the rate of ten percent per annum. In eleven cases, there is evidence of disbursing loan from bank (Bogarat 1968: 67). Some loans were given in secret. There was a close relationship between the family of Seleucus and Didaima's of Apollo temple. His father Antiochus claimed himself to be the son of Apollo. In keeping similarity with this temple, a sister of Seleucus was named Dedimaiya. Gold was kept as deposit in this temple (Freelie 2004: 23).

In ancient India there are evidences of loans from the Vedic period (beginning 1750 BC). Its mention is in the holy book Ved (an important religious book of Hindus). There, the profit-taker has been called 'Kusidin' which means 'Usurer'. The word 'Kusidin' is translated as 'Sutras' (700–100 BC) and 'Jataks' (600-400 BC) also mention usury. By this, interest has been discouraged. While contemplating interest as achieving wealth and means of livelihood, its value or rate should be different on different castes (Das 1980: 229). However, it is a despicable sin from his point of view. The Jataka thinks, the size (amount) or the loan agreement should be executed. Later during the powerful Maurya empire founded by Chandragupta in northern India (321 to 185 BC), an instrument called *adesha* was in use, which was an order on a banker desiring him to pay the money of the note to a third person, which corresponds to the definition of a 'Bill of Exchange' as we understand it today. During the Buddhist period, there was considerable use of these instruments. Merchants in large towns gave letters of credit to one another (Irapta 2005: 17). It was also used during the Buddhist period. The businessmen of the big cities used to give a 'letter of credit' to each other.

The great Chandragupta Maurya's advisor, later minister and probably the right hand and the think tank named Kautilya (real name Vishnugupt, also known as Chanakya, a brahmin, (Birth: 350 BC, Death: 283 BC) wrote 'The Arthashastra' or economic policy. Arthashastra tradition played a key role in the establishment of one of the greatest empires of Indian sub continent, the Mauryan Empire. In the declaration no. 63 of the eleventh chapter of the third part of his 'Arthashastra', highlighted different rules and regulations regarding taking loan, loan repayment, debt nature and loan exemption. The

scholars hold the idea that the book 'Arthashastra' has been written in the fourth century BC. In this book, it is seen that loans were made from state treasuries, as well as at the individual or private institution level. Considering the importance of the issue of loan, it has been added to the 'Ananthara Dharmastha' (Judicial chapter) of 'Arthashastra'.

According to Article 3-11-1, it is agreed that it is reasonable to give monthly interest at Shoa Pana rate against hundred percent loan. This interest is applicable even if one takes a loan with mortgages. It has also been said, interest payments will be given at the rate of five Pana per loan for business purpose. If transportation of commercial goods is made at risky roads, the rate of interest will be 10 percent and it will be 20 percent by sea. If the person who receives interest more than the said percent, will be responsible for the payment of 250 bets as fine and those who will be the witness of charging illegal interest, will also have to pay a fine of 125 Pana. The Rulers will decide on the liability or accountability of the debtor and the creditor. If they fail, the judges will decide the matter according to the light of law. In the article no 3-11-2, it has been said that if paddy is taken as loan, interest will be paid half of the loan taken after the harvest. The loan can also be repaid at the cost of money. If a debtor keeps the rice without paying the loan on time and the price increases by this time, he will have to pay half of the enhanced value to the creditor (Razzak 2016: 214).

There is also a policy of time-barred debt in Arthashastra. It says, if a debtor becomes indifferent to debt for ten years, the loan will not be reclaimable. However, this rule will not be applicable if the borrower is a boy, an elderly, a distressed person, or a forsaken person of the state (Razzak 2016: 214). The rule seems contradictory but logical. It is because, being self-motivated, time to repay the loan in case of the said persons can be given.

If the borrower dies, there are clear instructions in the article no 3-11-4 regarding who will pay the liability. It says, if the borrower dies, his son or the heir or co-creditor (if any) or the guarantor will repay the debt. The bailout of loan in case of the minor is not lawful. If the time for repaying the loan is not settled, his son, grandson and other successors will be liable to repay the loan in the death of the borrower (Razzak 2016: 215).

Taking money or grain as loan, the sufferings of repaying the loan with profits, emolument or interest were great in the past, Kautilya's Arthashastra testified that very well.

In the Pashcim Bhag Coper Plate of Sreechandra in the 10th century, it is mentioned that the practice of Kautilya's Arthashastra was present in our larger ancient Bengal. The 'Audhaksha Prochar' Chapter of Arthashastra was taught in the education center of Brahmopur at Sreechandrapur established by Raja Sreechandra. The Buddhist king Sreechandra gave settlement to six thousand Brahmins here. Some of them were professors. One of the professors obtained ten 'Patak' of land for schooling Chandrabhyakaran (Roy 2004: 631). Sreechandra was the grandfather of Atish Dipankar Shreegyan (Kashem 2014: 3).

There is no information about whether Kautilya's banking or finance and grain loan related matters are taught. All the lessons of copper-plate of Sreechandra could not be retrieved. However, surprisingly true, the earliest inscriptions found in the Greater Bengal are a document related to the grain credit. It has been found in Mahasthan. So it is called 'Mahasthan Lipi' and as it is written in Brahmi letters, it is also called 'Mahasthan Brahmi Lipi'.



Mahasthan Inscription

Courtesy: Department of Archaeology

Devdatta Ramkrishna Bhandarkar (Bhandarkar 1931: 85) retrieved the script's text. It was first published in the XXI volume of 'Epigrafia Indika' under his supervision. Lesson's texts are as follows:

Nena Sa[m*]va[m*]g[ā]nām [Galadanasa] | Dumadina-[mahā*]
 Māte | sulakhite Pudanalate | e[ta]m
 [ni*] vahipayisati | Samva[m*]giyānam [cha di *]ne [tathā*]
 [dhā*]niyam | nivahisati | da[m*]g[ā*] tiyāy[i*]k[e] d[evā-]
 [tiyā*][yi]kasi | su-atiyāyika[si] pi | gamda[kehi*]
 [dhāni*][yi]kehi esa kothāgāle kosam [bhara*]-[nīye]

The script was written on a solid limestone. Its length, breadth and height are 3.1/4"X2.1/4"X7/8" (Bhandarkar 1931: 84).

This script is translated by many scholars. Their translations have different lessons. They have translated and interpreted the script from their own point of views. We would like to mention two translations here. The English translation of Mukherjee and Maiti is like this: "To Gobardhana of the samvamgiyas was granted by order (or the samvamgiyas was given by order sesamum and mustard seeds). The Sumatra will cause paddy to be granted to the samvamgiyas. In order to tide over the outbreak of distress caused by flood (or fire or superhuman agency) and insect (lit, parrots) in the city, this granary and treasury will have to be replenished with paddy and Gandaka coins (Mukharji and Maity 1967:39-40)."

The English translation of Bhandarkar is like this: "to Galadana (Galardana) of the samvamgiyas.... (was granted) by order. The Mahamatra from the highly auspicious Pundranagara will cause it to be carried out (and likewise) paddy has been granted to the samvamgiyas. The outbreak (of distress in the town) during (this) outburst of superhuman agency shall be tided over. When there is an excess of plenty, this granary and the treasury (may be replenished) with paddy and the gandaka coins (Bhandarkar 1931:87)."

Following the two lessons above, Paula G, Tinti in the first volume of "Journal of Bengal Art" raises three issues in his 'On the Brahmi Inscription of Mahasthan' article—is there really any saying regarding donation to the Buddhist community in the script, or something else? The reason for considering such a question is, B.M. Baruya and some other authors believe that this scripture proves the existence of a Buddhist community in ancient Eastern Bengal (Baruya 1934: 57). So, who are these sects and is this really a script of donation?

R. Mukherjee and S. K. Maiti, even D. C. Sarkar (Sarkar 1965: 80) think, according to Baruya, the 'Six-word' should be read as 'Sadbhagika Buddhist community'. This community is one of the six Buddhist communities. Tinti does not think so, rather, he said that it can not be accepted because the 'Sam' of the script does not represent the 'six' of Sanskrit. Rather, the Pali word 'Chabbaggiya' proves to be a doctrine against the Buddha. They did not believe in the submissive rule of the Buddha. Besides, this name is similar to the Sanskrit word 'Sambargiyanamam', which means 'nothing better'. Galadan is indigenous or tribal (Bhandarkar 1931: 85). Tinti speaks clearly that people of the Chhaborgiya do not belong to the Buddhist community.

The third question of Tinti was, 'Is this script really a script of donation?' Although it was written in the script that paddy was supposed to be refunded in good days, some of the scholars talked about monetary help, oil, paddy, gamdak and kaknik coins from the royal treasury (Roy 2004: 495). Dr. Roy spoke about the script from different perspectives. In the chapter 'Barnabinyas' of his book 'Bangalir Etihās: Adi Parba', he said that Galadan of Mahasthanlipi seemed to be totally native Bengali. Even though 'Galadan' is made 'Galardan' in Sanskrit, its native style remained unchanged. The language of the script is Prakrit.

It was obvious that the socio-economic ideology was being accepted and recognized by the state. Perhaps from this time, a greater number of North Indian ariya speaking people centering to business, preaching, and so on, started coming to Bangladesh (Roy, 2004: 219). Elsewhere in this book, he said that identity of state administration of at least a part of the Bengal state is found in the rock script of Mahasthan. During the Maurya period, North Bengal was included in Maurya State. 'Pondnagal' or Pundranagara was the centerpoint of Maurya governance. The mention of Mahamatra in the script shows that the monarchy was being run in Bengal by the leadership of a representative of the state. ... The good governance and eagerness to public welfare of King Ashoka is well-known. The treasurer of the royal treasury would separate half a portion of the grain for helping the people during famine or natural disaster, the King would donate grain seed or food to the people and in return, the people would build fort or bridges etc., or would do so without any labor exchange- Kautilya, in his book 'Arthashastra' said so. ...Once there was a severe famine caused by natural disaster at Pundranagara. On the occasion, the Mahamatra holding at pundranagar from the central, was brought under two orders. The first order is hard to describe; It is not known what the order was in the part because the first line of the script was broken. In the second order, it was ordered to help the endangered people (according to the sambangiyadera on one hand and the chabbaggiya monks other, the name of their leader was Galadana) with paddy and probably with gandaka and kakanika currencies. This help is not just a donation, but a loan. Because the state or the king expresses hope and desire that with this temporary help the peasants will be able to overcome the danger and if fortune favors and the country becomes blessed with grains, the people will again return money to the treasury and the royal palace (Roy 2004: 319).

Almost all scholars agreed that the script tells about distribution of food grains and money among the 'chabbaggiya' and filling the king's store with the same material. But D. C. Sarkar raised a strange question saying that it is very difficult to understand who has been ordered to return the grains- Store keeper mahamatta, or the people who have been given rice or grains (Sarkar 1983: 80). Reportedly, the script is a royal order. The king is unknown; the place from where the order has come is also unknown. The order has been given to the mahamatta of Pundranagara. If the monks have been donated, this donation is not due to refund, because they do not lend (Tinti 1996: 35). It is said in the Arthashastra that the king will give donations to the people and at what the people will have to pay in exchange. This is apparently a disparity (Tinti 1996: 35).

On November 30, 1931, a farmer named Barufakir from Mahasthangarh of Bogra district received this inscription while cultivating. However, it is only a fraction, the polygraph is not found. The script is currently stored in the India Museum, Calcutta.

Most scholars believe that the message was inscribed in the third century BC (Bhandarkar 1931: 84, Sarkar 1965: 79 and Mukherjee and Maiti 1967: 39). There are signs of mixed prakrit language in it. At that time, these Mahasthangarh and Pundunagar were included in the Mauriya Empire of Ashoka. This script is called AshokaLipi. But there is a difference with Ashoka script. The difference is seen in T / T, P, H, B and S (Tinti 1996: 36). Some believe that there was no script in India before Ashoka (Falk 1923: 7). Based on this opinion, R. B. Pandey claims that it is meaningless on the part of the script to be in the fourth century BC (Pandey 1964: 55). Believing in the Folk beliefs, the question arises that how many famous books including Kautilya's Arthashastra and Bhadra Bahu's 'Kalpasutra' were written? The scholars believe that the two books are written in the fourth century BC. Professor A. H. Dani thinks that the script was in the mid-second century BC. According to him, the formation of the letter 'Dha' has similarity with the Roman letter 'D' at this time – which is in Mahasthan Lipi (Dani-1964: 50). In the same book he said, whether we take the administrative records, like the Mahasthan Inscription— we are struck by the great change that marks them out from the Ashoka's mode of writing (Dani 1964:50).

Accepting the disagreements among the scholars regarding time and letter of the script, a question arises, from where the script was issued i.e. where it was written, in Pundravardhana or Pataliputra, the capital of Maurya? If it is written in Pundravardhana, the difference in the script is local, not temporal.

We came to know that the MahasthanLipi is famous for many reasons. First of all, this is the oldest inscription available in Greater Bengal. No script has been found before this script yet. Secondly, this scripture proves that Pundrabardhan was included in Maurya or Maurya Empire, that is, the state system or rule of the Maurya was established in Bengal. Thirdly, the language of this letter is of the ancient Magadhi or east-Prakrit. It proved that the Arya language was progressing by consuming the non-arya language of Bengal. Fourthly, the identity of the people or the ethnic group said in the script, excluding a large number of Buddhists, Jains, and the people of the faith, cannot but surprise us. Emperor Ashoka, being enlightened in Buddhism, took many steps to spread the religion. In addition, the initiative to kill people of other religion was also one of them. It is written in 'Ashokabadan' that eighteen thousand Ajibic people in Pundavardhana were killed by his order. It is worth mentioning that his father held belief in Jain religion. Not only had his father, Bindusar, Prime Minister Chanakya also once again took Ajibic religion. As a result, the religion flourished throughout the Maurya Empire during their time. During the time of Ashoka, this religion with conflict stood against Buddhism. This is probably why the Chhabbaggiya became important to the emperor. Fifthly, the archaeologists believe that this scripture proves that Emperor Ashoka, who gave this ruling, had a public order system in Pundranagar, and money and food grains (rice) were spent from the treasury for the benefit of the people of the state in case of emergency or miserable condition during his time. Besides, one (Kaknika) of the two coins (Gandaka and Kaknika) mentioned in the script is in Kautilya's Arthashastra. Dr. Nihararanjan Roy thinks that the 'Gandaka' was the currency of lower level and the Kakanika was the currency of the welded gold. The characteristics of this currency also carry the identity of the oldest welding currency. To be noted that the monarch's royal coin was 'Pana'. Kaknika and Gandaka were also on the go. After distribution of coins and food items and returning them to the royal treasury in good times, raised many questions to the scholars that the king gives money and food to the people in distress, then why would he want to return? So, Emperor Ashoka was dissatisfied with the Chhabbaggiya or the peasants? The answers to these questions are not actually found out so far. But there are answers to these questions in the pages of ancient history and Kautilya's 'Arthashastra'.

Kautilya, in his Arthashastra, said that the issue of lending from the royal treasury at state level was not found anywhere else in the

whole of India, but in Bengal and specifically in Mahasthangarh, in greater sense in Pundavardhana; at the same time, not only the crop, but also the identity of the loan or the bank system in coins. The next step of 'Grain Banking' is 'Money Banking' which is present throughout the world. At the time of Ptolemy, 'Grain Banking' was centrally recognized from the state. But during the contemporary period in India, or before that time, it was found in Kautilya's Arthashastra that money-banking was introduced and its real form was seen in the form of letters, as the letter of instruction in Mahasthangarh, Bangladesh.

The Mahasthan Brahmi script gained a new dimension by this introduction. It is the only real specimen of the loan or the ancient banking system in the sub-continent. However, it is not known whether the interest or profit of the grains was to be credited to the royal treasury due to non-availability of the full text of the script. However, we have come to know that in Kautilya's 'Arthashastra' it is said that after taking paddy as loan, half of the paddy after harvesting, was given as interest i.e, if a ten kilo of paddy was taken as loan, then fifteen kilo of paddy was to give. And in case of currency, against hundred Pana, it was agreed to pay monthly interest at the rate of 'Shoa Pana'. Tinti or other scholars raised questions in this direction of Kautilya's Arthashastra, because they did not probably focus on it.

It is mentioned in the script, that 'Mahamatya Dumdin, tax collector will do the work' from Pundanagar. That is, the local tax officials used to do the loan-taking job. Many scholars believe that the rule was declared by Emperor Ashoka himself. Dr. Niharranjan Roy said that seeing the letters, Mr. Ramkrishna Bhandarkar, guessed and his guess seemed true that the order was given by a monarch of Maurya (Roy 2004: 138). At that time, emperor Ashoka was the Maurya emperor. The responsibility of implementing it was on the tax officials or Mahamatya Dumdin. If any problems or disadvantages in case of providing or repaying loan is raised, then in the light of the system described in Kautilya's Arthashastra, surely the Raj-Amatya first, if he failed, the judges used to fix it. According to the script, all the borrowers were poor. It seemed they were farmers, because there is a condition to repay the loan by paddy and money in good times. It is found in various documents about the expansion of the credit to the farmers by the Maurya emperors. Where a new settlement has been established, the emperor gave credit to the farmers for growing crops. Farmers have managed bullocks, plow-yawn, seeds and irrigation etc.

by this loan. Actually the loan was given to resolve the demands of farmers. It is sure that this loan was not given to any monk.

The difference between donation and debt is of dignity. It has a close relationship with civilization. The importance and role of money and banking system in civilization is no longer necessary to say today. The hand of begging or donation comes under. The donor's hand is always above. The head has to bow down to accept the donation but the head is not so bowed during borrowing. It may not be so shining or bright, but does not make sense of dirty feeling of begging. Civilization started from here.

During the Maurya period, Pundabardhan was enlightened with the light of the civilization. Here molded and printed copper currencies in the 4th and 3rd century BC, the fragmentation of the famous North-Indian shiny black pottery, half-a-dozen pictorial paintings of ancestors of shunga ages, valuable stones, buttons, jewelry, terracotta figurines and other materials prove that the civilized people lived at that time. Apart from omitting all else, the presence of 'Dumdin Maha-Amatya Surakshit' mentioned in the inscription indicates how well this place was at that time and who lived here. Dr. Niharranjan Roy has correctly said that at least one part of the Bengal state is recognized in the stone scripture of Mahasthan. It is not found anywhere in Vanga. In such an environment, the needy poor people borrowed money, not donations, from the treasury to return with interest. Their ability, capability and dignity are to be appreciated. They must not have been as defaulters as of now, which is dirty and filthy. The punishment of loan defaulters in the standard of the law was specific and assured, we learned from the Arthashastra of Kautilya. The state of Mauryas seems to have discouraged donations.

There have been some ancient historical instances in the world which have been identified as banking culture such as deposits, loans, interest, etc. Initially, borrowing and refunding the forest animal or its meat, then the agricultural commodity or livestock, finally established the foundation of modern banking system. We have given some introductions or concepts of these patterns in the first part of this article. But the instances of providing loans with documentary instructions of the king or emperor has been found in the inscriptions of Mahasthan, not anywhere else. This important contribution that financial institution has made in the global civilization is found in the

Mahasthan Lipi. It proves, we are companions of evolving process of modern banking system in some ways— progressive and forward-looking.*

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* The word 'bank' originates in churches or temples. According to the New Testament, when Jesus Christ drove the money changers out the church, he overturned their tables. Bankers in Greece are known as 'trapezitica'. The word has come from their sitting table. Trapezitica is the first source of documenting banking (Huerta de Soto 1998:41). The English word 'bank' comes from the Italian word 'banca' which means bench or counter.

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Modern Banking System: Perspective Bangladesh

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Abstract Bangladesh has made commendable progress in increasing financial inclusion and providing sophisticated banking services to its people, keeping pace with the rest of the world. Introducing digital and modern banking services would greatly help in realizing Vision 2021 of Bangladesh government to build a “Digital Bangladesh”. The introduction of online banking has been a game changing development as customers can avail banking services at anytime from anywhere. Furthermore, modern technology based Mobile Banking, SMS Banking, Cards, ATM Banking, Electronic Fund Transfer (EFT), Banking KIOSK etc. have enhanced service quality and customer satisfaction, and at the same time made more efficient use of resources resulting in cost reduction. However, due diligence must be practiced to mitigate chances of digital fraud. Bankers, IT security experts and policymakers should take coordinated steps to address these security concerns of the system so that digital banking can flourish in Bangladesh, rendering the services safe, yet accessible.

1. Introduction

Banking sector is one of the strongest economic sectors in our country. Banks provide necessary funds for executing various programs underway in the process of economic development. They collect savings of large masses of people scattered throughout the country, which in the absence of banks would have remained idle and unproductive. Today Bangladesh has made commendable progress in increasing financial inclusion and providing sophisticated banking services to its people, keeping pace with the rest of the world. Introducing digital and modern banking services would greatly help in

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realizing Vision 2021 of Bangladesh government to build a “Digital Bangladesh”. Today’s world is service oriented in every principality. Those who were giving much more services rather than others were giving; he will be well ahead of competition because of getting better competitive advantages. Now customers are able to choose any bank on the move– anywhere and anytime through online banking which is also as known as internet banking, e-banking or virtual banking. Electronic banking gives the opportunities of checking balance, fund transfer, cheque enquiry, stop payment, utility payment, draft issue, top up, buying tickets, shopping and many more facilities.

Now a days the profitability of banks is under tremendous pressure because of continuous shrinking of spread. It becomes important for banks to reduce the cost for increasing spread that, in turn, will increase the profitability of banks. Use of technology with less manpower in banks reduces cost. Banks have realized that cost of transaction drastically declines from brick and mortar structure of the branch to online delivery channels like ATM, POS Terminal, Mobile Phone, Internet, etc.

Development of ICT based Products and Services includes 85 notices, such as, employee profiles, online leave processing, online requisition, online cheque requisition, MIS reports from CBS data and many more. Business' efficiency of a bank can be improved by using one's intranet for publishing, document management, training, workflow, front-end to corporate systems and email. Bank can integrate intranet content with email services so that information can be distributed effectively. The main benefits of an intranet are better internal communications, the sharing of resources and best practice, an improved customer service, and the reduction in paperwork. Currently, only 27% banks have this facility.

2. Objectives

Uses of technology with less manpower in bank are the prime purpose of modern system. Modern banking activities include personal banking, corporate banking, investment banking, private banking, transaction banking, mobile banking, insurance, consumer finance, foreign exchange trading, commodity trading, trading in equities, money market trading etc. Moreover, modern banking services provide: Online Banking, Mobile Banking, SMS Banking, Internet Banking, Various Cards, ATM Banking, Electronic Fund Transfer (EFT), PC Banking, Point of Sale (POS) Terminal, Banking KIOSK etc.

3. Origin of Modern Banking

The origins of modern banking can be found in medieval and early Renaissance Italy, to the rich cities in the centre and north like Florence, Lucca, Siena, Venice and Genoa.

The Bardi and Peruzzi families dominated banking in 14th century Florence by establishing branches in many other parts of Europe. One of the most famous Italian banks was the Medici Bank, set up by Giovanni di Bicci de' Medici in 1397. The earliest known state deposit bank, Banco di San Giorgio (Bank of St. George), was founded at Genoa, Italy in 1407.

It includes fractional reserve banking and the issue of banknotes. Modern banking practices were emerged in the 17th and 18th centuries. The merchants started to store their gold with the goldsmiths of London, who possessed private vaults, and charged a fee for that service. In exchange for each deposit of precious metal, the goldsmiths issued receipts certifying the quantity and purity of the metal they held as a bailee; these receipts could not be assigned; only the original depositor could collect the stored goods.

The goldsmiths of London became the forerunners of banking by creating new money based on credit. They began to lend the money out on behalf of the depositor, which led to the development of modern banking practices; promissory notes (which evolved into banknotes) were issued for money deposited as a loan to the goldsmith. The goldsmith paid interest on these deposits. Since the promissory notes were payable on demand, and the advances (loans) to the goldsmith's customers were repayable over a longer time period, this was an early form of fractional reserve banking. The promissory note was developed as an assignable instrument which could circulate as a safe and convenient form of money backed by the goldsmith's promise to pay, allowing goldsmiths to advance loans with little risk of default.

The Bank of England was the first to issue of bank notes in 1695. The Royal Bank of Scotland established the first overdraft facility in 1728. In the beginning of the 19th century, a bankers' clearing house was established in London to allow multiple banks to clear transactions. The Rothschild's pioneered international finance on a large scale, financing the purchase of the Suez Canal for the British government.

4. Banking in Bangladesh: Using Concept of Modern Banking

4.1 Electronic Banking (e-banking)

Electronic payment system that enables customers of a bank or other financial institutions to conduct a range of financial transactions through the website or electronic delivery channels. It permits anytime, anywhere and any how banking. It offers easy, faster and convenient, low cost banking services around the clock. E-banking enhances the future of providing enormous benefits to consumers in terms of cost of transactions, either through internet, telephone or other electronic delivery channels. E-banking is now widely practiced in Bangladesh. Electronic banking is known to us since 1990. E-banking services have been available in Bangladesh since 2001. Electronic banking has got tremendous importance in banking sector as well as customer. There are various types of e-banking services like SMS banking, Tele banking, Push and Pull services, ATM, Fast Track and many more. It has been introduced by the commercial banks in Bangladesh. E-banking product and services can include wholesale products for corporate customers as well as retail and fiduciary products for individual customers. E-banking enables the customer to access accounts and general information on bank products and services through a personal computer or other intelligence device. Now-a-days due to emerging global economy, e-commerce and e-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. The new information technology is becoming an important factor in the future development of financial services industry, and especially banking industry. As a third-world developing country, Bangladesh is far behind to reach the expected level in global banking system.

Percentage of banks providing different Internet Banking facilities from 2013 to-2016 is given in the Table below (Table-1).

Table-1: Internet Banking Facilities.

Internet Banking Facilities	<i>(in per cent of banks)</i>			
	2013	2014	2015	2016
Fund Transfer (Customer's A/C to A/C transfer)	29	52	55	57
3 rd Party Fund Transfer	21	40	50	50
Interbank Fund Transfer	-	-	30	30
Credit Card Bill Payment	14	32	35	35
Utility Bill Payment (Gas, Electricity etc.)	7	12	20	32

Internet Banking Facilities	2013	2014	2015	2016
Transfer Fund from Credit Card Account to his Own A/C	0	0	0	3
Transfer Fund from Bank A/C to his Mobile Banking A/C	0	4	15	15
Transaction History of all Accounts of the Same Customer	36	64	67	67
Transaction History of all Loan Accounts of the Same Customer	21	60	65	65
To View the Credit Card Information of the Same Customer	7	7	10	10
To View the Mobile Banking Information of the Same Customer	0	0	0	0
Recharge (Mobile Airtime Top Up)	21	40	45	45
Wimax Recharge	14	22	25	25

Source: Survey Information, BIBM 2016

Table 2: Internet Banking 2011-2016 (Amount of Transaction)
(BDT in Billion)

Year	Amount Transaction
2011	41.6
2012	48.7
2013	90.5
2014	217.3
2015	253.9
2016	322.94

Source: Financial Stability Report (2011-2016), Economic Trend, January 2016, Bangladesh Bank

Table 2 shows the Internet Banking Transactions (BDT in Billion) from 2011 to 2016. It indicates that about 71% banks were able to provide some sort of internet banking services in Bangladesh. The number of customer and transaction was 15,41,939 and 64,89,876 respectively in 2016. The growth is notable from 2011 to 2016.

Apart from the traditional web browser, many banks offer internet banking through mobile applications, which is known as 'App Banking' or 'Tab Banking'.

Table 3: E-Banking Service Quality in Respect of Location

Location of Branch	E-banking Service Quality in Bangladesh				Total
	Not Good	Satisfactory	Very Good	Excellent	
Rural Area	11	18	2	3	34
Municipality	16	14	7	3	40
District Town	5	7	4	1	17
City Corporation	15	5	6	3	29
Total	47	44	19	10	120

Source:<http://article.sciencepublishinggroup.com/html/10.11648.j.ijefm.20160403.11.html#paper-content-4>

Table 3 shows that among the respondents 34 live in rural area, 40 in municipalities, 17 in district towns and 29 in city corporations. Respondents who live in rural area 15% of them feel e-banking service is satisfactory in Bangladesh.

Table 4: Security Status of Banking Transaction

Security Gap	Yes (%)	No (%)
Traditional Banking	09 (7.5%)	111 (92.5%)
E-Banking	37 (30.83%)	83 (69.17%)

Source:<http://article.sciencepublishinggroup.com/html/10.11648.j.ijefm.20160403.11.html#paper-content-4>

Table 4 shows that the security gap between the traditional banking and e-banking is 23.33%. That is little bit warning for banking sector.

4.1.1 Branch Automation

In spite of having large in terms shares in assets and number of branches, the state-owned commercial banks (SOCBs) could cover only around 72.3% of their branches under centralized online banking by 2015, while the Private Commercial Banks (PCBs) and Foreign Commercial Banks (FCBs) brought 99.5 and 100 per cent of their branches, respectively. But in 2016, 74.6 per cent branches of SOCBs are computerized, showing a moderate growth. Though computerized branches of Special Banks (SBs) stood at 14.2 per cent, the growth of SBs in computerization is faster than SOCBs. The following table (Table-2) shows computerization status of bank branches during 2015-2016 in Bangladesh. Total computerization of bank branches for

all banks in 2016 increased slightly due to the growth of computerization of govt. banks compared to 2015.

Table 5: Online Branches by Categories

(per cent of Total Branches)

	2015	2016
SOCB	72.3	74.6
SB	6.7	14.2
PCB	99.5	99.7
FCB	100.0	100.0
Total (Average)	75.1	76.9

Source: Survey Information, BIBM, 2016

4.2 Core Banking Software

Core Banking Software (CBS) Online banking operation is mainly run by Core Banking Software. Efficient CBS plays the key role for the smooth operation of an online bank. In 2011, 45% banks were using foreign CBS and 32% local CBS. Only 20% banks developed their CBS by their own experts and 3% banks used joint-venture CBS. In 2012, we see that 49% and 28% banks used foreign and local CBS, respectively. But in 2013, the use of foreign software also increased slightly and stood at 53% of total CBS. Clearly, the use of foreign software has been increasing over the period 2011-2013 defeating the local software market. Local vendors should give more emphasis on it to take competitive advantages. Different CBS are given below in the Table 6.

Table 6: List of CBSs Used In Different Banks

Bank's Name	Used Software	Vendor's name
Janata Bank Ltd.	Temonas T24	DataSoft Limited & Temenos Ltd.
Agrani Bank Ltd.	Temonas T24	Flora Telecom Limited & Temenos Ltd.
Sonali Bank Ltd.	Sonali Polaris	Sonali Banki & Polaris (Joint Vernture)
Rupali Bank Ltd.	Sonali Polaris	Sonali Polaris
AB Bank Limited	Equation	Misys International Banking System Ltd. UK
Prime Bank Ltd.	Temonas T24	Temenos Ltd.
Bank Asia Limited	STELAR	ERA InfoTech Limited
Standard Bank Ltd.		

Bank's Name	Used Software	Vendor's name
Citibank N.A.	Flexcube (IBM AIX, Oracle)	Oracle Financial Services Software Ltd., India (Local Representative: Dataedge Ltd.)
Dutch Bangla Bank Ltd.	Flexcube	Oracle Financial Services Software Ltd., India (Local Representative: Dataedge Ltd.)
First Security Islami Bank Ltd. Social Islamic Bank Ltd.	Bank Ultimas	Leads Corporation Ltd
Mutual Trust Bank Ltd	Flora Bank	Flora Systems Ltd.
Jamuna Bank Ltd.	Flora Bank	Flora Systems Ltd.
National Bank Ltd.	Temenos T24	DataSoft Limited & Temenos Ltd.
Mercantile Bank Ltd.	Temenos T24	DataSoft Limited & Temenos Ltd.
Southeast Bank Ltd.	Bank Ultimus	Leads Corporation Ltd
Al-Arafah Islami Bank	Ababil	Millinum Information
The City Bank Ltd.	Finacle	Infosys Solution
BRAC Bank Ltd.	Finacle	Infosys Solution
Exim Bank Ltd.	Temenos T24	Temenos Ltd.
South Bangla Bank Ltd.	Flora Bank Online	Flora Ltd.

Source: ICTD-Operation Department's Survey, Janata Bank Limited, 2016

The development and use of Application Software other than CBS, banks use a large number of application software for their day to day operations. Effective application software in banks enhances the efficiency of office automation services. With the increasing proportion of knowledge workers in business enterprises, there is an increasing concern for improving the work environment. The productivity of knowledge workers can be improved by providing secretarial help and better communication facilities. This can be achieved with the help of the automation of office systems. It is seen that, on an average 23, minimum 6 and maximum 80 application software are being used in the banks. Among the software, 55% are developed by the banks themselves, 22% are local and rest of the 23% are foreign software.

4.3 ATM (Comparative Studies)

Use of credit, debit or ATM cards is also on the rise for the people of Dhaka and other major cities in the country due to its multiple facilities. Risks in carrying cash, easy withdrawal/disposal, availability of ATM booths in all neighborhoods and the acceptance of VISA/Master card in large number of shops attract an increasing number of urban people to opt for the 'plastic money'. In Bangladesh, NCBs (Nationalized Commercial Banks) set the trend and set up the

first ATM here in 1992 followed by ANZ Grindlays Bank which has been accoutered later by Standard Chartered Bank Bangladesh in 1994. According to data from 2013, the number of debit cards is approximately 4 million and credit cards are 1 million. Once upon a time Credit/Debit cards were status symbol which has now become a necessity to the city dwellers. According to analysts, 10 million people are prospective clients of credit cards in Bangladesh, but less than 5 per cent of them use the cards. Therefore, there is a huge vacuum in the market.

The Bangladesh ATM industry has seen explosive growth in recent times. ATMs represent the single largest investment in the electronic channel services for the Banks. In 2016, the number of ATMs deployed in Bangladesh was 9019. Most of the ATMs are installed in the divisional cities and district-level town. Around 44% ATMs are installed in Dhaka City. A very few ATMs are being operated in rural areas, less than 4.84%.

Among the seven divisions highest number of ATMs are installed in Dhaka Division (61.5%) followed by Chittagong (16.8%), Sylhet (8.1%), Rajshahi (5.9%), Khulna (2.9%), Rangpur (2.9%) and Barisal (1.9%). It is seen that divisional cities have highest number of ATMs installed (60%). District level town (excluding divisional cities) have the second highest density of ATMs (23%). Only 17% of ATMs is installed in Upazila level town (Table 7).

Table 7: Distribution of ATM by Division in Bangladesh

	Dhaka	Chittagong	Sylhet	Rajshahi	Khulna	Rangpur	Barisal
Total	5548	1519	728	537	262	262	163
Divisional City	3935	731	351	141	98	98	111
District Level Town	832	466	212	66	11	98	39
Upazila Town	780	322	166	93	66	-	-

Source: BIBM Survey, 2016

It is mentionable that 46% of ATMs is set up by Dutch-Bangla Bank Limited (DBBL) alone. Among 9019 ATMs, 95.54% are setup by Private Commercial Banks, 1.48% by State-Owned Commercial Banks, 0.26% by Specialized Banks and rest of the 2.58% by Foreign Commercial Banks. The total volume of transactions through ATM is recorded at BDT 0.70 billion in 1999, growing moderately up to 2001. According to Bangladesh Bank, the total volume of transaction

through ATMs across Bangladesh was around BDT 939.1 billion in 2016.

4.4 Tele Banking or Mobile Banking

Mobile banking (also known as M-Banking, m-banking, SMS Banking) is a system that used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA). The earliest mobile banking services were offered over SMS. With the introduction of the first primitive smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. Mobile banking has been performed via SMS (Since 2010) or the Mobile Web. Apple's initial success with i-Phone and the rapid growth of phones based on Google's Android (operating system) have led to increasing use of special client Programs, called apps, downloaded to the mobile device.

Table 8: List of Banks Providing Mobile/SMS Banking Services in Bangladesh

SL	Bank Name	Product Name
1	Duch-Bangla Bank Limited	Mobile-Banking
2	BRAC Bank Limited.	bKash, SMS Banking, Mobile Top-Up
3	Prime Bank Limited.	Phone Banking, SMS
4	Islami Bank Limited.	mCash (mobile), SMS
5	Trust Bank	Mobile Money
6	NCC Bank	Sure Cash
7	Bank Asia Limited.	Mobile Banking
8	Dhaka Bank	SMS Banking
9	Mercantile Bank	MyCash, SMS Banking
10	AB Bank	SMS Banking
11	South East Bank	SMS Banking
12	First Security Islami Bank	Sure Cash, SMS Banking
13	Bangladesh Commerce Bank	S-Cash
14	United Commerce Bank	SMS Banking
15	EBL	SMS Banking
16	IFIC Bank	Mobile Banking

SL	Bank Name	Product Name
17	Midland Bank	Alert Banking (SMS)
18	NCC Bank	SMS Banking
19	ONE Bank	OK Banking (Mobile), SMS Banking
20	Farmers Bank	Mobile Banking, SMS Banking
21	Exim Bank	SMS Banking
22	Shahjalal Islami Bank	SMS Banking

Source:<http://bankerbd.com/list-of-banks-providing-mobilesms-banking-services-in-bangladesh>

In 2016, though a total of 19 banks got permission from Bangladesh Bank (BB) for MFS, 17 banks started the services. According to Bangladesh Bank, total number of mobile accounts reached to 4.10 crore and total number of agents was 7,10,026. In 2016, BDT 2346.92 billion was transacted through 1473.24 million transactions. A high growth per year is observed in this sector since 2012.

Table 9: Mobile Banking Growth, 2012-2016

	2012	2013	2014	2015	2016
No. of Approved Banks	10	27	28	28	19
No. of Banks Offering MFS	3	18	19	18	17
No. of Agents	51,078	188,647	540,984	561,189	710,026
No. of Customers	3,018,989	13,179,834	25,186,250	31,845,658	41,078,524
No. of Active Customers	1,101,424	6,543,710	12,154,492	13,218,356	15,874,325
No. of Total Transaction (Millions)	29.19	228.85	589.48	1,166.05	1,473.24
Total Transaction Amount (Billions BDT)	71.23	517.83	1,031.55	1,772.76	2346.92

Source: Bangladesh Bank, 2016

4.5 Agent Banking

Agent Banking (AB) means providing limited scale banking and financial services to the underserved population through engaging agents under a valid agency agreement rather than a teller/cashier. It is the owner of an outlet who conducts banking transactions on behalf of a bank. Globally the retailers are being increasingly utilized as important distribution channels for financial inclusion, to reach to the poor segment of the society, and existing bank customer especially to geographically dispersed locations. With a view to ensure the safety,

security and soundness of the proposed delivery channel Agent Banking Guidelines have been framed by the BB to permit banks to be engaged in agent banking. At present, only 10 banks of our country are providing agent banking services. According to Agent Banking Guidelines of BB, banks are allowed to provide following services through agent banking:

Collection of small value cash deposits and cash withdrawals, Inward foreign remittance disbursement, facilitating small value loan disbursement and recovery of loans, facilitating utility bill payment, cash payment under social safety net program of the government, facilitating fund transfer, balance inquiry, collection and processing of forms/documents in relation to account opening, loan application, credit and debit card application from public, post sanction monitoring of loans and advances and follow up of loan recovery, receiving of clearing cheque, other functions like collection of insurance premium including micro-insurance etc. Table-10 shows the status of agent banking in Bangladesh.

Table 10: Agent Banking in Bangladesh

Description	2014	2015	2016
No. of Districts Coverage	16	55	64
No. of Agents	50	208	2405
No. of Accounts (No. of Registered Customers)	14478	97037	585871
Total Number of Transaction	67777	844670	4202310
Volume of Transaction (BDT in Crore)	79.48	1508.72	7306.43

Source: Survey Information, BIBM

4.6 Bangladesh Automated Clearing House (BACH)

The Bangladesh Automated Clearing House (BACH) started automated cheque clearing from 07 October 2010 by replacing the ancient manual clearing system with automation, which allows inter-bank cheques and similar type instruments to be settled instantly. All the 7 clearing regions in major cities (Chittagong, Rajshahi, Khulna, Bogra, Rangpur, Barisal and Sylhet) have been connected with the Dhaka Clearing House from 25 October 2011. Almost 90 per cent of all the clearing instruments are now being processed through the automated clearing house.

Under the automated cheque processing system, two types of clearing are processed- High Value (HV) and Regular Value (RV). Instruments of BDT 0.5 million and above are processed under HV clearing. Year 2010 shows a low volume of transaction as it was started only from October 2010. However, about 0.7 million HV items of BDT 417780 crore and 17.9 million RV items of BDT 509390 crore were processed through the automated clearing house in 2011. In 2016, total number of transactions was recorded at 2.53 crore having a volume of BDT 2090414 crore.

4.7 Bangladesh Electronic Funds Transfer Network (BEFTN)

The commencement of the Bangladesh Electronic Funds Transfer Network (BEFTN) added a new milestone in the country's payment and settlement system. It is a system of transferring money from one bank account directly to another bank without money changing hands. Electronic Funds Transfer System (EFT) will operate as a processing and delivery centre providing for the distribution and settlement of electronic credit and debit instruments among all participating banks. This Network will operate in a real-time batch processing mode. All payment transactions will be calculated into a single multilateral netting figure for each individual bank. Final settlement will take place using accounts that are maintained with Bangladesh Bank.

Government entities are the largest stakeholders of BEFTN for disbursing staff salaries, benefits, vendor payments, etc. In addition, salary disbursements, business payments, dividend and refund warrant payments, insurance premiums and installment payments of the private sector, and also foreign remittance disbursements are being facilitated by BEFTN.

BEFTN is the paperless electronic exchange that ensures transfer of funds from one account to another, either within a single institution or across multiple institutions through computer-based systems. After a successful pilot implementation of BACPS, BEFTN started its live journey on February 28, 2011. EFT is gaining increasing popularity among the corporate and govt. bodies. Approximately 13761853 EFT transactions having transaction volume of BDT 873.86 billion were processed during the FY20 15 with an increasing trend. Salary of more than 28 ministries and govt. offices are now paid through EFT. Listed public companies are paying their cash dividends through EFT network. In 2016, on average, 1.58 crore transactions was recorded having a volume of BDT 120 thousand crore. (Source: Bangladesh Bank Website)

4.8 National Payment System (NPS)

A country's payment system is the channel through which the central bank passes financial transaction part of its monetary policy. Central banks' functions in the area of payment systems are very closely related to their functions in the areas of monetary policy and financial stability. Monetary stability supports sound investment and sustainable economic growth which in turn are conducive to financial stability and support the smooth operation of payment systems.

4.9 National Payment Switch Bangladesh (NPSB)

National Payment Switch Bangladesh (NPSB) is an electronic platform that started its operation on 27 December 2012. The core objective behind implementation of NPSB is to attain interoperability in retail banking transactions originating from different electronic delivery channels e.g. Automated Teller Machines (ATM), Point of Sales (POS), internet, mobile applications etc. Moreover, the switch is also a stimulus to boost up cashless and electronic payments all over the country.

At present, 51 banks are in operation for interbank ATM transactions among which 46 banks are also in operation for interbank POS transactions through NPSB. The following types of ATM and POS transactions are presently live through NPSB:

- ATM channel is accommodating Balance Inquiry, Mini Statement, Cash Withdrawal Transactions.
- POS (Point of Sales) is accommodating Retail Purchase Transaction.

Bangladesh Bank is also looking forward to gradually accommodating the transaction scopes mentioned below under NPSB that depends on the readiness of commercial banks:

- Over the counter (OTC through POS) Standing Order
- ATM: Interbank Fund Transfer, Bill Payment, Interbank Cash Deposit
- POS: Interbank Cash Withdrawal, Bill Payment
- Kiosk: Interbank Fund Transfer, Mini Statement, Balance Enquiry, Bill Payment
- m-Commerce (App based Mobile Banking) : Interbank Fund Transfer, Bill Payment, Retail Purchase
- e-Commerce: Bill Payment, Retail Purchase
- Internet Banking: Interbank Fund Transfer, Bill Payment
- Dynamic Key Exchange under NPSB and CHIP base Cards (Visa/Master/JCB) Transaction in NPSB.

4.10 Real Time Gross Settlement (RTGS):

To ensure safe, secured and efficient interbank payment system, Bangladesh Bank introduced the Real Time Gross Settlement (RTGS) system on 29th October 2015. Actually it opens a new horizon in the arena of payment and settlement system in Bangladesh.

RTGS is an electronic settlement system where transfer of funds or securities takes place from one bank to another or one account to another on a real-time and gross basis. Real-time means transaction does not need any waiting period. Transaction is settled as soon as they are produced. It is now capable to instant settlement of high value local currency transactions as well as government securities, custom e-payment and domestic foreign currency based transactions. It is worthwhile to mention here that 6649 online branches of 55 scheduled banks are currently connected to this system. Using this system, the settlements of BDT 1,00,000 (One Lac) or above between the participating banks are being settled instantly. An in-depth realization is that, RTGS system may impact an immense change in the financial sector and set up an epoch-making example in the arena of Bangladesh economy.

4.11 Online Payment Gateway Service Provider (OPGSP)

About 30% banks have Online Payment Gateway Service (OPGS) for e-commerce payment processing. Banks can encourage merchants by providing necessary e-payment related support and services to promote e-commerce in Bangladesh. This might be a good revenue earning source for banks. Table-12 shows the number of organizations that have agreement with these banks to provide e-commerce payment services.

Table 12: E-payment Services Provided by the Banks

Payment Gateway Services	2014	2015	2016
No. of online shop owners/merchants selling retail products using bank's PG for online transactions	800	889	928
No. of institutions collecting tuition/other fees from their students through their website using bank's PG	18	40	47
No. of organizations collecting utility bills from their customers through their website using bank's PG	6	13	17
No. of organizations selling tickets (Bus, Train, Airline) through their websites using bank's PG	11	31	36
Others online businesses	51	67	71

Source: Survey Information, BIBM, 2016

4.12 Online MIS in Banks

Management Information System Department (MISD) provides data or information in the form of report according to the demand of Bank management authority, Bangladesh bank, Ministry of Finance, other govt. or non-govt. organizations and as well as different departments of an organization. In order to ensure proper and regular monitoring of the Bank's business activities through instant access to the desired/expected up-to-date data/information by overcoming those shortcomings Janata Bank Limited MISD introduce web-based online MIS named OMIS (Overview Management Information System) developed by its efficient programmer, and it has been implemented from 2013. This in-house system interfaced with all other softwares of the bank has ensured dynamic monitoring & reporting process by preparing a complete information storage and made it easier for the branches, controlling offices and management authority to take prompt and proper decision by easily monitoring the overall position of the Bank business. Bangladesh Bank has a such kind of information system name ISS.

5.0 Conclusion

With the flow of modernization, alternate delivery channels have emerged. Customers now choose to bank on the move— anywhere and anytime. Internet banking is there for checking balance, fund transfer, cheque enquiry, stop payment, utility payment, draft issue, top up, buying tickets, shopping and many more on the move. With the fast growing of popularity of internet banking, the risk of hacking attacks has been increased manifold. This obviously gave rise to new safety issues. To ensure a secured online banking both the banks and the customers have to gain awareness of the potential breaches. Before offering the internet banking services, banks must employ a layered security approach to help guard their website, mobile apps, the accounts and the identity. The knowledge of the customers about important security issues is a very important component in the whole security mechanism. Bankers and also customers should have the basic knowledge and understanding of possible threats such as viruses, spyware, key logger, identity theft, malwares, phishing, etc.

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Factors Affecting the Customers' Satisfaction of ATM Banking in Bangladesh

Md. Mahbubur Rahman Alam*

Abstract ATM banking in Bangladesh has experienced tremendous growth in recent years. The aim of this paper is to capture customers' satisfaction on ATM services made available by banks. For this purpose primary data were collected from 500 ATM users of different banks from all over the country. The data were collected using a structured questionnaire designed to ascertain the satisfaction levels. Collected data were analyzed according to the objectives of the present research. Factor analysis along with frequency analysis was used to identify significant factors. Empirical evidences indicate that banks are not providing high quality ATM services. The study indicates that customers' perception about service guarantee, sharing of ATMs, post purchase behavior of banks and waiting time to get services are the four major factors that affect the customers' satisfaction. Therefore, banks may utilize the findings to improve the quality of services of ATMs and can enhance the overall satisfaction of customers.

Keywords ATM, Customer Satisfaction, Service Guarantee, Waiting Time.

1. Introduction

Commercial banking is considered as a service industry. In the process of conducting its own activities to achieve its own goals a commercial bank provides various ancillary facilities. Automated Teller Machine (ATM) is such an ancillary facility. ATMs have changed their historical role of a mere cash dispenser and are expanding their potential to offer a wider range of services to banked,

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under-banked and unbanked populations. ATMs increasingly serve more functions than the simple provision of cash being a key touch-point between people and financial institutions. The ATM industry's offerings has evolved significantly since its inception in the early 1960s, becoming a key enabler of branch innovation, and now evolving in parallel to internet banking and newly developing mobile banking channel, developing its role from a pure teller substitution/cash dispensing service to being one of, if not in many cases, the most important touch-point between a financial services organization and its retail and SME customers. ATMs keep providing a low-cost-to-serve channel to financial institutions for an increasing number of services ranging from access to current account funds and information, enabling cash and cheque deposits and now enabling access to a wider range of services. Within this context, ATMs keep playing a key role for the reduction of the cost of cash through re-circulation, benefitting not only the financial services institutions that adopt them, but the economy and society at large by reducing the amount of cash in circulation.

In Bangladesh, different banks are now offering ATM services to one crore valued customers, approximately. Different studies have been conducted to have an idea about current status of ATM banking in Bangladesh, but no in-depth study has been undertaken yet to identify the level of customer satisfaction with respect to various aspects of ATMs. As the use of ATM is increasing rapidly in recent years, it is important to make a study to gain insight about the level of customer satisfaction with respect to various aspects of ATM and to identify the problem areas and proposed recommendation leading to improvement. This study is such an attempt.

2. Review of Literature

A large body of literature in the context of developed and developing countries is found regarding ATM banking. The history of ATM can be traced back to the 1960s, when the first ATM was invented by John Shepherd-Barron who was Managing Director of De La Rue Instruments. That machine was used by Barclays Bank (Barclays Bank in Enfield Town in North London, United Kingdom) on 27 June 1967 (Barun, K. et al., 2013).

According to Shainesh and Choudhary (2004), modern banking has become customer-driven and technology-driven. During the last decade, technology has been dramatically transforming the banking activities in the globe. Technology-intensive delivery channels, like Automated Teller Machines (ATMs), have created a win-win situation

by extending greater convenience and multiple options for customers while providing tremendous cost advantages to the banks.

In India, the introduction of technology-enabled banking service delivery started off with Hong Kong and Shanghai Banking Corporation (HSBC) in the year 1987 followed by Bank of India in 1988. (Kumbhar V. M., 2011). Among local banks, ICICI bank was the first bank which offered this delivery channel, by kicking off its online services in 1996. Other private sector banks like Citibank, IndusInd Bank and HDFC and Times Bank (now part of HDFC bank) started offering internet services in 1999. State Bank of India launched its services in July 2001. Other public sector banks like Bank of Baroda, Allahabad Bank, Syndicate Bank and Bank of India, also rolled its services during the same time (Barun, K, et al., 2013).

Customer satisfaction is an important theoretical as well as practical issue for most marketers and consumer researchers (Churchill and Suprenant, 1982; Goode and Moutinho, 1995; Piercy, 1996; Naser et al., 1999). Customer satisfaction is a major outcome of marketing activity whereby it serves as a link with various stages of consumer buying behaviour. For instance, if customers are satisfied with a particular service offering after its use, then they are likely to engage in repeat purchase and try line extensions (East, 1997). Customer satisfaction is widely recognised as a key influence in the formation of consumers' future purchase intentions (Taylor and Baker, 1994).

Banking in the western world is one of the many service industries where customer satisfaction has been the focus of research (Holliday, 1996). This is mainly because of the fact that the banking sector is increasingly experiencing a high level of competition. This puts a tremendous amount of pressure on banks to improve their services (File and Prince, 1992; Goode and Moutinho, 1995; Goode and Moutinho, 1996; Goode et al., 1996; Levesque and McDougall, 1996). Customers are also increasingly becoming sophisticated as they have access to the latest forms of delivery channels (such as the ATM, Internet Banking, etc). Consequently, many financial institutions have to focus on increasing customer satisfaction and customer retention through improved quality of their services (Shamsher S. 2011).

Lovelock (2000) identified the dimension of ATM service quality such as secure and convenient location, adequate number of ATM, user-friendly system, and functionality of ATM. Davies et al. (1996) examined the factors that influence customers' satisfaction on ATM service quality. These factors include costs involved in the use of ATM,

and efficient functioning of ATM. Researchers have divergent views about the use and effectiveness of ATMs. Yavas et al. (2004) argued that customer-focused ATM delivery systems that fulfill their needs and maximize operational performance are essential dimensions for banks to achieve and sustain competitive advantage. Dilijonas et al. (2009) examined the essential aspects of ATM service quality in the Baltic States. They identified essential resources (adequate number of ATMs, convenient and secure location and user-friendly system); important dimensions of operation of ATM (maximum speed, minimum errors, high uptime, cash back-up); and value-based aspects (quality service at reasonable cost, and maximum offering to cover maximum needs of customers) as vital facets.

Joseph and Stone (2003), through focus group study in the USA, found that easy access to location, user-friendly ATM and security are important factors that influence majority of bank customers' perception of ATM service quality. Patrício et al. (2003) undertook a qualitative study of a Portuguese bank regarding customers' use of multi-channel offerings. The study identified accessibility and speed of operation as strong predictors of customers' satisfaction, whereas security dimension and technical failures were main causes of dissatisfaction. Previous researchers have found that reliability feature of ATM is essential to consumers' use of electronic channels of banking (Polatoglu and Ekin, 2001; Liao and Cheung, 2002).

Satisfied customers are also likely to tell others of their favourable experiences and thus engage in positive word-of-mouth advertising (File and Prince, 1992). This positive word-of-mouth advertising is particularly useful in collectivist Asian cultures like India where social life is structured in a way to improve social relationships with others in the society (Hofstede, 1980). Dissatisfied customers, on the other hand, are likely to switch brands and engage in negative word-of-mouth advertising.

3. Objective and Methodology

3.1 Objective

The paper aims to examine the customers' satisfaction on ATM Banking in Bangladesh. In this broader framework, an attempt is made to achieve the following specific objectives:

- To examine the level of customers' satisfaction on ATM services provided by the banks of Bangladesh.
- To analyze the gap between expectation and perception of customers' regarding ATM services currently offered by banks.

- To find out the factors that affects the customer satisfaction for ATM service.

3.2 Methodology

For the purpose of the study primary as well as secondary data are used. The necessary primary data was collected with the help of a well-structured questionnaire. The secondary data and other reviews have been collected from the books, journals and different research reports. Information has also been collected from several daily newspapers, Wikipedia and other internet resources. With a view to know the customers' satisfaction, a total of 500 respondents were selected from all over the country. Sample size distribution with respect to bank-types, divisions, and background characteristics of the respondents are given in Appendix-A. Data was collected covering all divisions of Bangladesh. In each division 2 to 4 districts were selected purposively and then from each selected district 2 to 4 Upazila/Thana were also selected purposively. Respondents were then selected randomly in each stage, i.e., data is collected from divisional cities, district headquarters and Upazila/Thana/Union/Pourasava level. A total of 7 Divisions, 18 Districts and 60 Upazila/Thana are covered to select respondents. A five point Likert scale was adopted as the scale for the statements in the questionnaire (Appendix-B). The survey questionnaire has been designed using 30 statements relating to the objective of the research. Analysis of the study is done with the help of the relevant statistical tools like frequency analysis, factor analysis and gap analysis by using MS-Excel 2010 and SPSS 17.0 software.

4. Current Status of ATM Banking in Bangladesh

The Bangladesh ATM industry has shown explosive growth in recent times. Approximately, BDT 1,289.57 crore has been invested in this sector by the banks (Alam et al., 2014). ATMs represent the single largest investment in the electronic channel services for the Banks. In Bangladesh, state-owned commercial banks (SOCBs) set the trend and set up the first ATM here in 1992. While ATMs facilitate a variety of banking transactions for customers, their main utility has been for cash withdrawal and balance enquiry. At the end of December 2013, the number of ATMs deployed in Bangladesh reached 5771 (Alam et al., 2014) and number of ATMs per 1000 square kilometers in 2013 increased from 8 to 35 compared to 2009. Most of the ATMs are installed in the divisional cities and district level. Around 49% ATMs are installed in Dhaka. Very few ATMs are however being operated in rural areas (less than 4.84%). It is mentionable that 43% of the ATMs

have been set up by Dutch-Bangla Bank Limited alone. According to Financial Stability Report, 2013 published by Bangladesh Bank, the total volume of transaction through ATMs across Bangladesh was around BDT 654.30 billion in 2013. Up to December, 2013, total number of plastic cards issued by the banks is recorded at 80,85,834 (Debit card: 72,32,554 and Credit Card: 8,53,280). Compound Annual Growth Rate (CAGR) for the number of installed ATMs, volume of transaction, number of ATM cards and number of ATMs per 1000 square kilometers is observed as 35.6%, 40.1%, 40.8% and 45.1%, respectively during the period 2007-2013. Clearly, industry watchers forecast a bright future for ATMs in Bangladesh.

Among 5771 ATMs, 95.54% are setup by Private Commercial Banks, 1.48% by State-Owned Commercial Banks, 0.26% by Specialized Banks and rest of the 2.58% by Foreign Commercial Banks. Highest number of ATMS, 3513 (61.5%), are in Dhaka division. Second highest ATMs, a total of 962 (16.8%), are in Chittagong division. Sylhet division has got 461 (8.1%) of total ATMs holding the third position. Both in Khulna and Rangpur division same number of ATMs are installed 166 (2.9%). Rajshahi division has only 340 (6.0%) and Barisal division is in the lowest position, holding only 103 (1.81%) ATMs of the country. It is also seen that in seven divisional cities, highest number of ATMs are in operation (58%). In district headquarters (excluding divisional cities) only 25% ATMs are setup. Rest of the 17% ATMs are installed in Upazila head-quarters/Thana-Town (excluding Sadar Upazilas).

5. Results and Discussion

5.1 Mean Score and Satisfaction Level

Table-1 summarizes the customers' satisfaction regarding ATM Banking with respect to different elements of ATM Banking Services (column-1). Mean and satisfaction scores with respect to each service parameter are given in column-2 and column-5, respectively. Satisfaction is calculated by the following formula for each parameter/element of ATM services given in the questionnaire.

$$Satisfaction (\%) = \frac{\sum_{i=1}^n S_i}{\sum_{i=1}^n HS} \times 100$$

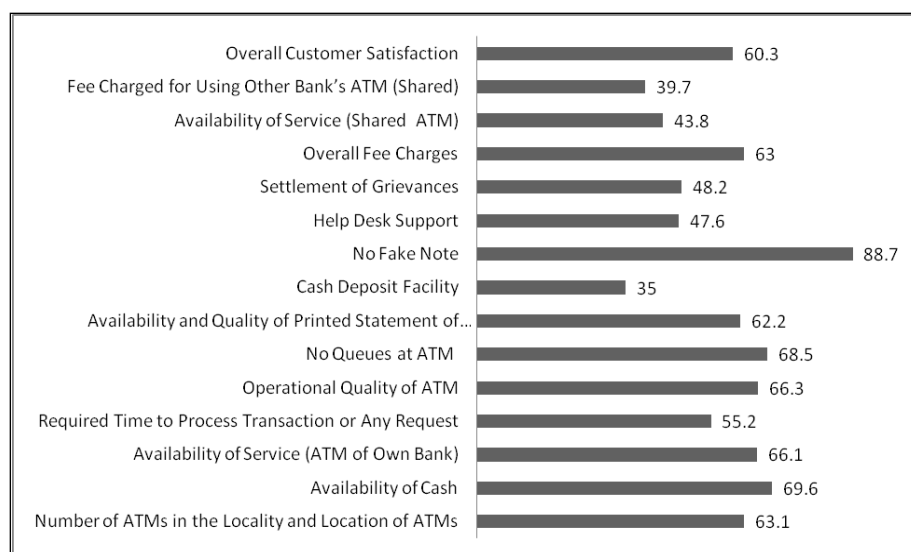
Here, $\sum_{i=1}^n S_i$ is the sum of scores given by each respondent for each question and n is the total number of respondents (500). The sum of scores is then divided by the sum of highest scores ($\sum_{i=1}^n HS$) that was assigned to each questions for n respondents. Finally, multiplying the ratio by 100, the current satisfaction level of

customers is calculated as a percentage of highest level of satisfaction expected by the customers.

Table 1: Mean Score and Satisfaction Level (Total Respondents 500)

Column-1	Column-2	Column-3					Column-4	Column-5
Parameters/Elements of ATM Services	Mean Score	Number of Respondent Fall into the Category:					Sum of Scores	Satisfaction (%)
		Satisfaction Level						
		←————→						
		Highest		Lowest				
		*5	4	3	2	1		
Number of ATMs in the Locality and Location of ATM	3.3	15	105	170	165	45	925	63.1
Availability of Cash	3.6	0	60	160	210	70	1020	69.6
Availability of Service	3.4	10	75	170	200	45	969	66.1
Time to Process Transaction or any Request	2.8	20	125	270	80	5	809	55.2
Operational Quality of ATM	3.4	5	45	230	175	45	971	66.3
Queues at ATM	3.7	5	60	85	295	55	1004	68.5
Availability and Quality of Printed Statement of Transaction	3.2	10	50	210	200	30	911	62.2
Cash Deposit Facility	1.9	15	75	300	100	10	513	35.0
No Fake Note	4.6	355	70	70	5	0	1300	88.7
Help Desk Support	2.5	20	95	255	110	20	698	47.6
Settlement of Grievances	2.5	25	60	285	110	20	706	48.2
Overall Fee Charges	3.2	25	100	170	135	70	923	63.0
Availability of Networked (Shared) ATM	2.3	15	65	340	65	15	642	43.8
Fee Charged for Using Other Bank's ATM (Shared)	2.1	45	130	240	80	5	581	39.7
Overall Customer Satisfaction	3.1	5	45	345	95	10	883	60.3

*See the Appendix-B for Questionnaire and Scaling.



Source: Author's Survey

Figure 1: Per cent of Satisfaction (Highly Satisfied=100)

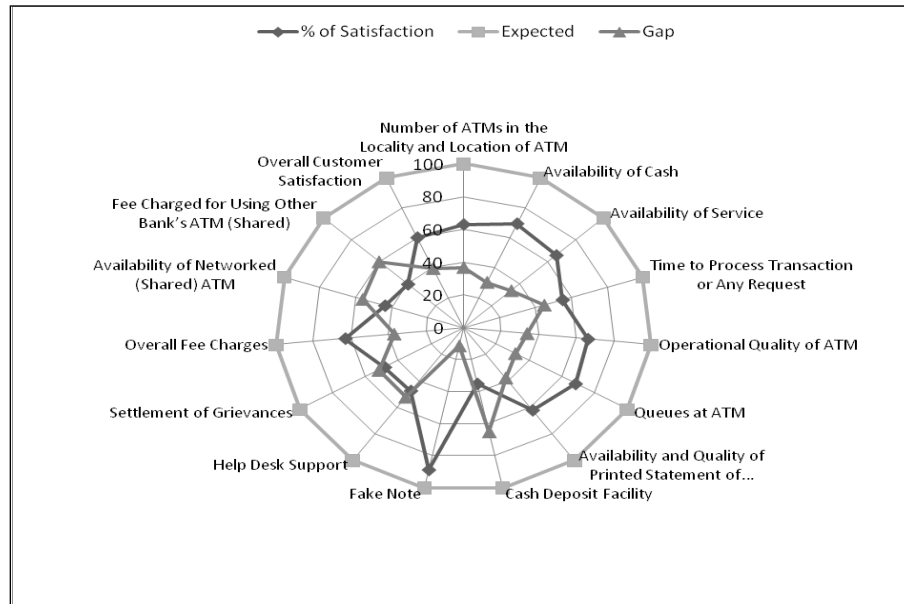
From table-1 and figure-1, it is seen that in case of 10 parameters/elements of ATM services out of 17, mean values are more than 3 but less than 4 and mean score of 6 parameters/elements of ATM services are less than 3.0. It indicates that customers are not highly satisfied from ATM banking services. Regarding the parameter 'no fake currency note found', highest mean score is found (4.6). It was expected to be 5, if no fake currency note were dispensed by the ATMs. But mean score 4.6 indicates that customers sometimes get fake currency notes in ATMs which is very unfortunate and not acceptable. Special care can be taken by Bangladesh Bank in this regard. Lowest mean score is seen in case of cash deposit facilities, only 1.9, which is a great demand of customers but they are not getting this service.

Mean score of overall customers' satisfaction is 3.1 and customers are 60.3% satisfied in this regard. In case of cash deposit facilities customers are very dissatisfied; satisfaction level is only 35%. Regarding availability of cash and availability of service, which are most important element of customer satisfaction, customers are 69.6% and 66.1% satisfied, respectively. 'Overall fee charge', 'number and availability of ATMs in the locality' and 'availability and quality of printed statement of transaction' has similar level of satisfaction (about 63%). Satisfaction related to 'availability of shared/networked ATM' and 'fee charged for using shared ATM' is very low, 43.8% and

39.7%, respectively. 'Cash deposit facility' has the lowest satisfaction level and customers are 35% satisfied in this regard. Though help desk support is an important parameter for customers' satisfaction, it is seen that customers are only 47.6% satisfied.

5.2 Gap Analysis

Gaps were assessed purely on the basis of the percentage of satisfaction values for each question/parameter comparing with a reference score '100' which was considered to be the maximum and that any organization should like to achieve for excelling.



Source: Author's Survey

Figure-2: Gap between Expectation and Current Service Quality

A service gap of close to 30 and more than 30 was considered to be highly critical area for the improvement of the performance dimensions. A service gap of between less than 30 and more than 20 was considered as critical and further needs for improvements and service gap below 20 is treated as less significant. Figure-2 shows the gap between the percentage of satisfaction and highest expectation (100) of customers' regarding ATM banking services. This will help the management to reduce the gap between the demand of customers and existing available facilities.

5.3 Factor Analysis

It is seen from the table-2(a) that Bartlett's test of sphericity is significant at the 0.00001 level. The overall measure of sampling adequacy was 0.714 which exceeds there commended cut-off level of 0.5 and individual measures were all well above this cut-off level.

Table-2 (a): KMO and Bartlett's Test

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.714
Bartlett's Test of Sphericity	Approx. Chi-Square	1714.045
	df	91
	Sig.	0.00001

Table-2 (b): Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.992	23.013	23.013
2	1.894	14.573	37.586
3	1.706	13.12	50.706
4	1.17	9.003	59.708

Extraction Method: Principal Component Analysis.

Overall, the set of data meets the fundamental requirements of factor analysis satisfactorily. In analyzing the data given, the 13 response items were subjected to a factor analysis using the principal component method.

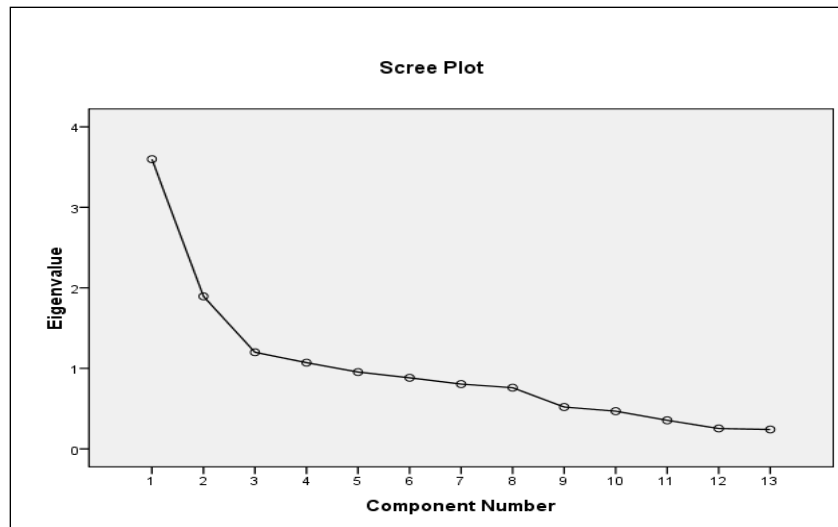


Figure-3: Scree Plot

With the help of Scree Plot and using the criteria of an eigenvalue greater than 1, four clear factors emerged accounting for 59.708% of the total variance [Table-2(b)]. As in common practice, a Varimax rotation with Kaiser Normalization was performed to achieve a simpler and theoretically more meaningful factor solution.

Table-3: Component Matrix

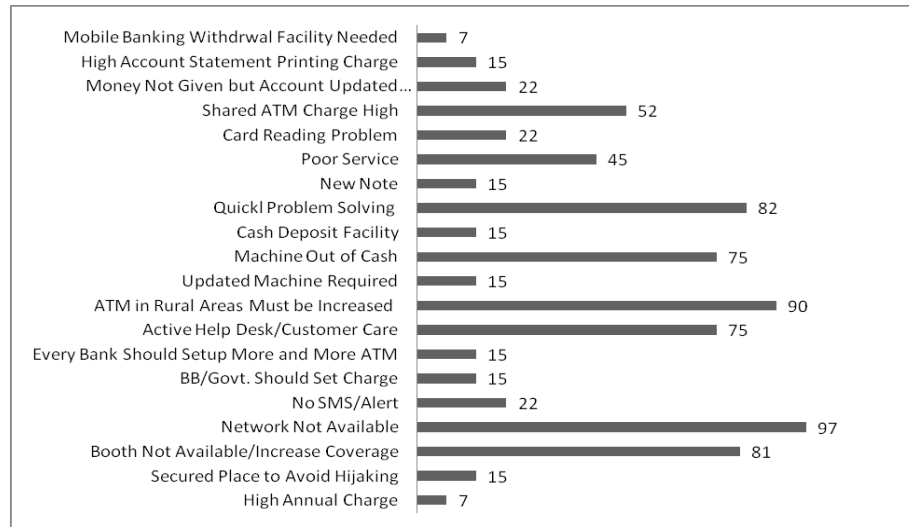
	Rotated Component Matrix			
	Component			
	1	2	3	4
Number of ATMs in the Locality and Location of ATM	0.493	0.184	0.056	-0.471
Availability of Cash	0.863	0.002	0.105	-0.030
Availability of Service	0.852	0.018	0.148	0.012
Time to Process Transaction or Any Request	-0.684	-0.049	-0.014	-0.242
Operational Quality of ATM	0.690	0.153	0.057	0.100
Queues at ATM	0.094	-0.092	0.034	0.770
Availability and Quality of Printed Statement of Transaction	0.176	0.377	0.385	0.163

	Rotated Component Matrix			
	Component			
	1	2	3	4
Fake Note	0.268	0.325	-0.128	0.491
Help Desk Support	0.096	0.095	0.846	-0.098
Settlement of Grievances	0.071	0.168	0.855	-0.013
Overall Fee Charges	0.429	0.334	0.044	0.016
Availability of Networked (Shared) ATM	0.153	0.800	0.159	-0.022
Fee Charged for Using Other Bank's ATM (Shared)	-0.027	0.888	0.166	-0.086

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

It is clear from the factor loadings as highlighted in table-3 that four factors emerge. These four factors represent different elements of ATM services that form the underlying factors from the original 13 response items given. Referring to the table-3, Factor-1 represents elements of the ATM directly related to service guarantee of ATM; it is therefore labeled 'Service Guarantee of ATM'. These elements are availability of cash and availability of service. Factor-2 represents sharing of ATMs of others banks; it is therefore labeled as 'Sharing of ATM'. The elements are availability of shared/networked ATM and fee charged for using shared ATM. Factor-3 represents support and service after sales; it is therefore labeled as 'Post Purchase Behavior of Banks.' The elements are Help Desk Support and Settlement of Grievances. Factor-4 represents only one element, i.e., Queues at ATM. It is therefore labeled as 'Waiting Time for Service'.

Customers are asked to give their valuable opinion regarding the major problems of the current ATM services and probable remedies for the development of the services. Their opinions are shown in the figure-4 below.



Source: Author's Survey

Figure-4: Customers' Opinion (Per cent of Customers)

It is seen from figure-4 that 97% customers have been facing the problem of availability of network connection between the ATM and data center of banks, which is the basic need of an ATM to do a transaction. Around 90% customers are also demanding increased number of ATMs, mainly in the rural areas. Some 81% customers requested to increase the coverage of the ATM network in the country. 82% customers mentioned that they are not getting any help when needed as there is no help/support center of the bank to help them, which is a vital issue. Though few banks have setup their own call center, 75% of the customers did not get right support as they are not active for round the clock service. Shortage of cash in ATMs is also a very common problem and 75% of the respondents reported that they found the machines out of cash. 52% customers are not happy as the cost of service is very high. Moreover, settlement of grievances, unavailability of cash deposit facilities and poor condition of the ATMs is also major problems in this banking channel.

6. Concluding Remarks

The study attempts to provide necessary policy input to the bank management to increase customers' satisfaction on ATM service. It is found that mean score of overall customers' satisfaction is 3.1 and customers are 60.3% satisfied in this regard. It indicates that

customers are not highly satisfied with ATM banking services. The gap between the level of satisfaction and highest expectation of customers' regarding ATM banking services is also analyzed. This will help the management to reduce the gap between the demand of customers and available facilities at present. Finally, four factors, namely, 'Service Guarantee of ATM', 'Sharing of ATM', 'Post Purchase Behavior of Banks' and 'Waiting Time to get Service' are identified as crucial for customers' satisfaction of ATM services.

Empirical evidences show that customers' satisfaction about 'availability of cash', 'availability of service', 'overall fee charge', 'number and availability of ATMs in the locality' and 'availability and quality of printed statement of transaction' is moderate in banks (ranging from 60% to 70%). Satisfaction relating to 'availability of shared/networked ATM', 'settlement of grievances' 'help desk support' is low (ranging from 40% to 50%). And the lowest satisfaction level (ranging from 30% to 40%) is seen in case of 'fee charged for using shared 'ATM' and 'cash deposit facility'.

These customers are also facing various problems related to ATM banking. Availability of network connection between the ATM and data center of banks, adequate number of ATMs, absence of help desk or call center, shortage of cash in ATMs, cost of service, settlement of grievances, unavailability of cash deposit facilities, poor condition of the ATMs and poor quality notes, etc. are the major problems in this delivery channel identified by the ATM users.

Hence, all types of banks may aware of these issues of ATM service to enhance customers' satisfaction and loyalty. Banks may follow the recommendations made by the customers to increase their satisfaction level. Cost effectiveness is one of the most important service quality dimensions which adversely affecting on customers' satisfaction. Therefore, bank should reduce charges related to ATM service and provide cost effective ATM service to their customers. Fake note circulation through ATMs is a common complaint by the customers. Though it is seen that customers' satisfaction level is highest (88.7%) in this regard, deviation from 100% satisfaction indicates that still customers get fake currency notes from ATMs which is required to be addressed.

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Appendix-A

Table 1: Sample Size Distribution w.r.t Bank-types and Divisions

	SCBs and SBs	PCBs	FCBs	Total
Dhaka	18	270	20	310
Chittagong	8	66	6	85
Khulna	3	24	0	30
Rajshahi	2	10	0	10
Barisal	2	12	0	10
Sylhet	2	42	4	40
Rangpur	0	11	0	15
Total	35	435	30	500

Table 2: Sample Size Distribution w.r.t Background Characteristics of the Respondents

Background Characteristics of the Respondents		SCBs and SBs Respondents (35)	PCBs Respondents (435)	FCBs Respondents (30)	All Banks Respondents (500)	All Banks Total
Gender	Male	32	370	21	423	500
	Female	3	65	9	77	
Age	18-30	26	241	17	284	500
	31-40	8	179	8	195	
	41-50	1	14	4	19	
	51-60		1	1	2	
	60+				0	
Education	Illiterate		8		8	500
	Under Graduate	17	12	6	35	
	Graduate	16	280	10	306	
	Post Graduate	2	132	13	147	
	Doctorate		3	1	4	
Income Per Month (BDT)	Less Than 50,000	30	162	1	193	500
	50,000-0,000	3	204	7	214	

Background Characteristics of the Respondents	SCBs and SBs	PCBs	FCBs	All Banks	All Banks
	Respondents (35)	Respondents (435)	Respondents (30)	Respondents (500)	Total
1,00,000-2,00,000	2	56	13	71	
More Than 2,00,000		13	9	22	
Business	7	65	16	88	
Govt. Employee	20	96	1	117	
Occupation Private Employee	6	228	11	245	500
Professional	2	34	2	38	
Agriculture		12		12	

Appendix-B

Research Project on Factors Affecting the Customers' Satisfaction of ATM Banking in Bangladesh Questionnaire

Part-I

Please let us know about your personal information by putting tick marks in the appropriate option.

Sl. No.	Parameter	Answer	Coded Value
1.	Gender	1. Male 2. Female	
2.	Monthly Income	1. Less than 50,000; 2. 50,000-1,00,000 3. 1,00,000-2,00,000 4. More than 2,00,000 5. Upper Middle Class; 6. Rich; 7. Very Rich	
3.	Occupation	1. Govt. Service; 2. Pvt. Service ; 3. Business 4. Students; 5. Jobless; 6. Agriculture 7. Others (please mention)..	
4.	Age	1. 18-30; 2. 31-40; 3. 41-50 4. 51-60; 5. 60+	
5.	Educational Qualification	1. Illiterate; 2. Under Graduate; 3. Graduate 4. Post Graduate; 5. Doctorate	

Part-II

Please let us know about your experience about the following practices by putting tick marks in the appropriate option.

S. No	Services of ATMs	Characteristics	Coded Value
6.	Number of ATMs in the Locality and Location of ATM	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst	
7.	Availability of Cash	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst	
8.	Availability of Service	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst	
9.	Time to Process Transaction or Any Request	5. Very Slow; 4. Slow; 3. Satisfactory; 2. Fast; 1. Very Fast	
10.	Operational Quality of ATM	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst	
11.	Queues at ATM	5. Never; 4. Sometimes; 3. No Comments 2. Often; 1. Always * Festival Time Only (Please Take a Special Note)	
12.	Availability and Quality of Printed Statement of Transaction	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst; 0. Not used	
13.	Cash Deposit Facility	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst; 0. Not used	
14.	No Fake Note Found	5. Highly Agree; 4. Agree; 3. No Comments; 2. Disagree; 1. Highly Disagree	
15.	Help Desk Support	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst; 0. Not used	
16.	Settlement of Grievances	5. Excellent; 4. Good; 3. Satisfactory; 2. Poor; 1. Worst; 0. Not used	
17.	Overall Fee Charges	5. No Charge ; 4. Nominal; 3. Average; 2. High; 1. Very High	
18.	Availability of Networked (Shared) ATM	5. Very High; 4. High; 3. Satisfactory; 2. Low; 1. Very Low; 0. Not Used	
19.	Fee Charged for Using Other Bank's ATM (Shared)	5. No Charge; 4. Nominal; 3. Average; 2. High 1. Very High; 0. Not used	
20.	Overall Customer Satisfaction	5. Very High; 4. High; 3. Satisfactory; 2. Low; 1. Very Low	

Please make comments that can enhance your satisfaction level on ATM banking (if any).

Regulation and Supervision Issues for the Sustainability of MFIs in Bangladesh¹

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Md. Akhtaruzzaman*

Abstract Landscape of rural financial market in Bangladesh is heavily dominated by NGO-MFIs. Their contribution in poverty reduction and self-employment for the last couple of decades is well-documented. Considerable regulatory and supervisory changes are also put in place. Despite such attempts, there still exists enough room for improvement for long run sustainability of the industry. In particular, considering regulatory burden for both the industry and the regulatory authority, soft touch supervisory approach can be adopted while e-based costless off-site supervision system accompanied by mobile monitoring can be initiated. As banks are not adequately responding to the call of MFIs, a Credit Guarantee Scheme under either PKSF or Central Bank may be introduced. Furthermore, both deposit and credit linkage between banks and MFIs can be established on a limited scale so that MFIs can get access to fund on a sustainable basis. In order to address short-term or over the night liquidity problem of MFIs, Dhaka Inter-MFI Borrowing Market (DIMBOM) can be developed. In addition, establishment of a Central Microfinance Database at MRA, initiation of customized financial literacy campaign for microfinance end-users and strengthening institutional capacity of MFIs may provide sound footing for sustainable development of the industry.

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Keywords NGO-MFI, Poverty, Microcredit, Rural Financial Market, MRA, Regulation & Supervision, Market Concentration, Overlapping & Over-indebtedness.

1.0 Introduction

Poverty and employment creation are the overarching goals of all the SAARC nations. Sharing knowledge and experience in this endeavour can gradually build a South-Asian Common Knowledge Pool that may guide the future of this region from a poverty zone to a prosperity land. Bangladesh is one of the most populous countries having population of 152.5 millions within a small territory of 147600 square kilometres. Life expectancy of people at birth is over 69 years and about 70 per cent of them live in rural areas. Despite being one of the most populous and rural-based economy with frequent natural attacks, the country has achieved commendable success in the last 4 decades by reducing poverty from 59 per cent in 1984 to 31.5 per cent in 2010 (BBS, 2011). The country maintained over 6% average real GDP growth per annum for the last decade. Poverty also declined more than 2 percentage point every year since 2005. Given this pace of development and following the simple algebra, the story ahead for Bangladesh is that it can be a poverty-free country by 2030. It may surprise many of us that with moderate level GDP growth and around 60 percent landless population, how the country achieved this covetous success while the development partners were always assuming it as a huge challenge for a resource poor country like Bangladesh and others.

Fortunately, while policy makers in Bangladesh de-linked financial network of rural economy by reducing loss-making rural bank branches as per recommendations of Financial Sector Reform Program in 1990, the country witnessed a demand driven pro-poor growth model that evolved within the rural sector through massive expansion of NGO-MFIs following the success of Grameen Bank's microcredit activities. Our learning from NGO-MFIs is that while their social mission enables them to address poverty with continuous success, a large number of high yielding small projects financed by them significantly contribute to employment creation and sustainable moderate level GDP growth amid a period of global financial and economic crises. Allure by their contribution for a social cause and also considering several factors such as enormous involvement of MFIs in savings mobilization, furthering their activities in social business, and building confidence among the financiers for their continuous support Government in Bangladesh has established a

separate regulatory and supervisory body i.e. Microcredit Regulatory Authority (MRA) in 2006. The Authority also promulgated some prudential rules in 2010 for faster development of the industry on a sustainable basis by bringing more transparency, reducing distortion and creating a level playing field for all the market players. Nevertheless, there are still some problems and challenges faced by the industry as well as this newborn authority in implementing regulations and supervisions of NGO-MFIs along with other providers of microfinance services.

This paper briefly discusses these issues while proposing some measures to address them. The paper is organized as follows. The next section describes development of microfinance industry emphasizing on the reasons that helped to grow NGO-MFIs in rural economy of Bangladesh. Section 3 narrates the measures that are initiated to improve the legal and regulatory architecture of the industry including the impact of new Microcredit Regulation Act 2006. Section 4 highlights on the regulatory and supervisory problems and challenges faced by both the microfinance markets and the regulatory authorities. In section 5, some possible measures are proposed to address the ongoing challenges faced by all the market participants including the regulators. Section 6 concludes.

2.0 Microfinance Development in Bangladesh

2.1 Stage I (1971-1982): Traditional Institutions

After independence in 1971, state owned rural banks and cooperative societies were primarily engaged in rural financing activities where microcredit was embedded in their services. At the beginning, as a part of pre-independence political commitment for economic emancipation of the rural poor, the government in Bangladesh wanted to increase banking facilities to the rural areas of the country (BB, 1974). However, it was difficult to materialize this objective, as there was only one government-owned agricultural bank, which had a limited number of branches (only 75 branches in 1972) in the entire country. The other government-owned six commercial banks namely Sonali, Janata, Agrani, Rupali, Pubali and Uttara remained absent till 1977 in agricultural financing in rural economy, although they had limited exposure in non-agricultural credit activities. The main target of these commercial banks was deposit collection for subsequent investment in urban areas. In 1974, the economic adversity mainly due to devastating flood prompted the government's attention to revive agro-economy.

Another important factor that drew policy makers' attention is that as agriculture contributed considerably to domestic output throughout the 1970s, the government's desire to increase national output also entailed emphasize on this sector. For example, in the fiscal year 1977 agriculture alone accounted for 54 per cent of aggregate GDP (BB, 1978). Considering all these factors, the government initiated a Specialized Agricultural Credit Program (SACP) in February 1977. The main purpose of this program was to enhance the flow of institutional credit to the agriculture sector. Another purpose was to reach institutional credit facilities to the marginal and small farmers. Both the Central Bank and the government administered this credit program and implemented it through state-owned commercial banks, as well as agricultural banks. Since state-owned banks were not involved in agricultural lending until 1977, and the only agricultural bank had very limited branches, this new initiatives required all of them to expand bank branches in unbanked areas of the local economy. Consequently, the rural financial infrastructure increased rapidly in 1977, although the growth of bank branch continued at a very slow pace until late 1980s and remained stagnant since the beginning of 1990s.

2.2 Stage II (1982-1989): Birth of Modern Microfinance Institutions

During the 1980s, rural financial market (RFM) in Bangladesh experienced three types of notable changes. These are (i) change in legal status and re-orientation of organizational objective, (ii) entrance of new type of bank and (iii) change in bank ownership structure. The first change occurred by transforming the IRDP into the BRDB (Bangladesh Rural Development Board) in 1982. Although the programmes of IRDP was rapidly expanding in most of the sub-districts, their role as a reliable vehicle for rural poverty alleviation through equitable participation in development were questioned due to the greater influence by the wealthy farmers at KSS level (Ali, 1990). Thus, an effort was made to reform this programme and IRDP was reconstituted in 1982 as a parastatal body and renamed as BRDB, mandating its role for income and employment generation for the rural poor.

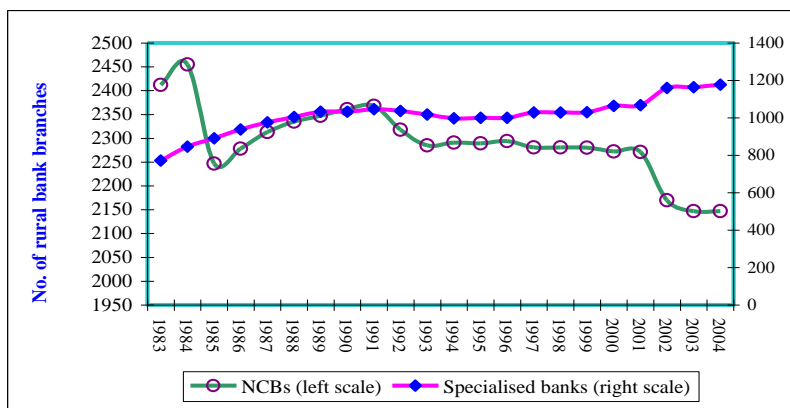
While the focus of IRDP/BRDB and BKB was agriculture, during the same time a large section of the rural population in Bangladesh such as day labourers, traders, fishermen and women earned their livelihood from non-agriculture sector. They were virtually landless and struggled to meet their basic human needs. As land was the

primary collateral in getting access to credit from local banks, this section of the population was outside of formal banking facilities for a considerable period and was trapped into a vicious cycle of poverty. In order to serve this section of society, in 1983 the Grameen Bank has been established to meet the need of materialistic assistance of poor to improve their economic situation. The newness of Grameen Bank is that the bank is legally mandated to provide credit facilities and other services to landless households in rural areas. In 1986, the lone agricultural bank, BKB, was legally split into BKB and RAKUB (Rajshahi Krishi Unnayan Bank). The latter started working in March 1987 by taking over the branches and offices along with assets and liabilities of Bangladesh Krishi Bank within the Rajshahi division. The new bank's objective remains the same with an exception of regional focus.

The period of 1980s also experienced the birth of a number of private banks, known as *first generation private banks*. However, except Islami Bank, none of them opened any branch in a rural area. The latter bank first established the private sector rural branch in 1988. As argued earlier, although the NGOs in the 1980s were in close contact with the poor, they mostly followed the *conscientization approach* as a long-term solution to poverty. However, success of Grameen Bank influenced development thought of NGOs and a number of countries in different parts of the globe began to replicate Grameen Bank Model on an experimental basis.

2.3 Stage-III (1990-1996): Growth Phase of MFIs in the Backdrop of Market-based Policy Reform and Closure of Rural Bank Branch Network

In 1990, the Central Bank undertook a financial sector reform program under the guidance of development partners. This reform program deviated from the social objectives of rural bank branches and emphasized their commercial viability. They suggested for closure and mergers of loss-making branches. This decision influenced state owned banks' branch expansion, caused merger and closures of some of the loss-making bank branches and slowed down the expansion of rural bank branches in rural economy throughout the 1990s. Branch expansion in the latter part of the 1990s was almost stagnant. Rather rural branches of the NCBs (see figure 1) marginally declined during the period of 1991 to 2004.



Source: Bangladesh Bank (2008)

Figure 1: Total Number of Rural Bank Branches by Types of Banks

In the same figure, we can observe a mild growth of the number of agricultural bank branches since 2002 while a declining trend in bank branches for NCBs can be found during the corresponding period. These trends emerged as agricultural banks took over some of the rural branches of NCBs.

As mentioned earlier, priority sector lending policy was compromised under financial sector reform program for enabling a competitive financial market environment through a number of measures including liberalization of interest policy. As a response, rural credit-deposit ratio as well as per capita rural credit began to shrink hampering the development activities of rural economy where most of the poor live and earn their livelihood.

When market-based neo-classical idea was at work for rural banks, this period coincided with a major shift in the paradigm of development thinking. New paradigm considered microcredit as a development tool and rapidly expanded microcredit activities in the rural economy through massive expansion of NGO-MFIs. Khandker (1998) therefore argues that failure of rural banks to reach the intended low-income households has led to the evolution of alternative credit programmes and institutions in Bangladesh. On the contrary, other authors (Carpenter, 1997; Conroy and McGuire, 2000) argue that lack of formal regulation and supervisory oversight resulted in rapid growth of sophisticated and innovative MFIs in Bangladesh.

Although MFIs provide a small amount of credit per borrower, these institutions provide such facility exclusively to the poor, particularly landless households. This is an upright mirror of credit policy of the rural formal banking system. Their eligibility criteria

officially exclude the non-poor. This clear demarcation of lending policy increases credit flow to low-income households of rural economy. Considering the growth of new institutions and the size of their aggregate capital and asset, this paradigm of change can be argued as a *structural change* in the rural financial market of Bangladesh.

2.4 Stage IV (1997-present): Matured Stage of MFIs

During the matured stage, the NGO-MFIs have experienced robust growth providing both geographical and demographic access to microcredit throughout the rural economy. They have appeared with a wide range of innovative financial services including diversification of their products and services and sources of fund. Within a very short span of time, they have occupied the lion share of rural financial market and are assumed to have significant contribution to the equitable growth path of the country. Recent status of microfinance industry and its contribution to pro-poor development are discussed below in brevity.

2.5 Products and Services of MFIs

MFIs in Bangladesh provide a wider spectrum of financial services, which are created through a demand driven innovative process in meeting the poor's complex livelihood and heterogeneous needs. The industry provides different types of savings products so that the poor can save even for a day with very little amount. Although some of the products appear to be similar to those of formal banking sector, their inherent characteristics such as terms and conditions, collateral requirements, size of instalment and period of repayment are in line with the economic life of the poor. Furthermore, living and working in the marginal economy often expose the poor to different types of household-specific and environmental risks such as loss of earnings due to sickness, urgent medical expense, theft, insecure condition of employment, natural hazards, and harvest failure. In dealing with those emergencies, MFIs provide different types of insurance services. Since September, 2011 they have initiated mobile financial services as agents/partners of local banks.

2.6 Outreach of Microfinance Services

Microfinance industry in Bangladesh has reached a sizeable position as it provided financial services to 34.36 million clients in 2011 covering almost 72 per cent of poor population while 28 million of them are active borrowers. In the same calendar year, the industry

supplied BDT 454 billion microcredit with savings services of BDT 140 billion. The industry maintained robustness even in a regulatory regime as most of the outreach indicators such as loan outstanding per client, loan outstanding per borrower, loan outstanding per branch, savings per client, savings per borrower, and savings per branch showed double-digit growth in 2011. However, some indicators such as no. of branches, no. of members/clients and clients per branch experienced somewhat sloth mainly due to closure NGO-MFIs who failed to meet new microcredit regulatory requirements.

Table 1: Outreach of Microfinance

Particulars	2010	2011	Growth
No. of Branches	19134	18281	-4.46
No. of Borrowers (Million)	27.83	28.00	0.61
No. of Members/Clients (Million)	36.18	34.36	-5.03
Loan disbursement (Billion BDT)	383.60	454.49	18.48
Loan Outstanding (Billion BDT)	246.27	289.49	17.55
Member/Clients' Savings (Billion BDT)	117.74	140.00	18.91
No. of People below the Poverty Line (Million, Estimated)	47.15	48.04	1.89
Clients per Branch	1890.87	1879.55	-0.60
Borrowers per Branch	1454.48	1531.64	5.31
Loan Outstanding per Branch (BDT in Million)	12.87	15.84	23.03
Savings per Branch (BDT in Million)	6.15	7.66	24.45
Loan Outstanding per Member/Client (BDT)	6806.80	8425.20	23.78
Loan Outstanding per Borrower (BDT)	8849.08	10338.93	16.84
Savings per Client (BDT)	3254.28	4047.51	25.20
Savings per Borrower (BDT)	4230.69	5000.00	18.18
Savings-Loan Ratio	47.81	48.36	1.15
Microcredit Coverage (Per cent of Poor Population)	76.73	71.52	-6.79

Source : CDF and InM (2010 & 2011)

2.7 Fund Composition of MFIs

The NGO-MFIs maintained progressive upward trend in maintaining capital fund from various sources since their inception. However, the dynamics of funding sources changed over time as they have moved from outward looking donor dependent to inward looking self-reliant sources. For instance, contribution of foreign sources in revolving fund (RLF) of MFIs in 1996 was 47.90 per cent, which declined to 3.82 per cent by June 2011. From 2000 onward, they appear to be inward looking as domestic sources of financing dominated their capital portfolio. By June 2011, they collected 60 per cent of their capital fund from clients' savings, cumulative surplus and own fund indicating their anchor on self-reliant model. Other major sources of their capital fund are loan from PKSF and banks.

2.8 Financial Deepening of Microcredit Services

A vast theoretical and empirical literature (see Levine, 1997 for details) provides evidence that financial deepening and economic development are strongly correlated. Available statistics show that microcredit plays a dominant role in economic development through their contribution in financial deepening, as they constitute almost 1.68 times of rural bank credit by the end of 2011. Considering concentration of microcredit in rural economic activities, development of microcredit in relation to agricultural GDP is compared and is found that microcredit-agricultural GDP ratio is gaining momentum reaching from 25 per cent in 2007 to 31 per cent in 2011.

Table 2: Financial Deepening of Microcredit

Figure in Billion BDT

Year	Microcredit (MC)	Rural Bank Credit	Domestic Credit	Agri. GDP	MC as % of Rural Bank Credit	MC as % of Domestic Credit	MC as % of Agri. GDM
2007	234.97	134.25	1817.34	939.34	175.02	12.93	25.01
2008	282.97	155.67	2180.84	1052.04	181.78	12.98	26.9
2009	381.05	184.42	2586.76	1156.27	206.62	14.73	32.95
2010	383.60	232.07	3299.04	1334.55	165.29	11.62	28.75
2011	454.49	271.07	3905.43	1477.27	167.67	11.63	30.77

(2007: N=535; 2008: N=612; 2009: N=744; 2010: N=772; 2011: N=694); Note: N refers to no. of NGO-MFIs

Source: CDF & InM (2009, 2010 and 2011)

2.9 Allocation of Microcredit by Economic Activities

From supply-side, microcredit in Bangladesh is mainly used to finance non-farm activities. However, there exists strong demand of microcredit for agricultural activities, as food security is a major concern for the poor. Due to the landless character of the poor, only a small part of them is engaged in agriculture sector as sharecroppers/tenant farmers. A survey conducted by BIDS shows that roughly, 18 per cent of credit disbursed by MFIs is employed in agriculture and agriculture related activities. However, some recent steps initiated by Central Bank such as introduction of refinancing scheme of BDT 5 billion for sharecroppers and disbursement of agricultural credit by banks through bank-MFI linkage may enable the MFIs to play a bigger role in agricultural financing.

3.0 Measures for Improving Legal and Regulatory Architecture

3.1 Phase I (1971-1989): Conventional Laws & Grameen Bank Ordinance 1983

As argued earlier, since independence in 1971 to 1989, state-owned commercial banks and agricultural banks, Grameen Bank and two cooperatives were engaged in microcredit activities. The laws under which all these banks were regulated are listed below in the box.

Table 3: Phase I (1971-1989): Conventional Laws & Grameen Bank Ordinance 1983

Institutions	Conventional Laws
Co-operatives (IRDP & BSBL)	(i) Bengal Co-operative Societies Act 1940 (ii) The Co-operative Societies Ordinance 1984
State Owned Commercial Banks and Agricultural Banks (BKB & RAKUB)	(i) Banking Companies Ordinance 1962 (ii) Directives/Instructions from Government (iii) Circulars/Instructions/Guidance issued by Central Bank
Grameen Bank	Grameen Bank Ordinance 1983
NGOs	(i) Societies Registration Act, 1860 as societies (ii) Trust Act, 1882 as Trust (iii) Companies Act 1913 (iv) Charitable and Religious Trust Act (1920) (v) The Voluntary Social Welfare Agencies (Registration and Control) Ordinance 1961 (vi) Foreign Donations (Voluntary Activities) Regulation Ordinance 1978

However, as they were provided with cheap credit facilities from Central Bank for their subsequent lending to farmers and landless day labourers in the rural sector of the economy, Central Bank's rural credit policy instructions were equally applicable to them as like as other rural banks. During this period, Central Bank in consultation with government used to determine agriculture related all policies such as interest rate, credit, refinance, loan classification and provisioning, loan rescheduling for flood/cyclone affected farmers and differentiated credit policy for share croppers, marginal farmers and smallholders. Central Bank also used to fix regional as well as annual agricultural credit disbursement targets, which were equally applicable for both the state owned banks as well as for the two apex cooperative societies. As mentioned earlier, Grameen Bank was the first microcredit institute, which was mandated by law to provide credit facilities and other services to landless poor in the rural areas. Its activities are regulated by Grameen Bank Ordinance, 1983. GB remained beyond the surveillance of Central Bank until 1997 as per Clause 4(3) of the said Ordinance that restricted application of the then banking law, Banking Companies Ordinance, 1962. However, the GB came under Central Bank supervision when government applied section 44 of Bank Company Act, 1991 for a special investigation in late 1990s.

As argued earlier, after independence in 1971, many non-governmental organizations (NGOs) came into existence such as Brac, Proshika and RDRS (the Rangpur and Dinajpur Rehabilitation Services) to serve the rural poor with conscientization approach. In this approach, long-term solutions to poverty is addressed by assisting the poor to challenge the economic, social and political relationships which impoverish them. Throughout the 1970s, NGOs worked as a social intermediation by providing non-financial services such as health, education, water and sanitation, training and skill development and awareness building (Zohir, 2004). Since the NGOs used their own fund, did not involve public deposit and their credit programme was not sizeable amount, financial regulators such as Central Bank remained silent to supervise these activities, although overall activities of these NGOs were guided by respective laws under which they had been registered.

3.2 Phase II (1990-2005): Conventional Laws along with Non-Prudential Guidelines by PKSF

NGOs' initial experiment with microcredit in the late 1980s got immediate positive response from the demand side and pushed away

their sceptical view of microcredit product as a strategy for development intervention. The birth of Palli Karma-Sahayak Foundation (PKSF), a wholesale funding agency for microcredit organizations, coincided with the growing need for fund. Access to seed fund from PKSF for microcredit operations changed the landscape of microcredit activities by facilitating rapid growth of the industry.

As a funding agency, the Foundation sets some criteria and conditions in getting access to its financial resources. These standards and conditions can be argued as introduction of quasi-regulations for microcredit activities in Bangladesh. The funded organization requires meeting the following criteria. The microcredit organization needs to have a legal basis for conducting its business mandating it to operate credit program for self-employment and income generating activities of the landless and assetless households and borrow money from the government, semi-government, private and any other organizations. The sponsor of the organization should be socially reputable with honest intention to serve the poor people while the organization requires having a definite structure with a full time Chief Executive along with adequate number of staffs to ensure proper implementation of microcredit programme. The organization is needed to maintain a sound accounting system including an information system on the details of microcredit operation. The organization should have at least 400 members who are landless, assetless, like-minded and organized in groups and have six months practice of regular savings deposit. The groups should be organized within the 10 km radius of the project office. The organization needs to have BDT 0.20 million outstanding loan at field level and is required to maintain a minimum loan recovery rate of 98 per cent on a continuous basis. Furthermore, PKSF developed a number of other non-prudential guidelines for the funded organizations, which are also known as partner organizations (POs). These guidelines are as follows: (i) Guideline for Accounting; (ii) Policy for Loan Classification and Debt Management Reserve; (iii) Guidelines for Designing Internal Control System for POs or PKSF; (iv) Guidelines for Management of Savings; (v) Guidelines for Management of Service Charge Earnings; (vi) Guidelines for Avoiding Overlapping (vii) Management Information System; (viii) Guidelines for Performance Standards and Categorization of POs; (ix) Financial Ratio Analysis; (x) Policy for the Utilization of Disaster Management Fund; (xi) Business Plan for POs; (xii) Guidelines for Management Audit of POs; (xiii) Guidelines for Internal Audit of POs; (xiv) Audit TOR for External Auditor of PKSF for Auditing PKSF; (xv) Audit TOR

for External Auditor of PKSF for Auditing POs; (xvi) Audit TOR for Auditors Appointed by POs; and (xvii) Policy for Loans for Institutional Development.

During the second phase, some laws such as the Cooperative Societies Ordinance 1984, Companies Act 1913 and Banking Companies Ordinance 1962 were updated to the Cooperative Societies Act 2001, Company Act 1994 and Bank Company Act 1991 without requiring a separate law for supervising microcredit activities. The distant regulatory framework that had light-touch on microcredit activities is shown in Table 4.

Table 4: Regulations and Supervisions of Microcredit during Phase II

Institutions	Conventional Laws
Co-operatives	(i) The Cooperative Societies Act 2001
State owned Commercial Banks, Agricultural Banks (BKB & RAKUB) and BASIC Bank Ltd.	(i) Bank Company Act 1991 (ii) Directives/Instructions from Government (iii) Circulars/Instructions/Guidance Issued by Central Bank
Grameen Bank	Grameen Bank Ordinance 1983
Private Commercial Banks	(i) Bank Company Act 1991 (ii) Circulars/Instructions/Guidance Issued by Central Bank
NGO-MFIs	(i) The Societies Registration Act, 1860 as Societies (ii) The Trust Act, 1882 as Trust (iii) Company Act 1994 (iv) Charitable and Religious Trust Act (1920) (v) The Voluntary Social Welfare Agencies (Registration and Control) Ordinance 1961 (vi) Foreign Donations (Voluntary Activities) Regulation Ordinance 1978 (vii) The Cooperative Societies Act 2001 (viii) Non-prudential Guidelines for Microcredit Operation Developed by PKSF

Sharp declining of foreign fund in the mid-1990s put the NGO-MFIs at risk and push them search for further sources of domestic fund. Although collecting savings from their clients was assumed to be the most effective and easiest way of raising capital fund, they suffered from the dilemma that the poor has too little to save. As not-for-sure, they, in addition to compulsory savings, which are tied against credit, began to experiment with different kinds of financial products, which include voluntary savings of flexible amount, different kinds of term deposits like DPS, pension scheme etc. Satisfactory response from supply side gave the NGOs some sort of relief while on the same scene, the financial regulators such as the ministry of finance and the Central Bank began to feel their responsibility to safeguard the clients' deposits.

As a further move for financial resources, the NGOs sought for other sources of institutional funding, particularly from the formal banking sector, international investors, inter-MFI borrowings and securitization (Rashid et al., 2010). However, their lack of ability to provide tangible security and absence of a legal platform to supervise and protect the money of financier put them some sort of uncomfortable situation to draw enough confidence in getting access to required fund. During the same time, several studies (Pitt and Khandker, 1998) provided empirical evidence in support of the NGO-MFIs' positive role in poverty reduction which required further development of MFIs and their financing activities. From both demand side and supply side perspective, regulation and supervision of MFIs were seen as an important necessity for the overall well-being of all the stakeholders. In this context, the Bangladesh Bank, the central bank of Bangladesh commissioned a study in December 1997 to examine "the Regulatory Aspects of Microfinance Institutions (MFIs) and Linking it with the Formal Financial Sector" (see Rashid et al., 2010 and ; Haque 2006 for details). The study was completed in 1998 and the two important findings and recommendations were as follows;

- The regulation available in the form of statutory requirement under the existing banking and financial laws will not cater to the special needs of this sector,
- Legal recognition of MFIs through enactment of law is required to access formal sources of funds, so that they can operate under an agreed "Code of norms/Conducts" under the form of special licensing arrangements.

Subsequently in the light of the above recommendations, Bangladesh Bank and other stakeholders also realised the need of regulation and raised the issue to the government. Accordingly, the government formed a Committee of seven members with the chairmanship of the Governor of Bangladesh Bank in October 1999.

This Committee prepared its report after discussing the issue with policy makers, stakeholders, academicians and other civil society members at national level and finally submitted the report to the government in March 2000. The major recommendations of the committee consist of suggestions for formulating the following policies and actions:

- Policy regarding establishment of linkage between NGOs and formal financial sector to solve NGOs' funding problem;
- Policy for loan classification, provisioning, interest rate, reserve requirement against savings/deposit, and investment of savings/deposits;
- Proper definition of member and non-member and Legal basis to recover default loan;
- Policy for uniform accounting standard, internal and external audit;
- Fix up the upper limit of administrative expenses of NGOs;
- Formulation of a prudential guideline for the microfinance sector;
- Formulation of performance standard to monitor and rating NGO-MFIs;
- Policy to remove overlapping problem;
- Creation of a separate regulatory body or a subsidiary organization of Bangladesh Bank to regulate NGO-Microfinance Institutions (NGO-MFIs).

On the basis of the above recommendations a unit namely "Microfinance Research and Reference Unit (MRRU)" was established in Bangladesh Bank under the supervision of a National Steering Committee formed in June 2000 to formulate policy guidelines to ensure transparency and accountability of this sector. The Governor of the Bangladesh Bank headed this Committee along with 10 other members selected from both government and private sectors. The Committee completed following major tasks by 2005:

- Decided that NGO-MFIs should not be permitted to accept deposits from the nonmember/general public and circulated this information among the stakeholders.
- Prepared a set of guidelines such as accounting manual, reporting format, guidelines for Auditors, etc. and had taken steps to implement those.
- Communicated with near about 1000 NGO-MFIs working in different areas of the country under various legal systems to make them aware about government's intention to bring them under a single legal umbrella.
- Collected information from them about their operations and trained them mostly on how to prepare financial statements, importance of reporting, etc.
- Prepared a draft structure of a legal framework after consulting the issue with the sector representatives. The draft law suggested for an independent regulatory authority that would be responsible for providing license to the MFIs and monitoring their activities.

3.3 Phase III (2006-present): Conventional Laws along with MRA Act 2006, MRA Rules, 2010 and MRA Directives

Recommendations of National Steering Committee in 2005 culminated with a separate Microcredit Regulatory Act 2006, which enabled to establish a formal regulatory and supervisory authority, (body) namely Microcredit Regulatory Authority (MRA).

In the new phase of regulation and supervision, microfinance activities in Bangladesh are now governed by four regulatory authorities, which are: (i) Bangladesh Bank; (ii) Ministry of Local Government, Rural Development and Cooperatives; (iii) Microcredit Regulatory Authority (MRA) and (iv) on behalf of the government, the Ministry of Finance coordinates the activities of all other regulatory authorities.

However, after the enactment of the new Microcredit Regulatory Act 2006, MRA has emerged as the main regulator in regulating and supervising microfinance industry in Bangladesh. As on December 2011, NGO-MFIs that are under the regulation of MRA constitute 84 per cent of microcredit branches and 72 per cent of active members or clients of the industry while Grameen Bank constitutes 14 per cent of microcredit branches and 24 per cent of active members or clients. Rest of this section has therefore concentrated on analysis of experience of the MRA and its new regulation. All directives or

instructions issued by the new authority have been attached in the Appendix 1.

3.3.1 Important Provisions of Microcredit Regulatory Act 2006

The Act facilitated establishment of a new regulatory authority, namely Microcredit Regulatory Authority, which is entrusted with the following major responsibilities:

- Licensing and supervision,
- policy formulation,
- and auditing the accounts of micro credit organizations at the request of financing agency.

By virtue of position, Governor of Bangladesh Bank is the Chairman of the Board of Directors of the authority. However, the major provisions of the Act for the micro credit institutions are very carefully designed to ensure smooth and faster development of micro credit institution and sustainable faster growth of their operation along with their compliance with a number of governance issues including transparent and routinely submission of their audit report and budget monitoring activities. The fundamental clauses of regulations of their activities and day to day operations and supervisions along with their all governance issues are the building blocks of the MRA Act 2006 and MRA Act 2010 are listed in the Appendix-2.

3.3.2 Experience of MRA Act 2006

Growth Effect

The new Micro Credit Regulation Act 2006, under section 15, prohibits microcredit organizations to run any micro credit program without the certificate of the authority. The criteria, among others, attached to the licensing requirement is that a micro credit organization needs to have either minimum 1000 borrowers or outstanding loan balance of US dollar 58,000. Since obtaining certificate requires meeting some conditions and criteria, it can be reasonably presume that the Act may inject a temporary shock to growth of the microfinance institutions, although the industry is expected to be more stable. However, counter factual or benchmark scenario is essential to understand the impact of regulation. We argue that if this new Act had not been enacted, the industry would have followed its natural trend. As the Act has been introduced in 2006, we have taken mean growth rate of industry variables of the preceding two years as counter factual and argue that without the new Act, the variables would have followed the benchmark level growth. From the

Table 5, we can see that mean growth rate of NGO-MFIs before the Act was 34.96 per cent while the number of NGO-MFIs shrunk in the subsequent two years showing a negative growth of more than 30 per cent. These results seem to be rather more conservative considering the licensing figures of MRA. After establishment of the Authority in 2006, it received 4241 applications seeking licensing permission for microcredit operation. However, by August 2012, the Authority declined 3380 applications, i.e., 80 per cent of total applications as they failed to meet regulatory requirements while license has been issued against 651 NGO-MFIs and rest of the 5 per cent are kept under potential category. However, industry seems to have absorbed this shock showing a high positive trend since Fiscal Year 2009. Similarly, outreach indicators such as no. of branches, no. of clients, no. of borrowers, outstanding amount of credit and savings all have positive trend. In particular, growth of two financial deepening variables such as credit and savings were almost closed to pre-Act period in FY2011 showing possibility of an outperform trend in the years to come.

Table 5: Growth Effect of MRA Act 2006

Particulars	Mean Growth before the Act	Growth after the MRA Act 2006				
		2006-07	2007-08	2008-09	2009-10	2010-11
No. of NGO-MFIs	34.96	-33.70	-31.06	43.00	23.15	11.63
No. MFI Branches	41.92	-5.72	31.55	11.77	2.38	4.72
No. of Employees	87.35	-36.66	-5.21	8.37	2.26	2.04
No. of Clients	26.16	-9.00	12.58	5.97	1.73	3.16
No. of Borrowers	24.19	-0.99	4.59	6.18	1.69	7.50
Outstanding Credit (BDT in bil.)	31.64	14.19	56.84	6.27	1.32	19.85
Savings (BDT in bil)	26.53	0.45	70.71	6.79	1.48	23.25

Market Concentration Effect

Theory argues that regulatory intervention is generally associated with more concentrated industry than the intervention free era allowing more market power in the hands of fewer firms. Taking the advantage of market power, dominant firms in the industry may charge higher rates in different forms for financial products. As a consequence, the overall welfare outcomes of the microfinance industry may not be beneficial to the mass poor. This understanding guides us to examine the trend of outcome variables since the enactment of MRA Act, 2006 by applying standard concentration indices C4 and C8 while corresponding figures of 2005 are used as benchmark for comparison.

Using C4-Index we find that concentration ratios of industry outcome variables such as no. of MFI branches, no. of employees, no. of clients, no. of borrowers, amount of savings and amount of outstanding loan have declined compared to benchmark year. For instance, C4-Index for number of branches in 2005 was 62.12, which reduces to 37.78 in 2011 indicating that MFIs other than the big four are taking more share of the market by expanding their branches. This trend also implies that the new regulation provides more encouragement to non-big firms as they responded more positively compared to their rival firms. Other outcome variables also follow the similar pattern.

Table 6: C4 Concentration Index

Particulars	2005	2006	2007	2008	2009	2010	2011
	C4 Index	C4 Index	C4 Index	C4 Index	C4 Index	C4 Index	C4 Index
No. of Branches	54.80	49.51	60.34	48.46	40.46	40.10	37.78
No. of Employees	55.90	42.30	63.43	64.81	54.17	49.57	46.53
No. of Clients	75.77	65.32	69.01	71.43	62.70	59.30	56.30
No. of Borrowers	74.82	65.50	69.55	76.78	63.90	59.97	55.26
Amount of Savings	69.24	59.88	63.26	68.90	53.95	61.93	57.59
Amount of Loan (Outstanding)	73.58	66.83	71.12	57.64	53.29	61.44	58.22

Table 7: C8 Concentration Index

Particulars	2005	2006	2007	2008	2009	2010	2011
	C8 Index	C8 Index	C8 Index	C8 Index	C8 Index	C8 Index	C8 Index
No. Branches	61.66	55.59	66.91	54.06	45.62	45.61	43.41
No. of Employees	64.99	46.94	69.46	72.08	61.12	56.65	54.16
No. of Clients	80.98	70.08	74.70	75.99	67.65	64.87	62.08
No. of Borrowers	80.40	70.27	75.40	81.56	69.35	66.27	61.36
Amount of Savings	77.79	67.29	71.78	73.55	59.07	68.13	64.68
Amount of Outstanding Loan	80.15	72.63	77.01	61.83	58.49	68.26	65.91

Then we take C8-Index to understand the market concentration outcomes. We find that compared to pre-regulatory era, all the concentration ratios gradually declined indicating that rival firms of

big NGOs are fighting for market share. Presumably, regulation may create a competitive market environment by facilitating a level playing field for the NGO-MFIs in Bangladesh.

Performance Effect

We have measured performance of NGO-MFIs by considering outreach indicators while the corresponding figures of 2005 remain as reference period for pre-Act era. We find that outreach indicators such as loan outstanding per branch, savings per branch, loan outstanding per client, loan outstanding per borrower, savings per client, and savings per borrower significantly increased during the post-Act era. For instance, savings per borrower increased to 104 per cent in 2011 from the base-period 2005. However, as market experienced significant growth in no. of new branches during post-regulatory era, clients per branch and borrowers per branch have shown some temporary moribund trends. Limitation of these figures is that they do not reflect the complete picture of the industry as they are based on those NGO-MFIs, which reported to MRA only. On the other hand, after adjusting mean savings and safety net of BDT 3500 per depositor against mean loan outstanding per borrower, 22 per cent of loan per borrower remains unsecured. Basel II capital norms for banking sector in Bangladesh, i.e., minimum capital for a bank is 10 per cent or more of risk-weighted asset. Considering MFIs as a higher risk category and minimum capital requirement of 15 per cent of risk-weighted-asset, an NGO-MFI minimum capital should be minimum 3.3 per cent of its loan outstanding balance.

Table 8: Performance Measured by Outreach Indicators

Particulars	2005	2006	2007	2008	2009	2010	2011
Clients per Branch	2434	1883	1817	1555	1475	1465	1444
Borrowers per Branch	1808	1413	1484	1180	1121	1113	1143
Loan Outstanding per Branch (Tk. Million)	7.25	6.19	7.49	8.93	8.49	8.41	9.62
Savings per Branch (BDT in Million)	2.72	2.72	3.29	3.14	3.00	2.98	3.50
Loan Outstanding per Client (BDT)	2979	3285	4123	5743	5760	5737	6664
Loan Outstanding per Borrower (BDT)	4010	4377	5048	7571	7577	7549	8416
Savings per Client (BDT)	1116	1207	1813	2021	2037	2032	2427

Particulars	2005	2006	2007	2008	2009	2010	2011
Savings per Borrower (BDT)	1503	1609	2220	2664	2679	2674	3066
Savings-Loan Ratio	37.47	36.75	43.97	35.18	35.36	35.42	36.42
Savings Adjusted Unsecured loan Per Borrower (BDT)	2507	2768	2829	4907	4898	4876	5351
Insurance Covered per Borrower (BDT)	3500	3500	3500	3500	3500	3500	3500
Per cent of Uninsured Loan per Borrower	-	-	-	18.58	18.45	18.22	21.99

Source: MRA (2007, 2008, 2009, 2010, 2011)

4.0 Problems and Challenges in Regulation and Supervision of Microcredit in Bangladesh

Regulation and supervision are new to the Authority and the NGO-MFIs as well. Because of this, both parties face some problems and challenges in the new regulatory environment, although nature of problems and challenges are different from each other. Furthermore, other suppliers of microcredit also face some problems. Apparently, majority of the stakeholders appear to face the following regulatory and supervisory challenges:

4.1 Absence of Separate Microcredit Policy Guidelines for Scheduled Banks

As mentioned earlier, in Bangladesh, microfinance services are provided by a wide range of actors. Main stakeholders of the sector are scheduled banks and NGO-MFIs. However, there is no separate regulatory guideline for microcredit as agricultural and microcredit activities of banks are currently guided by the same prudential norms (see Appendix for details). As argued earlier, microcredit is mainly provided to landless households for non-farm activities while agricultural credit may include a wide variety of households ranging from rich farmers to smallholders to sharecroppers. Furthermore, size of microcredit, its duration, collateral requirements, terms and conditions of repayment often substantially differ with traditional agricultural credit. Considerable difference between these two types of credit entails separate policy guidelines for scheduled banks in Bangladesh.

4.2 Capacity Build-up

Skilled human resource of the MFIs is one of the critical factors for effective implementation of microcredit regulation in Bangladesh, as the new regulation requires clear understanding of modern accounting concepts, maintenance of different types of accounts and ledgers including preparation of annual budget, income statement and balance sheet. While some of them are technical in nature, others such as directives issued by the Authority and other agencies require clear understanding of the instructions. As a new formal industry having people from multiple disciplines, human resources need to be trained in order to develop their skills in line with the new regulatory requirements. Fortunately, a new institute namely Institute of Microfinance (InM) has been established in 2006 mandating it to meet research and training needs of the MFIs in Bangladesh. As a part of capacity build up; InM is organizing regular training programs for the trainers of MFIs and engage them as resource persons while conducting training for MFIs at their head quarter and regional offices. As a primary steps, InM has initiated the following structured training programs for capacity building of the microfinance institutions.

- Microfinance Operations and Management.
- Book Keeping and Accounting Management for MFIs.
- Financial Management for MFIs.
- Monitoring and Evaluation of Microfinance Programme for MFIs.
- Improving Participatory Managerial Skills and Management Style.
- Entrepreneurship Development and Business Planning.
- Risk Management for MFIs.
- Legal Regulatory System and Governance.
- Product Development and Business Planning for MFIs.

Considering the number of MFIs and their employees, capacity development seems to be considerable challenging as it may take a number of years. Cost of training program will also be additional burden for the industry, particularly for the financially weak NGO-MFIs.

4.3 Overlapping and Over Indebtedness

One of the main purposes of microcredit regulation and supervision is to ensure safety and soundness of financial system by checking financial system risk. However, over indebtedness through multiple borrowings may cause high default risk for the system. This is because; one borrower may take credit from multiple sources and bypass regulation by hiding his/her credit information. Borrowers' level over indebtedness may ultimately lead to default culture, which can be a threat for the sustainability of microcredit institutions as well as for the microfinance system as a whole. For instance, in a number of studies conducted by PKSF, it appears that a segment of the poor borrows from more than one micro credit organization with bad intention. They borrow from one microcredit organization to repay credit instalment of another one without engaging it in income generating activities. This malpractice may lead to over indebtedness and credit default culture. Since micro credit organizations do not share their clients' information with each other, a default borrower has a scope to take credit from another microcredit organization by hiding this information. Establishment of a Credit Information Bureau for Microfinance Institutions may substantially address this issue. However, MRA has already initiated some dialogues with the stakeholders of the industry to establish a Central Microfinance Database, which will store information on individual's borrowings, businesses and paying habits while microfinance institutions will have on-line access to the system.

4.4 Lack of Adequate Staff for Supervision

The most carefully conceived regulations will be useless or worse if they can not be enforced by effective supervision (Christen and Rosenberg, 2000). As a regulatory authority, MRA has adopted the following supervisory approaches:

- On-site Supervision
- Off-site Supervision
- Special Inspection based on Customer Complaints.

In doing so, the Authority is facing financial and human resource constraint. This is because branches of MFIs are widely scattered across the country and strategically located in the periphery of mainstream economy. However, considering the size and distance of MFI branches from the MRA office at Dhaka, it can be reasonably assume that a sizeable number of MFI examiners are essential for on

sight supervision. Christen and Rosenberg (2000) also argue that given the generally smaller asset base of MFIs, their much number of accounts, high degree of decentralisation and the more labour-intensive nature of inspecting their portfolio, supervision of MFIs is likely to be more expensive. On the other hand, financial resources for conducting on-site inspection on a wider scale by MRA seems to be somewhat weak as its funding is limited by grants from government, although other sources include certificate fees, annual fees paid by the micro credit organization, grants received from any foreign government, agency or international organizations. Given the market size and locations of the microcredit institutions, it can be assumed that on-sight inspection may heavily draw fiscal attention. However, introduction of e-regulation and e-supervision on a larger scale accompanied by mobile monitoring at borrower's level may substantially reduce the cost-burden for both MRA and the licensed NGO-MFIs.

4.5 Inadequate Response of Banks to Finance NGO-MFIs

In 2005, the NGO-MFIs collected 16.89 per cent of their capital fund from commercial banks, which declined to 12.84 per cent by June 2011 (see Chart 7 for details), although it was anticipated before the regulation that the new law may enhance bank-led borrowed fund for the licensed MFIs.

5.0 The Way Forward Development of a Liquidity Market

Some MFIs such as Grameen Bank has voluminous surplus fund and has become one of the major sources of institutional borrowings for the commercial banks in Bangladesh. Since main purpose of these MFIs is to provide credit facilities for the poor rather than investing in commercial banks, they can supply their surplus fund to other MFIs through a market mechanism. In particular, Dhaka Inter-MFI Borrowing Market (DIMBOM) can be developed under the initiative of MRA. An electronic board managed by MRA will work as a market maker where MFIs will declare their bid-ask prices at the beginning of each working day. Fund manager of each MFI will have access to this platform maintaining some protocols designed by the Authority. After the end of each working day, MRA will calculate the weighted average borrowing rate, which can be called as DIMBOR (Dhaka Inter-MFI Borrowing Rate) and will work as a benchmark for the next working day.

5.1 Financial Literacy

One of the main purposes of microfinance regulation is to minimize the risk of financial system by directing and guiding the behaviour of microfinance institutions. However, risk of over-indebtedness, misuse of fund, misunderstanding of financial products and fear of cost-effective new technology use at borrower level may futile the safety and soundness of microfinance institutions, which may in turn transmit into the financial system. Understanding the benefits and risk associated with innovative financial products, development of numerical skills, financial management of microenterprise, rights and responsibilities of a borrower has not only beneficial effects on the poor but also financial system as a whole. However, very soon, Central Bank of Bangladesh is going to initiate a financial literacy program using radio, television and internet aiming to reduce this knowledge gap. This program may be generic in nature while such literacy program needs to be customised for microfinance users, as their economic activities are considerably different from usual ones.

5.2 Linkage Banking for Deposit Intermediation

As argued earlier, MFIs in Bangladesh are legally prohibited to accept deposits from the public except the Grameen Bank. On the other hand, rural specialized banks substantially rely on Central Bank's cheap credit for their rural financing activities. In this situation, a win-win strategy can be adopted by gradually allowing MFIs to mobilise public deposit on the behalf of rural banks. The benefit for the MFIs is that they will earn commission against their deposit services to the rural banks. On the other hand, interaction between commercial banks and MFIs will help to develop mutual understanding and building of institutional relationship. These deposits can be re-lend to rural economy through the MFIs. In this way, rural deposits may recycle as microcredit from rural commercial banks to the rural poor through the MFIs. The central bank can also give clear guidelines or advice to the rural formal financial intermediaries to employ a certain percentage of rural deposits in microcredit. This policy can address funding problem of MFIs and can be a potential source of earnings for them. On the other hand, default rate in rural banks can be reduced substantially. Before large-scale implementation of the idea, this can be tried on experimental basis in a limited geographical space.

The above model has implication for formal money market as well. This is because, in Bangladesh, the major banks particularly Sonali, Agrani, Janata, Rupali, Uttara, Pubali, Bangladesh Krishi Bank and Rajshahi Krishi Unnayan Bank have wider network in the rural sector

as well as in the formal sector. When they will collect deposit through the branch office of MFIs, one part of deposits will go to the MFIs as credit. The rest of the deposits can easily flow to the formal money market through the inter-branch linkage of individual banks. This way the money can again flow in the different business sectors of the economy.

5.3 Credit Guarantee Scheme

In the question of reaching out the rest of the poor and sustainability of the MFIs, strengthening the Bank-MFI lending channels seems to be highly warranted in Bangladesh. Although recently some efforts such as regional meetings between banks and MFIs and Governor's call for MFIs' fund from banks under Corporate Social Responsibility are made, a Credit Guarantee Scheme under either Central Bank or PKSF may be initiated to expedite this development.

5.4 Mobile Monitoring

As a part of cost-effective supervision, on-line supervision supported by client level mobile monitoring may be introduced.

6.0 Conclusion

Theoretical arguments and empirical research suggest that access to finance for the poor and supply of fund in the economic sectors where the poor live and earn their livelihood are the two necessary conditions for sustained poverty reduction. In Bangladesh, majority of the poor live in rural areas where the MFIs are mainly located and their financing activities reached almost close to twice of rural bank credit. Therefore, main spirit of regulation and supervision of MFIs in Bangladesh is not only to provide safety of the poor depositors' money, but also to financially include the rest of the poor to ignite their latent entrepreneurial ingenuity by creating a self-sustainable industry. However, considering regulatory burden for both the industry and the Authority, soft touch supervisory approach can be adopted by bringing the head office of MFIs and their selected high default branches under on-site supervision. Apart from e-regulatory system, e-based costless off-site supervision system accompanied by mobile monitoring can be initiated. As banks are not adequately responding to the call of MFIs, a Credit Guarantee Scheme under either PKSF or Central Bank may be initiated. It is highly likely that such a scheme will facilitate bank credit for MFIs while it will prevent any spill over effects from the latter sector to the earlier one. Furthermore, two-way linkage between banks and MFIs can be

started on a limited scale so that MFIs can get access to fund on a sustainable basis. In order to address short-term or over the night liquidity problem of MFIs, Dhaka Inter-MFI Borrowing Market (DIMBOM) can be developed. In addition, establishment of a Central Microfinance Database, initiation of customized financial literacy campaign and strengthening institutional capacity of MFIs may provide sound footing for regulation and supervision of the industry.

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Appendix-1

Microcredit Regulatory Authority Act, 2006

Licensing

- Micro credit operation is restricted without obtaining license from the Authority
- As a primary condition for obtaining license, microcredit organization requires registration under one of the following laws:
 - (a) The Societies Registration Act, 1860;
 - (b) The Trust Act, 1882;
 - (c) The Voluntary Social Welfare Agencies (Registration and Control) Ordinance, 1961;
 - (d) Samabaya Samity Ain (cooperative societies act) 2001;
 - (e) Company Ain (company act) 1994.
- Furthermore, a microcredit organization needs to fulfil other requirements as prescribed by the Authority. At present, such requirements are as follows:
 - (i) It needs to have either minimum 1000 borrowers or,
 - (ii) loan outstanding balance of 58,000 US dollar.
- Any certificate or the ownership achieved under MRA shall not be transferable, completely too partially and any such transfer shall be considered as void.
- The licensed organization will have to pay annual fees as per the amount fixed by MRA.

The authority and responsibility of each licensed micro credit institution defined by this Act are:

- to provide loan supports to poor people to make them comfortable and self-reliant;
- to provide advice and knowledge support to the poor people for carrying out economic activities;
- accept deposit from their members and open account for offering micro credit to members;
- receive loan or grant from banks or any other sources for developing funds;
- invest the surplus fund, if any, in sectors approved by the Authority;

- offer different types of insurance services and other social development-oriented loan facilities for the loan recipients and members of their families;
- without the approval of the Authority, microcredit institution is prohibited to undertake any program or enter into any transaction contrary to the provision or objectives of this Act.

Reserved Fund and Surplus Income

- Every micro credit institution requires developing a Reserved Fund using 10 per cent of its income surplus and needs to be maintained in a bank account of a specified scheduled bank.
- the remaining surplus income amount may be utilized for microcredit activities and other programs relating to alleviation of clients' poverty.

Investigation in Cases of Suspicious Activities

- If it appears before the Authority to believe that any person is running microcredit program defying any provision of this Act, the Authority (MRA) or any official authorized by the Authority –
 - (a) Can order him/her (suspected offender) to furnish any information, document, paper, accounts and records under his control within the time-frame specified for such purpose; and
 - (b) Can carryout searches and seize relevant documents, files, books, accounts and records entering into any premise from where such activities are being run.

Authority for Framing Rules for Micro Credit Institutions

The MRA Act 200 has empowered MRA to frame rules particularly on following matters:

- Watching compliance for condition for investment in small capital and cottage industry;
- Watching compliance for conditions for spending part of the income of the micro credit institution to achieve the goals and objectives of the micro credit institution;
- Carrying out activities in the area as specified in the certificate;
- Internal auditing and accounting policy and standards;
- Preservation of files, documents and records; and Descriptions, reports and returns to be submitted;

- Procedures to be followed for carrying out programs in an efficient and transparent manner;
- Controlling heads of expenditures;
- Rights and responsibilities of members of microcredit institutions;
- Collection and preservation of deposits and utilization of profit earned;
- Qualification/criterion, appointment and salaries-allowances of CEOs of micro credit institutions;
- Provision against loan sanctioned and writing off loans; and
- Inspection, investigation and auditing of micro credit organization.

Microcredit Regulatory Authority Rules, 2010

In accordance with the power delegated under the clause 51(1) and matters relating to clause 51(2) of MRA Act, 2006, the Authority has promulgated some additional Rules in the following matters in additions to all regulations and rules promulgated by MRA Act, 2006.

- License issuing procedure including its conditions for issuance, matters relating to its suspension, withdrawal and cancellation.
- Formation and functions of General Body of microcredit organization, formation and functions of Council of Directors, appointment of Chief Executive Officer (CEO) and restrictions for holding the post of Chairman and CEO of microcredit organization simultaneously.

Rules for Usage of Deposit Funds and Maintenance of Liquidity as per MRA Act, 2010

- Every Microcredit Organization must maintain 15 per cent liquid fund of its entire compulsory, voluntary and term deposit in the savings account of a scheduled bank.
- Liquidity fund may be maintained in minimum 5 per cent cash, the remaining portion as fixed deposit.
- Microcredit organizations are restricted to take any loans against the said fixed deposit.
- They are not allowed to use deposit fund to buy moveable or immovable asset to meet any expenses.

Rules for Classification of Loans and Provisioning as per MRA Act, 2010

- The Microcredit Organization is required to classify loans as 'Regular', 'Watchful', 'Sub-standard', 'Doubtful' and 'Bad Loan' on an annual basis.
- After classifying loans as mentioned in sub-clause (i), the Microcredit Organization needs to maintain provision on the basis of loans outstanding as on June 30 and December 31 every year:

Loan Classification Status	No. of Days Outstanding	Rate of Provision against Principal Amount
Regular	Loans with no overdue instalments	1%
Watchful	Loan default between 1 and 30 days	5%
Sub-standard	Loan default between 31 and 180 days	25%
Doubtful	Loan default between 181 and 365 days	75%
Bad Loan	Loan default above 365 days	100%

Rules for Inspection, Investigation and Audit of the Activities of Microcredit Organization

- The Authority may inspect any Microcredit institution at any time, audit, investigate its records and information. If specific complaints are received against any Microcredit Organization, the Authority may, after inspection of the said organization, undertake or instruct additional investigation and special audit programs depending upon the gravity of such complaint.

Rules for Corporate Governance of MFIs

- Each microcredit organizations require having a General Body with 15-31 members who will be nominated among the entrepreneurs of the concerned organization.
- The General Body is the highest level policy making authority as it will finalize and approve the organization's policies, budget and audited accounts.

- They need to have a Council of Directors (CD) as well with 5-10 members elected from the members of the General Body where a Chairman will be elected from the members of the Council of Directors.
- The CD is formulating policies and preparing budget for the operation of microcredit activities.
- Women empowerment is embedded in the governance structure by compelling both the General Body and the Council of Directors to have at least two female members.

Rules for Sources of Fund

Minimum capital requirement or a specified capital adequacy ratio for a microcredit institution is not clearly stated neither in the Act nor in the rules, although the sources of fund for microcredit organization are mentioned as follows:

- Grants received from the members of the General Body under a well defined contract;
- Approved national or international grant having clear documentary proof and the organization willing to accept such grant must be registered with the Bureau of NGO Affairs;
- Deposits received from the Clients;
- Loans obtained under official contracts from formal local financial institutions and organizations;
- Loans from foreign sources subject to permission obtained from the relevant government agencies;
- Funds received through securitization from financial institutions having permission from Authority;
- Funds received the capital market subject to permission from the Authority;
- However, the loans must not carry an interest rate higher than the interest rate payable to Clients and Depositors on their compulsory deposits;
- The person from whom loan is obtained must not be parent, child, spouse or sibling of any employee of the Microcredit Organization.

Conditions for Deposit

The microcredit organization may receive compulsory deposit, voluntary deposit and term deposit. However, the total deposit

balance of any microcredit organization will not exceed 80 per cent of the principal loan outstanding at any give time. Other conditions are as follows.

- *Conditions for Compulsory Deposit:* It needs to be collected at a uniform rate subject to unanimous agreement by the clients of the samity (association).
- *Conditions for Voluntary Deposit:* The microcredit organization may collect voluntary deposit subject to the following terms and conditions:
 - The organization must have a minimum of 5 years experience in conducting microcredit operation.
 - It should run the operation profitably for the last 3 years.
 - Accumulated loan recovery rate must be at least 95 per cent and current loan recovery rate must be at least 90 per cent during the past 5 years.
 - It must maintain 15 per cent liquidity fund where minimum 5 per cent will be in cash.
 - The total voluntary deposit will not be more than 25 per cent of the total capital.
- *Conditions for Term Deposit:* The microcredit organization may collect term deposit from the clients subject to the following terms and conditions:
 - The organization must have a minimum of 10 years experience in microcredit operation.
 - It should have documentary evidence of running the operation profitably for the last 5 years.
 - Collection of loans during the past 10 years must be at least 95 per cent for accumulated loans and 90 per cent for current loans.
 - It must maintain 15 per cent liquidity fund where minimum 5 per cent will be in cash.
 - The total term deposit will not be more than 25 per cent of the total capital.

Other Important Rules

- The microcredit organization may offer loans to the members of the Samity, either individually or collectively as a group.
- The size of micro enterprise loans will not be greater than half

the size of the total loan portfolio at any given time and may be realized in weekly, fortnightly or monthly instalments.

- Discriminatory service charges cannot be applied to different clients of the microcredit organization belonging to the same type and obtaining loans for similar purposes.
- The funds of microcredit organization will not be usable for any purpose other than its operational activities specified under the rules and regulations.
- The microcredit organization will not fund long term assets with short term liabilities.
- At least 70 per cent of the clients must be borrowers.
- The microcredit organization will publish the procedures of its financial management of Bad Debt Reserves, Loan Classification, Loan Write-off etc. in accordance with the Rules.
- In case of closure of a microcredit organization, depositors will get highest priority in settlement of claims.

Rules for Service Charge on Loans

- As per directive no. 5 of 2010, maximum chargeable amount from client against loan processing is BDT 15.
- Minimum grace period between date of loan disbursement and repayment of the first instalment is 15 days.
- The minimum number of instalments for an average loan would be 50.
- At the time of disbursement of the loan, no upfront deductions can be made from the loan amount against compulsory savings, insurance or under any other name.
- A minimum interest of 6.00 per cent per annum needs to be paid on the weekly amount collected for mandatory savings.
- Interest should be calculated on a Declining Balance Method.
- Initially the maximum interest rate to be charged from the clients has been set at 27 per cent per annum. However, MFIs need to be gradually bringing the rate down with operational efficiency.
- MRA will categorize the MFIs.

Rules for Determination of Interest Rate on Deposit

- The Microcredit Organization will set the interest rate on deposit by the Clients consistent with the maximum annual Service Charge applicable to microcredit.
- Every Microcredit Organization must declare the applicable rate of interest on deposits in advance and must not pay interest at a lesser rate under any circumstances.
- Monthly interest will be calculated on average balance determined on the basis of balances of the deposit at the beginning and end of every month.

Rules for Depositors' Safety Fund (DSF)

In 2013, the microcredit regulator has finalized a rule titled Depositors' Safety Fund (DSF) Rule under section 19 of MRA Act 2006 to set up and manage a fund, which will protect and secure the deposits mobilised by MFIs from its clients including the poor member. Main features of this rule are as follows.

- A fund worth BDT 300 million will be raised within the next 6 years
- Share of government in the fund will be BDT 50 million while the rest will be collected as premium paid by the licensed MFIs
- Risk-based premium policy will be adopted by classifying the MFIs into 4 risk categories such as A, B, C and D while A category belongs to the least risky organization followed by other categories. Premium against deposit amount will be charged at 0.06%, 0.10%, 0.20% and 0.30% respectively.
- Trustees of a trustee board will operate this fund.
- Under the fund, a depositor is likely to get up to BDT 3,500 in coverage, if an MFI goes out of business. The amount of coverage will provide security to 80 per cent of depositors in the microfinance sector.

Appendix-2

A. All Circulars/Circular Letters issued by Microcredit Regulatory Authority

MRA Circular No. 01/2009: Temporary suspension of recovery of agricultural and microcredit in the Unions severely affected by cyclone Aila.

MRA Circular No. 02/2009: Temporary suspension of recovery of agricultural and microcredit from the adversely affected families in the Unions which were severely affected by cyclone Aila.

MRA Circular No. 03/2010: Meeting minimum criteria within the time limit for obtaining license.

MRA Circular No. 04/2010: Displaying of licensed copy including license number issued by MRA.

MRA Circular Letter No. 05/ 2010: Guidelines on Interest Rate/ Service Charge of Microcredit and other relevant issues.

MRA Circular No. 06/2010: Actions to be taken by microcredit institutions for women empowerment.

MRA Circular Letter No. 07/2011: Guidelines for fixation of weekly instalment for general microcredit.

MRA Circular Letter No. 08/2011: Re-fixation of grace period and no. of instalments for repayment of microcredit.

MRA Letter No. 09/2011: Instructions that need to be followed by Microcredit Institutions as a compliance of Money Laundering Prevention Act, 2009.

MRA Circular Letter No. 12/2012: Appointment of external auditors for microcredit institutions.

MRA Circular Letter No. 13/2012: Carrying out of any program other than microcredit.

MRA Circular Letter No. 14/2012: Loan Classification and maintenance of loan loss provision

MRA Circular Letter No. 15/2012: Directives to follow Money Laundering Prevention Act, 2009.

B. Bangladesh Bank's Circular on Loan Classification and Provisioning Policy for Agricultural and Microcredit
(BRPD Circular No. 14/2012)

Classification Status for Agricultural Credit and Microcredit in Banking Sector	Overdue Period	Rate of Provision Against Base for Provision
Unclassified	-	5%
Sub-standard	12 months	5%
Doubtful	36 months	5%
Bad Loan	60 months	100%

Socio-Economic Development and Impact on Livelihood of the Beneficiary and Learnings from the Management of RDRS Social Forestry Programmes

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Abstract The study is carried out to assess the impact of Social Forestry Programme of RDRS Bangladesh (Rangpur-Dinajpur Rural Service) in the socio-economic development of its beneficiaries and improvement of knowledge on tree plantation and its management. Information was gathered through pre-tested questionnaire and group discussion with the beneficiaries of Nilphamari district, a major SFP unit of RDRS. The beneficiaries of this programme were women. Before participation in the programme, most of the beneficiaries were ignorant about SFP, selection of tree species, management practices and other benefits. Participation in the SFP along with training received from RDRS, and working directly in the field, majority of them acquired knowledge and experiences about those activities. The main benefit accrued from SFP was the improved economic solvency of the beneficiaries. Most of the respondent beneficiaries reported that they had deployed their income for purchasing land and domestic animals. Some of them took lease of

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land, some built new houses or repaired the old one and some others had spent money for marriage of their daughters. The cash income provided them a new identity in their family and social life. Some problems were encountered during implementation of SFP, are discussed to make the SFP a more sustainable, productive and remunerative one.

Keywords Social forestry, Socioeconomic Development, Management, Learning, Livelihood

1. Introduction

Traditionally, forest is an integral part of our natural heritage and plays a vital role in meeting our diversified needs, socio-economic development and environmental improvement. Bangladesh was never very rich in forest resources and even the north-western part of the country is devoid of natural forests. The ever-increasing population and poverty have already caused significant depletion of this limited natural resource forest, which is likely to be more severe in the future. Information revealed that much of the state owned forestland does not have satisfactory tree cover and part of the forestland has been encroached (Forest Department, 2004). The government and related agencies are well aware of this issue and have recognized that past forest policies have placed strong emphasis on centralized decision making, ownership, control of forest resources, but the non-chalant attitude and absence of local people in forest management have failed to achieve the target. Realizing the necessity of conservation of natural forests, the government has changed the state managed forest policy towards people's participatory approach, which is called social forestry or participatory forestry. The Betagi-Pomora Community Forestry Project was the first social forestry Programme ever implemented in Bangladesh (Ahmed and Azad, 1987). Participatory forestry started in Bangladesh in 1981 and was implemented in the north and northwestern part of Bangladesh covering 23 districts. Subsequently two more participatory forestry projects were implemented. After that government implemented a follow up project known as Extended Social Forestry Project for two years. Different approaches were followed in the participatory forestry of social forestry programme for the last three decades. This concept was adopted through New National Forest Policy in 1994. In the mean time, government implemented several large scale tree plantation programmes through the Department of Forest to increase the tree resources (Anonymous, 2006). Along with, different non-government organizations have made significant progress in this regard through social forestry programme. Among the different NGO's, RDRS

Bangladesh– the leading NGO launched a programme for “greening the north” through roadside tree plantation in the greater Rangpur and Dinajpur districts in 1995 (Rahman, 1996). The main goal of RDRS social forestry programme was to develop group consciousness to increase the natural resources, improve the skill of the participants and change the livelihood and lifestyle of the rural poor living in the north-western region of the country through its manifold benefits. In the mean time, large areas of marginal land especially road sides and slopes of roads have also been brought under Social Forestry Programme. RDRS has been claiming that this programme has created a great impact on the knowledge and skill development of the participating as well as socio-economic development from ecological benefits.

2. Objective and Methodology

2.1 Objective

In view of aforementioned, there is a need to investigate the extent of impact of the SFP approach regarding its goal and objective that would provide information about its actual benefits and lesson learned from it for future improvement. With these aims, a study was undertaken to assess the socio-economic changes in the livelihoods of the beneficiaries as well as to document the experiences gathered and lesson learned by the beneficiaries and RDRS personnel.

2.2 Methodology

The study was conducted at the strip plantation areas of RDRS. The principal method used for this was field survey and group discussion. The study area and sampling procedures are described below:

Nilphamari is one of the seven major comprehensive project units (CPUs) of RDRS. It is situated at a distance of 65 kilometer to the North-west of Rangpur town and 395 kilometer from Dhaka. It has a total area of 1581 square kilometer and population of 15,71,690 (Statistical Year Book of Bangladesh, 2006). This district has been selected purposively as the study site, because of tree plantations of many areas in this district has already been harvested and the beneficiaries received benefits from SFP. Nilphamari district consists of six Upazillas, among them, four Upazillas had RDRS Social Forestry Programme. Among four Upazilas, two Upazilas i.e., Domar and Jaldhaka were selected randomly. There were 10 Federations in Domar Upazila and 12 Federations in Jaldhaka Upazila, those have SFP. Among these Federations, four Federations from each Upazilla

have major areas completed the first rotation of plantation and received financial benefits as per agreement. These eight federations of two Upazilas completed 48 kilometer felling where 96 caretakers were involved. Out of 96 caretakers, sixty three per cent of them i.e., 60 caretakers were selected as sample respondents. These 60 caretakers were used as unit of analysis.

Primary data were collected from the selected 60 beneficiaries through pre-tested questionnaires as well as focal group discussion. Secondary information and relevant official information such as growth and yield of tree species etc. were collected from the RDRS concerned offices. Then the data were compiled, tabulated and analyzed in line with the objectives.

3. Results and Discussion

3.1 Characteristics of Beneficiaries: Socio-economic Characteristics of the Respondents

The age of the respondents ranged from 32 to 60 years, having a mean of 43 and Standard Deviation (SD) of 6.80 years. Interestingly, cent per cent respondents were female. The education level of the respondents was poor where 73 per cent respondents were illiterate and about one-fourth (27%) could only read and write, while none of them had any formal schooling. The average family size of the respondents was 4.5 where the highest number of the respondents (53%) had small size family (<5 persons per family) closely followed by medium size family (47 % having family size of 5-8 persons), while none was under large size family (>8 persons per family). Farm size of the respondents was dominated by marginal group (67%) followed by landless group (23%), while, small farm size group was very minor (10%). The occupation of respondents was mostly house manager (93%) and few respondents (7%) had other occupations such as service (nurse), day labor etc. The annual income level of beneficiaries before getting involvement in Social Forest Programme (SFP) of RDRS stated that majority of the respondents (63%) fell in the low income level (BDT <10,000) followed by medium income level (37% having income of BDT 10,000 – 50,000) but none of them was found in high income level (BDT >50,000).

3.2 Main Activity of RDRS in the Roadside SFP

RDRS facilitated the federation (which is the base working unit of RDRS) of respective locality to take lease of the roads from the local government for strip plantation and made agreement among the parties. The benefits sharing arrangement among the parties were 65,

10 and 25 per cent for the Federation, RDRS and local land owner agency, respectively. RDRS also helped the Federation to select the beneficiaries (known as caretakers) to participate in the SFP. Then RDRS arranged four day training on technical aspects of the social forestry and benefits of the programme for all the caretakers. It provided all cash/kind incentives to the caretakers engaged by the federation to implement SFP and supervised the activities. Cash/kind received by each caretaker from RDRS ranged from USD 412 (BDT 28800) to USD 538 (BDT 37700) for the period of three years with an average of USD 13 (BDT 924) per head per month. RDRS had remained in close contact with the beneficiaries for providing technical support throughout the implementing period.

3.3 Technique Adopted to Implement the Roadside SFP

Establishment of Plantation

Saplings were planted following the line planting method in both sides of the road. A total of 1000 saplings were accommodated in one kilometer area of roadside. About 1.0 to 1.5 years old saplings were planted in pit having a size of 0.45 meter × 0.45 meter × 0.45 meter. Most of the respondents (47 per cent) planted saplings in the month of May, whereas, 40 per cent and 13 per cent of the respondents planted saplings in the months of June and July, respectively. Saplings were planted by maintaining a distance of 1.5 meter between saplings. The findings of the study revealed that age of the planted seedlings was higher as compared to the standard recommended age of the seedlings.

Species Planted

RDRS technical expert in consultation with the beneficiaries had selected different tree species. RDRS supplied quality saplings free of cost including the inputs. A total of 10 different tree species including 2 fruit species were selected and planted in the SFP sites. The coverage of Ghora Neem (*Melia azedarach*) (40 per cent) was the highest and then followed by Koroi (*Albizia lebbek*) (15 per cent), Sisso (*Dalbergia sissoo*) (12 per cent), Mango (*Mangifera indica*) (6 per cent), Rain-tree (*Samanea saman*) (5 per cent), Silkoroi (*Albizia lebbek*) (5 per cent), Neem (*Azadirachta indica*) (5 per cent), Mahagoni (*Swetenia mahogany*) (5 per cent), Jackfruit (*Artocarpus heterophyllus*) (4 per cent) and Ipil-ipil (*Leucaena leucocephala*) (3 per cent) (Table 1). The result of the study indicates that Ghora neem (*Melia azedarach*) alone covered 40 per cent of the total species because of its fast growing habit and good demand in the locality.

Table 1. Tree Species Planted and Its Coverage in the Strip SFP of RDRS, Nilphamari

Local Name/English	Species Name	Coverage (%)
Raintree	<i>Samanea saman</i>	5
Korai	<i>Albizia lebbek</i>	15
Silkorai	<i>Albizia procera</i>	5
Ghora Neem	<i>Melia azedarach</i>	40
Neem	<i>Azadirachta indica</i>	5
Sisso	<i>Dalbergia sissoo</i>	12
Ipil-ipil	<i>Leucaena leucocephala</i>	3
Mahogany	<i>Swetenia mahogany</i>	5
Mango	<i>Mangifera indica</i>	6
Jackfruit	<i>Artocarpus heterophyllus</i>	4

Management of Plantation

Bamboo sticks were used to provide support to the saplings immediate after planting. As the saplings were planted in rainy season, irrigation was not needed at the time of planting; however, samplings were irrigated during dry season (February to April) up to three years. Saplings were earthen up at the base in rainy season and this operation was continued up to three years. The respondents used cow dung, Urea and TSP @ 4.5 to 5 kilograms, 25 grams and 25 grams per sapling supplied by RDRS. The cow dung and TSP were used as basal dose and urea was applied as top dressing. Respondents opined that if balance fertilizers were used, both tree and agricultural crop (grown in between the trees) could have been grown much better.

Training and pruning operations were done to give good shape of the trees, remove diseased, broken and excess branches and to get intermediate products from tree plantation. About cent per cent of the respondents did this operation for three times within the period of three years of plantation. During these periods, beneficiaries received maximum and minimum amount of 250 kilograms and 120 kilograms pruned materials, respectively, with an average of 170 kilograms per beneficiary. However, none of the respondent was found to use thinning operation. All the respondents (100 per cent) collected dry leaves, and an average amount of dry leaves collected by each beneficiary was 120 kilograms during the study period which varied from 100 to 155 kilograms per beneficiary. No pesticide was used by the beneficiaries because no severe pest infestation was observed.

Cultivation of Intercrop

Some annual crops were grown during the first three years i.e., during the caretaking period of the plantation. Respondents cultivated different types of agricultural crops as intercrop, among them basela (*Basella rubra*) and bottle gourd (*Lagenaria siceraria*) were the common ones. Others cultivated crops were red amaranth (*Amaranthus gangeticus*), yard long bean (*Vigna sesquipedalis*), pigeon pea (*Cajanus cajan*) etc. Field visits showed the scope of utilizing the under storey niches through shrub or vine type medicinal plants.

Growth Performance of the Species

Growth performance of the planted tree species in terms of girth at breast height (centimeter), plant height (meter), wood from timber (m³) and firewood (m³) were collected from the RDRS Official Record (Table 2). Comparative girth performance of the species at the age 10 years ranged 67 centimeter (Raintree) to 42 centimeter (Neem) with a mean of 56.86 centimeter and SD 11.36 centimeter; plant height varied from 7.32 meter (Ghora Neem) to 5.79 meter (Sissoo) with a mean of 6.58 meter and SD of 0.55 meter; total volume of timber ranged from 0.199 m³ (Ghora Neem) to 0.058 m³ (Sissoo) with an average of 0.061 m³ and SD of 0.055 m³; firewood varied from 0.113 m³ (Rain-tree) to 0.028 m³ (Neem) with an average of 0.061 m³ and SD of 0.028 m³.

Table 2: Growth Performance of the Tree Species Grown at 10 Years of Age in the Strip SFP of RDRS, Nilphamari

Sl. No	Local/English Name	Species Name	Average Growth Performance of the Species			
			Girth at breast height (cm)	Height (m)	Wood (m ³)	Fire Wood (m ³)
1	Raintree	<i>Samanea saman</i>	67	6.40	0.176	0.113
2	Neem	<i>Azadirachta indica</i>	42	6.40	0.071	0.028
3	Sissoo	<i>Dalbergia sissoo</i>	40	5.79	0.058	0.079
4	Ipil-ipil	<i>Leucaena leucocephala</i>	61	6.10	0.142	0.043
5	Korai	<i>Albizia lebbek</i>	65	7.01	0.184	0.057
6	Silkorai	<i>Albizia procera</i>	57	7.01	0.137	0.047
7	Ghora Neem	<i>Melia azedarach</i>	66	7.32	0.199	0.061

Disposal of Final Product

Final products of the tree plantation were sold by open tender through the direct supervision of RDRS with the consent of concerned beneficiaries. Beneficiaries and other owners got their benefits as per agreement i.e., land owner agency 25 per cent, RDRS 10 per cent and Federation 65 per cent. The concerned caretaker got 10 per cent benefit from the federation in addition to monthly wage.

3.4 Impact of SFP on Beneficiary

Asset Development

The respondent beneficiaries earned different kinds of assets using the benefits received from the SFP. About twelve different kinds of assets development were reported by the respondents, among these, the dominant outputs were building new houses; purchase of land, cow and goat; and money spent for marriage ceremony of daughter etc. (Table 3).

Table 3: Asset Development of the Respondents after Participating in the Strip SFP of RDRS, Nilphamari

Nature of Development	Number of Respondent	Per cent of Respondent
Building of New House	6	10.00
Land Purchase + New House Building	4	6.70
House Building + Land Lease	4	6.70
House Building + Investment in Business	2	3.30
House Building + Loan Repay	2	3.30
Land Purchase	2	3.30
Purchase of Goat	8	13.30
land Purchase + Cow Purchase	2	3.30
House Building + Cow Purchase	10	16.70
Land Purchase + Cow Purchase + House Building + Loan Repayment	2	3.30
Land Purchase + Cow Purchase + Daughter's Marriage	10	16.70
Goat Purchase + Daughter's Marriage	8	13.30
Total	60	100.00

Annual Income

Annual income of the respondent beneficiaries during the financial year 1992-1993, at the time when they engaged themselves with SFP ranged from USD 60 (BDT 4200) to USD 415 (BDT 29000), with an average annual income of USD 150 (BDT 10515). After completion of the first rotation (during the financial year 2005-06) annual income of the respondents ranged from USD 127 (BDT 8900) to USD 672 (BDT 47,000), with an average annual income of USD 342 (BDT 23883). The income level before and after participation in SFP indicates that the mean income level of the beneficiaries was increased by 227 per cent. This income improvement is not only the contribution of SFP but also the cumulative effect of all other development activities. It was observed that the number of low income group was reduced from 63 to 7 per cent and medium income group increased from 37 to 93 per cent (Table 4). This achievement indicates the economic improvement of the beneficiary due to their involvement in SFP of RDRS.

Table 4: Change in Annual Income of the Respondents after Participation in the Strip SFP of RDRS, Nilphamari

	Change in Annual Income of the Respondent	
	Before Participating in the SFP (1992-93)	After Participating in the SFP (2005-06)
	Per cent	Per cent
Low Income (<BDT 10,000)	63	7
Medium Income (BDT 10,001-<50,000)	37	93
High Income (>BDT 50,000)	0	0
	100	100

Drinking Water Source

Sources of drinking water for the beneficiaries were reported to improve because the economic solvency of the beneficiaries was improved as compared to the beginning of their participation in SFP. It was shown that before participation in SFP, 53 per cent of the respondents used Earthen Well (Kua), 40 per cent used tube-well and the rest 7 per cent used pond as their source of drinking water, while after getting shares or benefits from SFP, the scenarios were changed where 93 per cent used tube-wells of which 60 per cent had their own

tube-well but none was reported to use pond water thereafter (Table 5).

Table 5. Change in the Use of Drinking Water by the Respondents after Participating in the Strip SFP of RDRS, Nilphamari

Source of Drinking Water	Change in use of Drinking Water by the Respondent	
	Before Participation in SFP	After Participation in SFP
	Per cent	Per cent
Earthen Well (Kua)	53	7
Own Tube-well	0	60
Pond	7	0
Neighbours' Tube-well	40	33
Total	100	100

Use of Latrine

Like sources of drinking water, improvement was also found in the use of latrine. Forty per cent of the respondents used unhygienic locally made latrines while the rest 60 per cent did not use any latrine but used surrounding thick bushes or ditches (Table 6). After getting benefits from SFP, the scenario were changed remarkably where 50 per cent of the respondents were found to use semi pucca or metalled ring latrine and the other 50 per cent used kacha or non metalled Latrine (locally made unhygienic) but none was reported to use bushes or ditches.

Table 6. Changes in the Use of Latrines by the Respondents after Participating in the Strip SFP of RDRS, Nilphamari

Type of Latrine	Changes in use of Latrines by the Respondent	
	Before Participation in SFP	After Participation in SFP
	Per cent	Per cent
No Latrine/Bush use	60	0
Kacha (non Metalled Local Made) Latrine	40	50
Semi Pucca (Metalled) Ring Latrine	0	50

Type of Latrine	Changes in use of Latrines by the Respondent	
	Before Participation in SFP	After Participation in SFP
	Per cent	Per cent
Paka (Metalled) Ring Latrine	0	0
Sanitary Latrine	0	0
Total	100	100

Satisfaction of the Respondents about RDRS Activities

Cent per cent of the respondents were highly satisfied with the activities of RDRS. Respondents' satisfaction about their livelihood activities such as their housing, healthcare, clothing, education and food habit is shown in Table 7.

Table 7. Satisfaction Level of the Respondents about Their Livelihood aspects after Participation in the Strip SFP of RDRS, Nilphamari

Satisfaction Level	Satisfaction Level of the Respondent on the Different Livelihood Aspects (%)				
	Housing	Health Care	Clothing	Education	Food Habit
	Very Satisfied	57	23	43	20
Satisfied	0	43	47	27	33
Moderately Satisfied	0	7	7	17	27
Not Satisfied	43	26	3	37	0
Total	100	100	100	100	100

Wood Supply and Processing Center

Almost cent per cent respondents opined that due to social forestry activities, wood supply in the local market had increased remarkably and as a result the number of wood processing mills and other small cottage industries were established in the study area.

Improvement of Knowledge of the Beneficiary

Participation of the caretakers in SFP of RDRS had improved their knowledge in various aspects (Table 8). From Table 8 it can be seen that the scale of knowledge improvement varied widely among the selected parameters. Before participation in SFP, the scales of knowledge of the caretakers regarding general knowledge about SFP;

knowledge about nursery development and seedling production; knowledge about pruning, thinning, rotational period; and knowledge about improvement of environment were almost zero but these parameters had increased to 100, 20, 93 and 67 per cent, respectively after participation in SFP. In case of other parameters i.e., knowledge about type of planting material (species); knowledge about suitable soil for tree species; knowledge about age of planting materials; method of plantation and management, the scales of knowledge of the respondents had increased to some extent i.e., from 37, 7, 13 and 20 per cent before their involvement in SFP to 73, 20, 90 and 91 per cent, respectively, after active participation in SFP. These findings revealed that knowledge of the participating caretakers had improved significantly.

Table 8: Knowledge Improvement of the Beneficiaries on Different Management Issues before and after Participation in the Strip SFP of RDRS, Nilphamari

Knowledge Improvement Parameter	Knowledge Improvement of Caretaker Because of Participation in SFP	
	Before Participation in	After Participation in
	SFP	SFP
Knowledge about SFP	0	100
Knowledge about Type of Plant Species	37	73
Knowledge about Suitable Soil for Tree Species	7	20
Knowledge about Nursery Development and Seedling Production	0	20
knowledge about Age of Planting Materials, Method of Plantation and Management	13	90
knowledge about Pit Size, Fertilization, Irrigation and Aftercare	20	91
Knowledge about Pest Management	0	7
Knowledge about Training, Pruning, Thinning, Rotational Period	0	93
Knowledge about Improvement of Environment	0	67

Problem Faced by the Respondent during Participation in SFP

The respondent beneficiaries had faced several problems during their participation in RDRS SFP. Among several problems, the major were conflict with nearby land owners because shades of trees, fallen leaves and twigs from trees causing harm to their crops and most cases non inclusion of the nearby land owners as beneficiary. Illegal felling of the trees at night, poor support from the local government offices against illegal felling in particular, lack of availability/complexity in getting lease of roads/land for plantation under SFP from local authorities, lack of irrigation water, damage of saplings by cattle, and lack of capital and other logistic support for second rotation of plantation and caretaking.

4. Concluding Remarks

The study has important policy implications. There is the need for timely support from the local law enforcing agency and in particular local government for proper implementation and protection of plantation, arrangement of financial support during starting a rotation from government financial institutions and proper execution of social forestry regulations and the conditions written in national social forestry policy. Further involvement of surrounding land owner as beneficiary for avoiding conflict among them and for protection of plantation, ensuring of availability of irrigation water especially during dry season at early stage of plantation, strengthening of visits by NGO and Forest Department personnel, and arrangement of intensive training programme about different aspect such as scientific management, as well as social, economic and environment values of social forestry programmes are warranted.

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Test of Wagner's Law for the Bangladesh Economy

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Abstract The paper attempts to examine the validity of Wagner's Law for Bangladesh. First the stationarity properties of the data have been checked by the Augmented Dickey Fuller (ADF) test. Then the long-run relationship between the considered variables has been tested by the Engle and Granger co-integration test and finally Granger causality test has been applied to examine the direction of causality between the variables. Our empirical results neither support the Wagner's Law nor the Keynesian view, which states that the fiscal policy variables are major determinants of economic growth.

Keywords Wagner's Law, Co-integration, Causality, Stationarity

1.0 Introduction

The role of public expenditure has widely been discussed in the literature (Peacock and Wiseman, 1961; Gupta, 1967) in the backdrop of attempts of many countries to achieve rapid economic growth through a sharp increase in government expenditure. The classical school, proponent of the free enterprise *laissez faire* economy, saw class divisions between capitalists and workers as the central drama of capitalist economies. In their view capitalist accumulation, driven by competition, comes as engine of growth. Though a few classical economists considered the long run behaviour of public expenditure, they did not consider it as an argument of economic growth in the form of specific theory (Tarschys, 1975). Wagner (1883) was the first economist to have recognized that government expenditure has an important relation to the process of economic development. The Wagnerian approach postulates that there is a unidirectional causality

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from economic growth to public expenditure. That is public expenditure is a behavioural variable and cannot be relied on it as policy instrument. However, Keynesians criticized and rejected the classical (Wagner's) position in explaining the causes and remedies for the great economic debacle like Great Depression of 1930s. The Keynesians held that government expenditure can be considered as an exogenous policy instrument that directly affect the goods market equilibrium by changing aggregate demand as the reduced interest rate promotes investment demand. That is unlike Wagnerian approach causality run from growth in government expenditure to growth in GDP. Since then the relationship between size of the government and economic growth remains contentious issue. The empirical analysis has also been intensified by the recent advances in time series econometrics.

In many developing countries public expenditure as a fraction of national output show that public sector has an inevitable trend of growth in the long-run (Scully, 1989). Bangladesh is one of them, whose relative size of public sector has grown over the last decades. The ratio of public expenditure to gross domestic product has almost doubled from 1973 to 2008. Therefrom the phenomenon of public expenditure has come out as a subject of investigation to see its relationship with growth. This paper attempts to do that in the light of Wagner Law.

The paper is divided into six sections. Following the introduction a brief survey of theoretical and empirical literature is presented in section 2. Section 3 highlights the trends of public expenditure in Bangladesh. Section 4 sets out the objectives and methodological issues. Section 5 presents the framework for the analysis of the time series properties of the data, Finally, section 6 concludes the paper with policy implications.

2.0 Review of the Literature

2.1 Theoretical Explanation

There has been a long debate in the literature on the relationship between government expenditure and economic growth, which dates back to Wagner (1883) who first generalize the secular trend of public expenditure. Wagner postulates that in the process of industrialization as per capita real income increases, the share of public expenditure in total expenditure increases. This happens because of the need of increased administrative and regulatory function of the state, the cultural and welfare services and the participation of the state to large-

scale projects for technological needs. Besides, in the process of industrialization the size of the government grows, as there is an increasing demand for public goods due to the increased urbanization and population density. Further, increased urbanization and population density lead to greater public expenditure on law and order and economic regulation. Because of the substitution of private for public activity, the administrative and protective functions of the state would expand. Thus, as nations become more advanced the number and/or magnitude of market failures would force the state to become more regulatory in nature, thereby expanding its role and this would inevitably involve higher public expenditures.

Besides, as income increases society would demand more education, entertainment, more equitable distribution of wealth and income, and generally more public services. Public services were seen as normal goods, that is, their income elasticity of demand exceeded unity. Wagner cited education and culture as areas in which collective producers were more efficient than private producers. Therefore, public expenditure in these services increase as income increases. In addition to remove monopolistic tendencies in a country and to enhance economic efficiency in that sector where lumpy investment is required such as railways, government should come forward and invest in the particular area which will again increase government spending. Thus according to the Wagner's hypothesis causality runs from national income to public sector expenditure which contrasts the Keynesian view that public expenditure affects the growth of national product.

Wagner's proposition has been supported by many economists. Richard Bird (1971), supports this notion by postulating that the 'law' operates under the following conditions:

- (i) Rising per capita incomes
- (ii) Technological and institutional change of a particular sort, and
- (iii) At least implicitly, democratization (in the sense of wider political participation of the polity).

Bird (1971) concurs with Wagner's 'law' stating that 'the activities of government are an increasing function of the changing structure of the economy.' Whether the state decides to combat or to support private sector activity such as private monopolies, with the growth of this sector, it is plausible to assume that public sector activity will increase. Bird (1971) also mentions that Wagner's hypothesis was

formulated in the context of industrializing economies with rising per capita incomes for which public expenditures have been observed to rise over time in many developing countries. As the economy moves from traditional agricultural to industrial economy, there appears improved technology and the dynamic elements in the economy which lead to increase of government expenditure.

Richard Musgrave (1969), one of the proponents of the Wagner's hypothesis, stated that as the economy grows, attitude of the people towards growth, welfare, communication as well as ideologies change requiring more public services.

2.2 Empiricism with Wagner's Law

Wagner himself did not present his hypothesis in mathematical form. Even Wagner was not explicit in the formulation of his hypothesis. Over the course of time different authors used different mathematical forms for testing this law. There are at least seven versions of the law which have been empirically investigated by using different econometric techniques. The earliest and the simplest version of the law relating to government expenditure and GDP was formulated by Peacock and Wiseman in 1961 by using the following double log (log-log) equation from which the elasticity estimates were derived.

$$LNGE_t = \alpha + \beta LN GDP_t + u_t \quad (1)$$

Pryor (1969) gave similar explanation of this law by using Government Consumption Expenditure (GCE) instead of total Government Expenditure (GE) as a dependent variable.

$$LNGCE_t = \alpha + \beta LN GDP_t + u_t \quad (2)$$

Gupta (1967) argued inherent weakness of the above two models as they did not take into account the effect of increase in population. Considering increased population the following model has been tested.

$$LN\left(\frac{GE}{P}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t \quad (3)$$

Goffman (1968) mentioned that during the development process, the GDP per capita increase should be lower than the rate of public sector activities. He has tested the following version of the model.

$$LNGE_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t \quad (4)$$

All of the above versions of the model specify the Wagner's Law in absolute sense. While Timm (1961) concluded that Wagner might have

relative growth in mind. Therefore, the Wagner's Law should be interpreted in a relative sense as one of predicting an increasing relative share of public expenditure as per capita real income grows (Henrekson, 1993). Hence, Musgrave (1969) tested the law considering the following econometric model.

$$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t \quad (5)$$

Mann (1980) attempt to analyze empirically the existence of Wagner's Law by regressing public expenditure share to GDP is a function of GDP.

$$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LN GDP_t + u_t \quad (6)$$

Murthy (1994) proposed an augmented version of the Wagner's Law by incorporating budget deficit as an additional argument to the regression model relating to government expenditure and gross domestic product. The argument is that as the economy grows the budget deficit ratio would increase since government revenue increases less in proportion to the expenditure. This would be problematic if developing countries were adopting financial and economic liberalization policies (Murthy, 1994). The augmented version of the model is as follows:

$$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta_1 LN\left(\frac{GDP}{P}\right)_t + \beta_2 LN\left(\frac{BD}{GDP}\right)_t + u_t \quad (7)$$

There is no objective criterion to decide which of the seven versions is the most appropriate. Therefore, economists have tested different versions of the law for by applying different econometric techniques.

The causal relationship between government expenditure and gross domestic product becomes a lively and active area of investigation in economics in the advancement of econometric techniques. Sideris (2007), summed up the empirical works on Wagner's Law and divided them in two groups, according to the types of econometric methodology they applied. The early studies which were performed until the mid 1990s assumed stationary data series and apply simple OLS regressions to test alternative versions of the law (Ram, 1987; Courakis et al.1993). They interpreted the estimated coefficients as the elasticity measure. The later studies, which were performed from the mid 1990s and on, test for co-integration between government expenditure and national income (and occasionally population); early studies of this group used the Engle and Granger (1987) methodology, whereas more recent works have applied the

Johansen (1988) technique. Most of the recent studies also have performed Granger causality tests to indicate the direction of causality between the variables (Henrekson, 1993; Murthy, 1994; Ahsan et al., 1996; Biswal et al., 1999; Kolluri et al., 2000; Islam, 2001; Al-Faris, 2002; Burney, 2002; Wahab, 2004). Empirical studies have produced mixed and sometimes contradictory results.

Empirical literature on testing different versions of Wagner's Law is voluminous. Gupta (1967) tested the law for the United States, United Kingdom, Sweden, Canada, and Germany for different periods between the late nineteenth century and 1960. With the exception of two cases, all elasticity estimates were in excess of unity supporting the law. Mann (1980) used first six different formulations to test the law. He employed an ordinary least squares bivariate regression on a data set spanning from 1925 to 1976 for different countries and found strong support for different formulations of the law.

Abizadeh and Gray (1985) used a pooled regression for fifty five countries for the period 1963-1974. The countries were categorised into three groups according to their levels of development. The *Law* had better fit data of the wealthier groups but not for the poorest group. Ram (1987) used data for the period 1959-1980 for 115 countries finding mild support for Wagner's hypothesis. Country specific studies were also abound. Gyles (1991) tested the *Law* for the UK. Pluta (1979) and Kyzaniak (1974) tested the *Law* for Taiwan and Turkey respectively. In addition to these aforementioned, Vatter and Walker (1986) tested the law on US data. Nagarajan and Spears (1990) and Murthy (1990) tested for the existence of the *Law* in Mexico, the results were mixed.

Ansari et al. (1997) applied both the Granger and Holmes and Hutton statistical procedures to test the income-expenditure hypothesis for three African countries- Ghana, Kenya and South Africa- with data from 1957 to 1990. For all these countries, a long-run relationship between government expenditure and national income could not be established.

Clethsos and Kollias (1997) investigated empirically the traditional Wagner's hypothesis in the case of Greece using disaggregated data of public expenditures and employing an error correction approach. The empirical findings suggest that Wagner's Law is valid only in the case of military expenditures. Thornton (1999) analyses the experience of six presently developed economies- Denmark, Germany, Italy, Norway, Sweden and the UK- for the period beginning around the mid 19th century and ending in 1913 and reports results in favor of the law.

Tridimas (2001) emphasizes the role of interest groups to capture the importance of government through the majority rule. Due to its important policy implications, the relationship between government expenditure and economic growth as postulated by Wagner has been one of the most extensively investigated relationships in public economics over the last three decades. Florio and Colautti (2005) analyzed the experience of five economies- USA, UK, France, Germany and Italy for the period 1870-1990. They observed that the increase in the public expenditure to national income ratio was faster for the period until the mid 20th century.

Akitoby et al. (2006) examine the short- and long-term behavior of government spending with respect to output in 51 developing countries using an error-correction model. They found relatively high long-term and short-term elasticity of capital spending in relation to GDP. Sideris (2007) investigated the long-run tendency for government expenditure to grow relative to national income using Greek data from 1833 to 1938. He tested six popular versions of Wagner's law and found causality running from the variables approximating income to the government expenditure variable. Kumar et. al. (2009) examined Wagner's law for New Zealand and found that the impact of income on shares of government spending in output with income elasticity ranging from 0.56 to 0.84. implying that per capita income increases by more than the increase in the share of the government spending in income.

2.3 The Bangladesh Perspective

As to the empirical evidence on Bangladesh, there are a few studies (Wadud, 2002, Kalam and Aziz, 2009; Hossain et.al. 2010) linking government expenditure to per capital GDP, trade openness, financial development etc. but no substantial study considering all versions of the Wagner's law. An early study by Wadud (2002) attempted to examine whether Wagner's hypothesis or Keynesian view was valid for Bangladesh. The study found that a unidirectional causality runs from GDP to government expenditure. Thus Keynesian view is valid for Bangladesh.

Kalam and Aziz (2009) extended Pryor's (1969) absolute versions of Wagner's law by incorporating population size as a third variable. Using Bangladesh data from 1976 to 2007 in a bivariate as well as a trivariate framework the estimated results provide evidence in favor of the law for Bangladesh, in both the short-run and long-run. There is a long-run cointegration relation among real government expenditure, real GDP and the size of population where government expenditure is

positively tied with the real, per capita GDP and population size. Both the real GDP and GDP per capita Granger cause total government expenditure to change. Population size also comes up as a significant stimulus for public spending to grow in both the long-run and short-run. However, the main drawback of the paper is to add population as a separate independent variable of the model rather than converting the model in relative form. A very recent study by Hossain et al. (2010) tried to examine the determinants of government expenditure in Bangladesh rather than considering any specific version of the Wagner's law.

None of the above studies for Bangladesh are complete in terms of data used or methodological point of view. This study attempts to estimate all versions of the Wagner's law for Bangladesh and also consider a long data series from 1973 to 2008.

3.0 Trends in Public Expenditure in Bangladesh

Public expenditure in Bangladesh rose steadily in the period 1973 to 2008. In the 1980s public expenditure increased at an almost constant rate and the year-to-year variability of expenditure was considerably less. However, in the 1990s and 2000s expenditures rose more sharply, and the rate of increase was much higher compared to the previous decade. The volatility of expenditure also increased during this time. This trend continued up to 2001/2002 when expenditure fell a little only for a short time and vigorously picking up in 2003 and continued to grow till 2008. The trend in public expenditure has been depicted in figure 1.

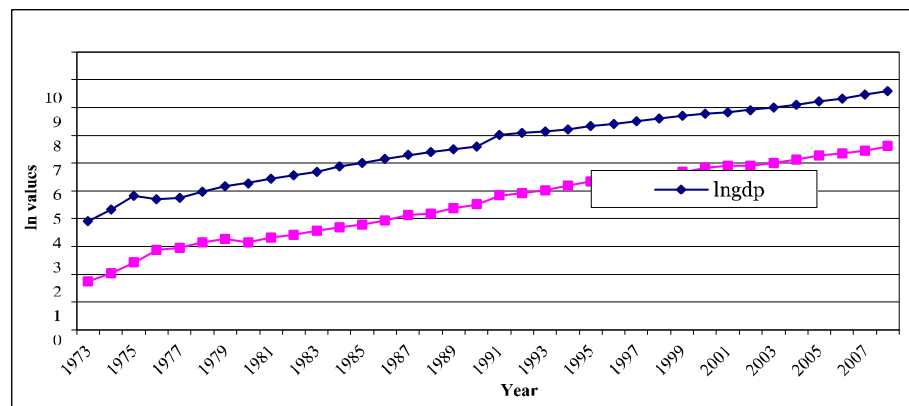


Figure 1: Trends in Public Expenditure in Bangladesh

Figure 1 shows the rising trend of public expenditure since independence. In the initial years of independence from 1973 to 1976 public expenditure increased very sharply. Then from 1977 to 1992 it increased at a slower pace. From 1993 onwards-public expenditure showed a steady increasing pace. From the figure it is also clear that public expenditure has a tendency to change with the change of the GDP implying that these two series are cointegrated with needs to be tested more rigorously.

4.0 Objective and Methodology

The study uses most recent annual data set over the period 1973-2008 to examine the dynamic linkage between government expenditure and income. The analysis is intended to be comprehensive in that it takes into account various modeling issues that arise in causality framework. It will examine the stationary properties of the considered variables in the context of Bangladesh. The paper also applies Augmented Dicky Fuller (ADF) and Phillips-Perron (PP) tests to examine the time series properties of money supply and income. Johansen and Juselius test has been applied to examine the co-integration properties of the variables.

The paper examines both short-term and long-term dynamic relationships between the considered variables within an error-correction framework. The results of the error correction model is considered applying by the Granger Causality test. By and large, this paper is an improvement over the existing literature on the government expenditure and income growth in terms of the data used and techniques employed to first six different versions of Wagner's law. The seventh version of the model has not been analyzed, as it requires tri-variate causality analysis.

5. Data and Their Temporal Properties

5.1 Data

The study is based on the annual data for the period 1973 to 2008 taken from the 6th Five Year Plan documents published by the General Economic Division, Planning Commission of the Government of the People's Republic of Bangladesh. The considered data series are total government expenditure, per capita government expenditure, and government consumption expenditure, gross domestic product at

current price and per capital GDP. A complete description of the variables is presented in appendix. All data are in nominal terms.

5.2 The Analytical Framework

Testing for causality and co-integration between two variables, government expenditure and gross domestic product calls for the following three steps:

5.2.1 Step 1: Testing for the Order of Integration (ADF Test)

In order to establish the order of integration of the variables in the dataset we apply the unit root tests are applied. In this step it is tested whether the considered variables are $I(0)$, that is they are stationary. This is accomplished by applying augmented Dickey-Fuller (ADF) test. This test is based on the following regression equation with a constant and a trend of the form:

$$\Delta Y_t = a_1 + a_2 t + b Y_{t-1} + \sum_{i=1}^m \rho_i \Delta Y_{t-i} + v_t \quad (8)$$

where, $\Delta Y_t = Y_t - Y_{t-1}$ and Y is the variable under consideration, m is the number of lags in the dependent variable chosen by Akaike information criterion and v_t is the white noise error term. The null hypothesis of a unit root implies that the coefficient of Y_{t-1} is zero. If the null hypothesis is rejected, then the series is stationary and no differencing in the series is necessary to induce stationary. The ADF is widely used due to the stability of its critical values as well as its power over different sampling experiment. The result of the ADF test has also been checked by the Phillips-Parron test (not reported). The ADF test is carried out by replacing Y_t for GDP_t and GE_t ,

$GCE_t \left(\frac{GE}{P} \right)_t$, $\left(\frac{GE}{GDP} \right)_t$, and $\left(\frac{GDP}{P} \right)_t$ in equation (3) respectively.

The results of these tests are shown in the following table 1.

Table 1: Augmented Dickey Fuller (ADF) Test to Check for Unit Root

Variables	ADF (Constant Term Included)		ADF (Constant and Trend Terms Included)	
	Level	First Difference	Level	First Difference
LN(GDP _t)	-1.477 (1)	-3.622 (1)**	-2.198 (1)	-3.280 (1)*
LN(GE _t)	-1.587(3)	-6.125(3)*	-2.297(3)	-6.280(3)*
LN(GCE _t)	-1.521 (1)	-4.786 (1)*	-2.218 (1)	-5.518 (3)***
LN(GE/P) _t	-1.513 (2)	-5.319 (2)***	-2.086 (2)	-3.575 (2)**
LN(GE/GDP) _t	-2.427 (2)	-4.617 (2)***	-2.665 (2)	-5.358 (2)***
LN(GDP/P) _t	-1.364(1)	-3.450(1)***	-2.297(1)	-4.718(1)***

Notes: i) Figures within parentheses indicate lag lengths chosen by the Akaike information criterion (AIC); ii) ***, ** and * denote rejection of the null hypothesis of unit root at the 1%, 5% and 10% levels respectively

Results of the unit-root tests are reported in Table-1. The test results indicate the presence of unit root at all the considered variables. That is at the GDP_t , GE_t , GCE_t , $\left(\frac{GE}{P}\right)_t$, $\left(\frac{GE}{GDP}\right)_t$, and $\left(\frac{GDP}{P}\right)_t$ are non-stationary. Therefore to achieve stationarity the variables must be first-differenced. The ADF statistics are significant only for the first-differenced series. This shows that, all the series are integrated of the same order i.e., $I(1)$. Since all of the series are integrated of the same order, the series may be tested for the existence of a long-run relationship between them. Thus, co-integration analysis can be applied to the selected variables in the present analysis as all the series are found to be stationary in first differences.

5.2.2 Step 2: Testing for the Co-integration (Engle and Granger Test)

Most of the economic time series suffers from inertia or sluggishness i.e. they have the tendency to move together. Therefore it is necessary to test for the possible co-integration of the variables as a guide for model specification. In the first step, the following equation is estimated by OLS:

$$Y_t = \beta_0 + \beta_1 X_t + U_t \quad (9)$$

where X and Y are the considered variables.

In the second step, ADF test is applied on the residuals obtained from (9). Table 2 shows the ADF unit root test for the residual series from all the six versions of the Wagner's Law regressions.

Table 2: Co-integrating Regressions and Unit Root Test for Residuals U_t

Co-integrating Equations (Versions of Wagner's Law)	Constant	Coefficient of the Independent Variable (Elasticity)	ADF
$LNGE_t = \alpha + \beta LNGDP_t + u_t$	-1.812	0.911	-2.32 (1)
$LNGCE_t = \alpha + \beta LNGDP_t + u_t$	-3.311	0.971	-3.01(2)
$LN\left(\frac{GE}{P}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	-1.801	0.872	-2.65(2)
$LNGE_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	-0.908	1.122	-3.03(1)
$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	-1.702	0.876	-2.87(1)
$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LNGDP_t + u_t$	-2.541	0.028	-3.16(1)

Notes: i) Figures within parentheses indicate lag lengths chosen by the Akaike information criterion (AIC); ii) ***, ** and * denote rejection of the null hypothesis of unit root at the 1%, 5% and 10% levels respectively.

The test results show that there is no long run relationship between public expenditure and gross domestic product in Bangladesh for all six versions of the Wagner's Law. The elasticity coefficients are approximately one. However, since the variables are not co-integrated in any versions of the law, these results should be considered as spurious. Since the two variables are non-stationary, integrated of order one, the model cannot be estimated in levels. Instead, the variables in the first-difference form should be used for standard Granger (1969) causality test. Now, we investigate the direction of causality between Expenditure and GDP using Granger causality test.

5.2.3. Step 3: Pair wise Granger Causality Test

The fundamental idea of the Granger Causality is that X causes Y if Y can be explained better by the present and lagged values of X than by the past values of Y alone assuming that both X and Y are stationary variables. This test is based on the assumption that the information relevant to the prediction of the respective variables is contained solely in the time series data on these variables. In a two variable system the test is based on the following regression:

$$Y_t = \alpha + \sum_{i=1}^m \beta_i Y_{t-i} + \sum_{i=1}^n \phi_i X_{t-i} + u_t \quad (10)$$

$$X_t = \chi + \sum_{i=1}^m \phi_i X_{t-i} + \sum_{i=1}^n \mu_i Y_{t-i} + v_t \quad (11)$$

where, u_t and v_t are white noise error term and assumed to be stationary, and m and n are the number of lags to be specified. These study applies Akiake information criterion (AIC) to determine the optimal lag length. Equation (1) postulates that current Y is related to past values of itself as well as that of X and equation (2) proposes a similar behavior for X. Given the above specification the following cases can be distinguished:

- i) unidirectional causality from X to Y i.e. X causes Y if $H_0: \phi_i = 0, i = 1, \dots, n$, can be rejected and (ii) does not hold;
- ii) unidirectional causality from Y to X i.e. Y causes X if $H_0: \mu_i = 0, i = 1, \dots, n$, can be rejected and (i) does not hold;
- iii) feedback or bilateral causality is said to occur if both (i) and (ii) hold; and
- iv) independence is suggested if neither (i) nor (ii) hold.

To test the above cases it is needed to estimate the unrestricted and restricted version of equations. For instance, to test whether X causes Y the unrestricted regression involves the estimation of equation (1) using OLS. The unrestricted residual sum of squares (RSS_{ur}) from the estimated regression equation are obtained. Another version of equation (1) that restricts the coefficient of all lagged X's to zero is needed to be performed. To test whether X causes Y the following statistic is needed:

$$F = [(RSS_r - RSS_{ur})/m] / [RSS_{ur} / (n - k)]$$

which follows F distribution with m and $(n - k)$ df. Here m is equal to the number of lagged X terms included in the equation (1) and k is the number of parameters estimated in the unrestricted equation. X is

said to Granger causes Y if the computed F statistics is greater than the tabulated value at numerator and denominator degrees of freedom (df) m and n-k respectively at the conventional level. The similar approach can be applied to test causality from Y to X. The pair-wise Granger causality test results are shown in table 3.

Table 3: Pair Wise Granger Causality Test on Six Versions of Wagner's Law

Versions of Wagner's Law	Null Hypothesis	Lags: 2 F-Statistic	P value
$LNGE_t = \alpha + \beta LNGDP_t + u_t$	LNGE does not Granger Cause LNGDP LNGDP does not Granger Cause LNGE	4.321	0.987
$LNGCE_t = \alpha + \beta LNGDP_t + u_t$	LNGCE does not Granger Cause LNGDP LNGDP does not Granger Cause LNGCE	0.071	0.901
$LN\left(\frac{GE}{P}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	LN(GE/P) does not Granger Cause LN(GDP/P) LN(GDP/P) does not Granger Cause LN(GE/P)	0.272	0.875
$LNGE_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	LNGE does not Granger Cause LN(GDP/P) LN(GDP/P) does not Granger Cause LNGE	1.129	0.675
$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LN\left(\frac{GDP}{P}\right)_t + u_t$	LN(GE/GDP) does not Granger Cause LN(GDP/P) LN(GDP/P) does not Granger Cause LN(GE/GDP)	0.076	0.783
$LN\left(\frac{GE}{GDP}\right)_t = \alpha + \beta LNGDP_t + u_t$	LN(GE/GDP) does not Granger Cause LNGDP LNGDP does not Granger Cause LN(GE/GDP)	0.028	0.569

Notes: i) The lag lengths chosen by the Akaike information criterion (AIC); ii) ***, ** and * denote rejection of the null hypothesis of no causality at the 1%, 5% and 10% levels respectively.

The results given in Table 2 and 3 indicate that there is no long-run relationship between public expenditure and gross domestic product and there exists no causality in any direction between GDP and public expenditure. The implication is that neither economic growth leads public expenditure to growth nor public expenditure growth leads economy to growth. Therefore, data based on the period of 1973-2008 do not provide evidence of Wagner's Law for the Bangladesh economy. This result is in line with some the previous studies in Bangladesh.

6.0 Summary and Conclusion

The paper has examine the validity of Wagner's Law for Bangladesh over the period of 1973-2008. Test results show that all the considered variables are non-stationary in levels, but stationary in first differences. Since the variables for each regression model are integrated of order one co-integration test is applied to all versions of the regression models. On the basis of co-integration results of the six versions of Wagner's Law, no co-integration between GDP and public expenditure is found. It means that there is no long-run relationship between public expenditure and GDP for Bangladesh. Further by applying Granger causality tests, it is found that neither growth in income does have any effect on government size nor does public expenditure have any effect on economic growth.

In the upshot, our empirical results neither supports the Wagner's Law which postulates that if economic activity grows there is a tendency for government activities to increase, nor the Keynesian view, which states that the fiscal policy variables are major determinants of economic growth. These empirical results are in line with the studies with similar results in many developing countries.

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Appendix

Description of the Variables

- GE** : Total government expenditure which includes revenue expenditure on defense, Education, health, subsidies, interest on domestic and foreign debt plus capital expenditure that is annual development expenditure on agriculture, education, health and population, power, oil & gas, transport and communication, rural development and institutions.
- GE/P** : Per Capital Government Expenditure.
- GCE** : Government Consumption Expenditure.
- GDP** : Gross Domestic Product at Current Price.
- GDP/P** : Per Capita GDP.
- BDef/GDP** : Share of Government Budget Deficit (defined as the difference between government's revenue minus revenue expenditure) to GDP

Empowerment of Urban Women: A Case Study in Old Dhaka

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Abstract In concurrent development paradigm, empowerment of women has been a major development objective to reduce poverty, promote growth and promote good governance. The objective of the study is to identify the factors that influence women's empowerment in Old Dhaka. The study incorporates several qualitative response regression models- LPM, Logit, Probit and Tobit along with marginal effects considering the women's control in household decision making as dependent variable. All four proposed models demonstrate that household decision making of women is positively associated with education of women and household expenditure of family per month. In contrast, the awkward social outlook of this area significantly hinders the empowerment of women. Promoting education could be a handy measure to overcome the plight of women of Old Dhaka. In addition, radical changes in social outlook accompanied with promotion of education can also facilitate the empowerment of this disadvantaged portion of the society. Moreover, international development partners have to incorporate a rigorous method to measure and track changes to be successful in their effort to empower women and to achieve Millennium Development Goals.

Keywords Empowerment, LPM, Logit, Probit, Tobit, Marginal Effects.

1. Introduction

In recent development dialogues, the term 'empowerment' becomes a buzzword. It is also one of the most widely interpreted and a tenuous

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concept, which has eventually emerged as an umbrella concept to justify development intervention and a tool for analysis. Empowerment has been identified as one the major component of poverty reduction and as a primary development assistance goal by the World Bank. They made gender mainstreaming as a priority for achieving goal. Two arguments are regarded as the basis of the promotion of women's empowerment as a development goal: firstly, one of the important aspects of human welfare is social justice, and secondly, women's empowerment could be a tool to achieve other ends.

In a recent World Bank (2001) policy research report, gender equality has been identified as a development objective and as well as a means to reduce poverty, promote growth and promote good governance. Several high-level international conferences in the past decade (such as the Beijing Platform for Action, the Millennium Declaration, and the CEDAW) have mentioned similar dual rationale to support empowerment of women which has been articulated in their policy statements. 'Empowerment' hence represents a wide range of concepts and to describe a proliferation of outcomes. The term has been used more often to advocate certain types of policies and intervention strategies than to analyze them, as demonstrated by a number of documents from the United Nations (UNDAW 2001; UNICEF 1999), the Association for Women in Development (Everett 1991), the Declaration made at the Microcredit Summit (RESULTS 1997), DFID (2000), and other organizations. Feminist activists' writings often promote empowerment of individuals and organizations of women (Sen and Grown 1988; Jahan 1995; Kumar 1993) but vary in the extent to which they conceptualize or discuss how to identify it.

In general sense, the concept of 'empowerment' is related with power of user. It engages eroding the negative social restrictions, so that the affected people can avail the opportunity to harness the capacity and have the right to act and influence (Rowlands, 1995). According to Rao and Kheller (1995) women's empowerment can be defined as 'the capacity of women to be economically self-sufficient and self-reliant with control over decisions affecting their life options and freedom from violence'. Taking the exiting socio-cultural context of Bangladesh into account, the phrase 'empowerment' implies the notion of change.

Different authors in the social science discipline defined the term 'empowerment' differently. Sen (1994) defines empowerment as 'altering relations of power..., which constrain women's options and autonomy and adversely affect health and well-being'. Batliwala's (1994) definition is in terms of 'how much influence people have over

external actions that matter to their welfare'. Keller and Mbwewe (1991, as cited in Rowlands 1995) describe empowerment as 'a process whereby women become able to organize themselves to increase their own self-reliance, to assert their independent right to make choices and to control resources which will assist in challenging and eliminating their own subordination'. Kabeer (2001) presents a handy definition of empowerment which effectively incorporates the common aspects of these definitions and that has a wide range of application within the context of development assistance is concerned with: 'The expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them'.

Though it is mentioned in the constitution of the People's Republic of Bangladesh that all human beings are equal irrespective of their gender or sex; however, the reality is not the same (Islam, 2000). In Bangladesh, unlike the other countries of South Asia, there has been a sharp growth in women's employment. In particular, an increase of almost one and half times over the last fifteen years (1995-2010), this is consistent with economic growth. Though the labour force participation rate (per cent) for women 15-59 years of age had witnessed a robust growth from 26.1 per cent in 2002 to 36.0 per cent, the rates are still very low (Labour Force Survey, 2010).

Out of 149 million population of Bangladesh, 74.7 million i.e. 49.9 per cent is women (BBS, 2011). In spite of comprising about half of the population, females are more disadvantaged than male's condition. Gender sensitive Human Development Index of Bangladesh 1994 has demonstrated that women lagged behind men in terms of life expectancy, income and labour force participation. Different reports and studies depicted that due to gender disparities women are economically backward and socially disadvantaged in Bangladesh (Hoq et al., 1997). According to Roy (1977) as women comprise nearly half of the population; if they are properly mobilized and organized they can be a great resource in the development process. In this connection, the study aims at exploring the facts behind women's empowerment in Old Dhaka. To highlight the aforesaid issues, the study has two specific objectives:

- a) to find out the factors that can influence the household decision making of women of Old Dhaka; and
- b) to explore at what extent those factors could affect the household decision making of women.

This paper is set out as follows: section 2 provides a review of literatures on women empowerment; section 3 lays down the data

collection and survey area, section 4 points out estimation methods, section 5 referents the result and findings from the field level data and section 6 concludes with a general discussion and provides few policy recommendations in this regard.

2. Literature Review

One of the most noteworthy goals of MDGs is ‘promoting gender equality and women empowerment’. GDI and GEM were introduced by UNDP in 1995 as a supplement of HDI. These two indices deal with gender inequality within the achievement of basic capabilities, economic opportunities and political areas, respectively. Women empowerment is a widely discussed over times. There is plethora of literature regarding this issue around the world, especially in the context of Least Developed Countries (LDC) like Bangladesh.

Parveen and Leonhäuser (2004) conducted a study on women empowerment in three villages of Mymensingh district. A cumulative empowerment index (CEI) was developed on the basis of six empowerment indicators. The results of multiple regression analysis demonstrate that formal and non-formal education, information media exposure and spatial mobility have strong positive impacts on women’s CEI. The study indicates that education, training and exposure have the potentiality to augment women’s empowerment.

A plethora of studies in this field found that “purdah” is responsible for poor educational and employment activities in many countries (Rozario, 1998; Hoodfar, 1991; Papanek, 1982 and Rozario, 1998). On the contrary, Sultana et al. (2009) conducted a study to investigate the impact of the use of “purdah” (veil) on the access to education and employment of rural women. This study opposes the findings of past literatures that “purdah” has a significant negative impact on women’s access to education and employment. Hultberg (2009) conducted a study is to find out how the mobile phone and the Village Pay Phone (VPP) from Grameen Telecom have empowered the women. The result indicates that most women have gained some prestige, a greater self-esteem to meet strangers by overcoming social speculation of ‘purdah’.

There are hundreds of study conducted designating the impact of micro-credit on the empowerment of women in the context of Bangladesh. Kabeer (2001) has conducted a study on women empowerment and micro-credits that comes up with a contrasting dimension of women’s empowerment literature. The study opposes the view of assuming women as a homogenous group. According to

the study, empowerment could be seen as multidimensional process, where it is not easy to distinguish the causes and effects. It implies that one or few indicators of empowerment may not be valid in all cases. In other words, a factor or indicator that empowers women may not empower another. It may take a different path towards the empowerment of women. Hashemiet et al. (1996) shows that women's level of empowerment is positively associated with their participation in credit programmes. Here, woman's empowerment is defined as the function of her physical mobility, economic security, the provision of purchasing by woman on her own, dominance and violence free life within the family, awareness regarding political and legal issues, and partaking in public protests and political campaigning.

Sultana and Kamal (2002) used ODL materials to demonstrate women empowerment in the rural areas by means of enhancing literacy, business skill and social awareness. The rural poor women could have a good base for running and undertaking a business confidently through literacy and business skill training provided by ODL. Begum and Sen (2009) pointed out the interconnections between women's empowerment and maternal health outcomes.

Several research papers have demonstrated the contribution of women in the economy. Hamid (1994) showed that 4,765 BDT (USD 133.14) is the annual contribution of average woman in Bangladesh to the economy through her unpaid work. Moindi (2012) conducted a study to identify the factors influencing the economic empowerment of women in Mvita Constituency in Mombasa County. It found that women are less superior to their male counterparts who are perpetuated by their cultural practices and traditions. In addition, low economic status of women was further obstructed by low levels of education. As a result, even in the basic skills they lack behind which might enable them to improve their living standards. It also urged that lack of economic resources influence the political representation of women.

Using three-dimensional conceptual framework, Kabeer (1999) has constructed the indicators of the empowerment of women. These are: a) the 'resources' as part of the pre-conditions of empowerment; (b) the 'agency' as an aspect of process; and lastly, (c) the 'achievements' as a measure of outcomes.

Family structure, marital advantage, financial autonomy, freedom of movement, etc. are most probable indicators for women empowerment.

The real indicators for measuring the status of women in any society are the level of economic equality and independence.

Domestic decision-making, finance and resource allocation, social and domestic matters, child related issues, access to or control over resources, freedom of movement, etc are most significant indicators in measuring empowerment of women (Malhotra et al., 2002). Swain and Wallentin (2008) concluded that economic factors, managerial control and behavioural changes are the most significant factors in empowering women for Self Help Group Bank linkage program (a microfinance program in India) members.

From the discussion of extensive literature it is quite clear that there are lot of studies on women empowerment in the context of rural areas or microfinance issues in Bangladesh. However, there are no study focusing on women empowerment in the capital i.e. Dhaka, especially the Old Dhaka town. The study aims at gauging empowerment of women in Old Dhaka which is untouched and undiscovered till date. The uniqueness of this model lies in the incorporation of advanced econometric modelling like Linear Probability Model, Logit Model, Probit Model and Tobit Model along with the marginal effects.

3. Data Collection and Survey Area

The survey was done in Old Dhaka covering a large area of it including Shakahribazar, Laxmibazar, Kotwali, Tantibazar, Banglabazar, Sutrapur, Kaltabazar, Rokonpur, Patuatuli, Nazirabazar, Malitola, Dholaikhal, Mitford, Babubazar and Ray Saheb Bazar in November, 2012. The total number of respondents are 345. All of them were women of aged 18 years and above. The method was random sampling.

Table 1: Model for the Women Empowerment Measurement in Old Dhaka

Variable	Description
Dependent Variable	
Empowerment of Women (dumemp)	Dummy of household decision making of women(Yes=1, Otherwise=0)
Independent Variables	
Education of Women (dumedu)	Literate (Literate=1, Otherwise=0)
Access to Resources (dumres)	Access to formal and informal sources of loan or credit (Yes=1, Otherwise=0)
Household's Ownership of House (dumhsown)	Household owns a house (Yes=1, Otherwise=0)

Variable	Description
Coping Capacity (copcap)	Capacity to face difficult situation (Ranging from <i>least suitable strategy</i> to <i>best strategy</i> on a scale of 1 to 4)
Social Outlook (dumscout)	Social dogmas as a hindrance toward women's empowerment (Yes=1, Otherwise=0)
Employment (dumemp)	Employed (Yes=1, Otherwise=0)
Monthly Income of Respondent (income)	Measured in taka per month
Household Expenditure (housexp)	Measured in taka per month
Marital Status (dummarital)	Marital status coded as one for Married Women and zero otherwise
Gender Awareness of Women (dumgenawr)	Awareness of women about their rights (Yes=1, Otherwise=0)

A total of eleven variables have been used in the proposed models. The following table provides a description of the variables.

4. Estimation Method

This paper has strived to explore the factors that influence household decision making of women that are derived from foregoing literature. Four models based on logistic regression have been proposed to estimate the coefficient and the marginal effects of women empowerment model: (1) Linear Probability Model (LPM) (2) Logit Model (3) Probit Model (4) Tobit Model. The justification of using these models is that they can be applied when the dependent variable is categorical. To be specific, the probability of belonging category can be more accurately described by logistic regression models than the conventional OLS regression models. This is because logistic estimates are strongly related to dependent binary variables than OLS estimates (Pohlman and Leitner, 2003). Therefore, logistic regression is more justified as the study is aimed at estimating probability of outcome events.

Linear Probability Model Estimation (LPM)

If y_i is a binary variable and we have:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_3 x_{i3} + \dots + \beta_k x_{ik}$$

$$\text{Then, } E(y_i | x_i) = \Pr(y_i=1 | x_i) = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_3 x_{i3} + \dots + \beta_k x_{ik}$$

The coefficients of the LPM can be interpreted as the change in the probability that the y variable is equal to one, caused by a one-unit increase in the x_j variable (all else constant).

One of the major shortcoming with the probability model is unless the range of x is restricted, $x\beta$ can exceed 1 and give us probability higher than 1.

Logistic Estimation

For a logit estimation, we have

$$P(y = 1|x) = \frac{e^{\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \dots + \beta_k x_{ki}}}{1 + e^{\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \dots + \beta_k x_{ki}}}$$

The change in probability can be shown as:

$$\frac{\partial \Pr(y_i = 1)}{\partial x_i} = \beta_j [\Pr(y_i = 1)] \cdot [1 - \Pr(y_i = 1)]$$

Probit Estimation

If $Y_i=1$ if a woman who can participate in household decision making and $Y_i=0$ if a woman is not. Here we assume with Probit estimation is a threshold level of index called I^* below which a women will not participate in household decision making and will participate in household decision making if I_i is above it.

Mathematically:

$$P_i = P(Y = 1|X) = P(I^*_1 \leq I_i) = (Z_i \leq \beta_1 + \beta_2 X_i) = F(\beta_1 + \beta_2 X_i)$$

Where $F(I_i)$ is the standard normal CDF which can be written as:

$$F(I_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{I_i} e^{-z^2/2} dz$$

$$F(I_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{(B_1 + B_2 X_i)} e^{-z^2/2} dz$$

Now utility index I_i can be found like: $I_i = F^{-1}(P_i) = \beta_1 + \beta_2 X_i$

Therefore, the rate of change of probability of making household decision due to change in the explanatory variables will be measured

as $\frac{dF}{dX_i} = F(\beta_1 + \beta_2 X_i) \beta_2$ which shows the marginal probability for a change in variable X_i .

Tobit Estimation

The structural form of Tobit model is: $y_i^* = X_i\beta + \epsilon_i$

where $\epsilon_i \sim (0, \sigma^2)$, y^* is a latent variable that is observed for values greater than τ and otherwise censored. The observed y is defined by the measurement equation mentioned in the following:

$$y_i = \begin{cases} y^* & \text{if } y^* > \tau \\ \tau & \text{if } y^* \leq \tau \end{cases}$$

In the typical Tobit model, it is assumed that $\tau = 0$ i.e. the data are censored at 0. Thus, the following identity appears:

$$y_i = \begin{cases} y^* & \text{if } y^* > \tau \\ 0 & \text{if } y^* \leq \tau \end{cases}$$

The likelihood function for the censored normal distribution can be written as:

$$L = \prod_i^N \left[\frac{1}{\sigma} \left(\frac{y - \mu}{\sigma} \right) \right]^{d_i} \left[1 - \left(\frac{\mu - \tau}{\sigma} \right) \right]^{1-d_i}$$

where τ is the censoring point. In the traditional Tobit model, we set $\tau = 0$ and parameterize μ as $X_i\beta$. This gives likelihood function for the Tobit model as follows:

$$L = \prod_i^N \left[\frac{1}{\sigma} \left(\frac{y - X_i\beta}{\sigma} \right) \right]^{d_i} \left[1 - \left(\frac{\mu - X_i\beta}{\sigma} \right) \right]^{1-d_i}$$

The log-likelihood function for the Tobit model is

$$\ln L = \sum_{i=1}^N \left\{ d_i \left(-\ln \sigma + \ln \left(\frac{\mu - X_i\beta}{\sigma} \right) \right) + (1 - d_i) \ln \left(1 - \left(\frac{X_i\beta}{\sigma} \right) \right) \right\}$$

5. Analysis of Data and Estimation of the Model

5.1. Demographic Profile

A total of sixty five questionnaires were examined. All the respondents are women. 59.4 per cent of women are Muslim while rest 40.6 per cent are Hindu. 14.8 per cent of the respondent are aged below 25 years; 44.9 per cent are aged between 25-35, 36.8 per cent are aged between 35-45 years, while only 3.5 per cent above 45 years of age. Most of the respondents have education up to primary level (47.8 per cent). About 15 percent of the respondents have passed S.S.C at least. On the contrary, 8.7 percent of the women do not have access to formal education and less than 1 per cent of them have access to higher education. A large portion of the respondents are (84.9 per

cent) are married. Rest 15.1 per cent of the respondents per cent is either unmarried or widowed. Moreover, 34.5 per cent of women are employed while rest 65.5 per cent is unemployed. An overview of demographic profile of the respondents is enlisted in the Table 2 mentioned below.

Table 2: Demographic Profile of Respondents

Facts	Frequency	Valid Percentage
Religion		
Islam	205	59.4
Hindu	140	40.6
Others	0	0.0
Total	345	100.0
Age		
Less than 25	51	14.8
25-35	155	44.9
35-45	127	36.8
Above 45	12	3.5
Total	345	100.0
Marital Status		
Married	293	84.9
Unmarried	13	3.8
Widowed/Separate	39	11.3
Total	345	100.0
Education		
Illiterate	30	8.7
Primary Level	165	47.8
Class 8	78	22.6
S.S.C.	52	15.1
H.S.C.	17	4.9
Higher Education	3	0.9
Total	345	100.0
Employment Status		
Employed	119	34.5
Unemployed	226	65.5
Total	345	100.0

Table 3: Descriptive Statistics of Women Empowerment Variables (N=345)

	Mean	Std. Deviation	Minimum	Maximum
dumemp	0.30	0.46	0.00	1.00
dumedu	0.90	0.30	0.00	1.00
dumres	0.43	0.50	0.00	1.00
dumhsown	0.40	0.49	0.00	1.00
copcap	2.51	1.39	1.00	4.00
dumscout	0.45	0.55	0.00	1.00
dumempl	0.32	0.47	0.00	1.00
icnome	5617.39	19691.89	0.00	300000.00
houseexp	25709.56	17970.24	0.00	150000.00
marital	0.86	0.35	0.00	1.00
dumgenawr	0.95	0.22	0.00	1.00

5.2. Estimation of the Model

At first, the Linear Probability Model (LPM) would be estimated.

Linear Probability Model (LPM)

Table 4: LPM Estimation

Dependent Variable: dumemp

Number of obs	345
F (10,334)	3.31
Prob> F	0.0005
R-squared	0.1439
Adj R-squared	0.1005
Root MSE	0.43686

	Coef.	Std. Err.	t	P> t	95% Conf. Interval	
dumedu	0.1696397	0.1144911	1.48	0.410	-0.00561458	0.3954252
dumres	0.0554345	0.0653952	0.85	0.398	-0.07353	0.184399
dumhsown	0.0892511	0.0649587	1.37	0.171	-0.0388526	0.2173548
copcap	-0.0061602	0.019553	-0.32	0.753	-0.0447203	0.0323998
dumscout	-0.117525	0.0552348	-2.13	0.035	-0.2264523	-0.0085977

	Coef.	Std. Err.	t	P> t	95% Conf. Interval	
dumempl	0.040473	0.0731176	0.55	0.581	-0.1037207	0.1846667
icnome	0.00000216	0.00000149	1.45	0.148	-0.000000772	0.00000509
housexp	0.00000443	0.00000161	2.75	0.006	0.00000126	0.00000760
dummarital	0.0873638	0.0940161	0.93	0.354	-0.0980433	0.2727709
dumgenawr	0.0770344	0.0680616	1.13	0.259	-0.0571885	0.2112574
constant	-0.0831016	0.1524247	-0.55	0.586	-0.3836953	0.217492

In this model assuming household decision making of women as dependent variable, the probability of empowerment of women in household decision making increases by 16.96 per cent if women have formal education. The coefficient of dummy of education is significant at five percent level. On the contrary, the coefficient of the dummy of social outlook is negative implying that it reduces the probability of empowerment of women in household decision making by 11.75 per cent which is significant at 5 per cent level of significance. In addition, the results also demonstrate that women empowerment is positively associated with household expenditure per month which signifies that women are more likely to engage in household decision making process where its expenditure is relatively high. The coefficient is significant at 1 per cent level of significance. Other variables are not significant. However, together all the repressor have a significant impact of the empowerment of women as the F statistic is 3.31, whose *p* value is about 0.0005, which is very small.

Logit Estimation

Now the regression model for Logit estimation produce results as it has been reported hereunder.

Table 5: Logit Estimation

Number of obs	345
LR chi ² (10)	33.40
Prob> chi ²	0.0002
Pseudo R ²	0.1309
Log likelihood	-110.86497

	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
dumedu	2.02601	1.1997	1.69	0.091	-3.253585	4.377379
dumres	.2824918	0.3481267	0.81	0.417	-3.99824	0.9648077

	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
dumhsown	0.4397346	0.3416421	1.29	0.198	-0.2298716	1.109341
copcap	-0.0257783	0.1005117	-0.26	0.798	-0.2227776	0.1712209
dumscout	-0.7416803	0.3461154	-2.14	0.032	-1.420054	-0.0633065
dumempl	0.2061797	0.4099885	0.50	0.615	-0.5973829	1.009742
icnome	0.0000117	0.0000132	0.89	0.376	-0.0000142	0.0000377
housexp	0.0000231	0.00000958	2.41	0.016	0.00000434	0.0000419
dummarital	0.4336855	0.5200144	0.83	0.404	-0.5855241	1.452895
dumgenawr	0.3747245	0.3554459	1.05	0.292	-0.3219367	1.071386
constant	-3.993116	1.34943	-2.96	0.003	-6.637949	-1.348283

Table 6: Marginal Effect

	dy/dx	Std. Err.	z	P> z	95% Conf. Interval	
dumedu	0.3636653	0.2129378	1.71	0.088	-0.0536851	0.7810157
dumres	0.0507068	0.0621192	0.82	0.414	-0.0710446	0.1724582
dumhsown	0.0789316	0.0603932	1.31	0.191	-0.0394368	0.1973
copcap	-0.0046272	0.0180297	-0.26	0.797	-0.0399647	0.0307104
dumscout	-0.1331303	0.0598649	-2.22	0.026	-0.2504634	-0.0157972
dumempl	0.0370089	0.0734307	0.50	0.614	-0.1069127	0.1809305
icnome	0.00000211	0.0000023	0.89	0.373	-0.00000252	0.000006.74
housexp	0.00000415	0.00000164	2.53	0.011	0.000000941	0.00000736
dummarital	0.0778458	0.09277	0.84	0.401	-0.10398	0.2596716
dumgenawr	0.0672624	0.0631591	1.06	0.287	-0.0565272	0.1910519

The results of marginal effects demonstrate that the dummy of education is significant at 10 percent significant level, where the dummy of social outlook and household expenditure both are significant at 5 per cent significant level. It is evident from the results that if women have formal education the probability of empowerment of women in household decision making increases by 36.36 per cent. In contrast, the coefficient of the dummy of social outlook is negative implying that it reduces the probability of empowerment of women in household decision making by 13.31 per cent. In addition, if the household expenditure increases by 1000 taka per month the probability of empowerment of women rises by 0.0415 per cent. However, all the regressors have a significant impact on household decision making of women, as the LR statistic is 33.40, whose p value is about 0.0002, which is very small.

Probit Estimation

Using the same set of variables, the proposed model can be checked with the Probit estimation method.

Table 7: Probit Estimation

Number of obs	345
LR chi ² (10)	34.06
Prob > chi ²	0.0002
Pseudo R ²	0.1335
Log likelihood	-110.53162

	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
dumedu	1.018108	.5654688	1.80	0.072	-0.090191	2.126406
dumres	0.1761042	0.2083505	0.85	0.398	-0.2322552	0.5844636
dumhsown	0.2711478	0.2045332	1.33	0.185	-0.1297299	0.6720256
copcap	-0.0182805	0.0634217	-0.29	0.773	-0.1425848	0.1060237
dumscout	-0.4686882	0.2035584	-2.30	0.021	-0.8676553	-0.0697211
dumempl	0.1376554	0.242517	0.57	0.570	-.3376692	0.6129799
icnome	0.00000716	0.00000752	0.95	0.341	-0.00000758	0.0000219
housexp	0.0000139	0.00000558	2.49	0.013	0.00000296	0.0000248
dummarital	0.2853972	0.3120705	0.91	0.360	-0.3262497	0.8970442
dumgenawr	0.2348117	0.2115531	1.11	0.267	-0.1798248	0.6494482
constant	-2.233846	0.6650705	-3.36	0.001	-3.53736	-0.930332

Table 8: Marginal Effect

	dy/dx	Std. Err.	z	P> z	95% Conf. Interval	
dumedu	0.3044903	0.1672341	1.82	0.069	-0.0232825	0.6322631
dumres	0.0526683	0.0620007	0.85	0.396	-0.0688509	0.1741875
dumhsown	0.0810935	0.0603738	1.34	0.179	-0.037237	0.199424
copcap	-0.0054673	0.0189523	-0.29	0.773	-0.0426131	0.0316786
dumscout	-0.1401728	0.0584607	-2.40	0.016	-0.2547538	-0.0255919
dumempl	0.0411693	0.0723324	0.57	0.569	-0.1005995	0.1829381
icnome	0.00000214	0.00000224	0.96	0.338	-0.00000224	0.00000652
housexp	0.00000415	0.00000159	2.61	0.009	0.00000103	0.00000728
dummarital	0.0853551	0.0926843	0.92	0.357	-0.0963027	0.267013
dumgenawr	0.0702263	0.0626646	1.12	0.262	-0.0525941	0.1930466

The results of marginal effects demonstrate that the dummy of education is significant at 10 per cent significant level, where the dummy of social outlook and household expenditure are significant at 5 per cent and 1 per cent significant level, respectively. It is evident from the results that if women have formal education the probability of empowerment of women in household decision making increases by 30.44 per cent. In contrast, the coefficient of the dummy of social outlook is negative implying that it reduces the probability of empowerment of women in household decision making by 14.01 per cent. In addition, if the household expenditure increases by BDT 1000 per month the probability of empowerment of women rises by 0.0415 per cent. However, all the regressor has a significant impact on household decision making of women, as the LR statistic is 34.06, whose p value is about 0.0002, which is very small.

Tobit Estimation

In a similar vein, the proposed model can be checked with the Probit estimation method.

Table 9: Tobit Estimation

Number of obs	345
LR chi ² (10)	32.38
Prob > chi ²	0.0003
Pseudo R ²	0.0907
Log likelihood	-162.25492

	Coef.	Std. Err.	z	P > z	95% Conf. Interval	
dumedu	1.177443	0.5828765	2.02	0.045	0.0280002	2.326885
dumres	0.1926841	0.2059136	0.94	0.351	-0.2133811	0.5987492
dumhsown	.2971708	0.204758	1.45	0.148	-0.1066155	0.7009571
copcap	-.0018006	0.062773	-0.03	0.977	-0.1255901	0.1219889
dumscout	-0.5191473	0.2055376	-2.53	0.012	-0.924471	-0.1138236
dumempl	0.2182793	0.2319097	0.94	0.348	-0.2390508	0.6756093
icnome	0.00000427	0.00000384	1.11	0.268	-3.30e-06	0.0000118
housexp	0.0000118	0.00000459	2.58	0.011	2.79e-06	0.0000209
dummarital	0.2835819	0.3144438	0.90	0.368	-0.3365067	0.9036706
dumgenawr	0.1456207	0.4931664	0.30	0.768	-0.826912	1.118153
constant	-2.349705	0.7902843	-2.97	0.003	-3.908159	-.7912501
sigma	1.10633	0.1182961			0.8730475	1.339612

Table 10: Marginal Effects

	dy/dx	Std. Err.	z	P> z	95% Conf. Interval	
dumedu	0.407443	0.5828765	2.02	0.043	.0350259	2.31986
dumres	.1926841	0.2059136	0.94	0.349	-0.2108991	0.5962672
dumhsown	.2971708	0.204758	1.45	0.147	-.1041474	0.698489
copcap	-.0018006	0.062773	-0.03	0.977	-0.1248335	0.1212322
dumscout	-.1591473	0.2055376	-2.53	0.012	-0.9219935	-0.116301
dumempl	.2182793	0.2319097	0.94	0.347	-.2362554	0.672814
icnome	4.27e-06	0.00000384	1.11	0.266	-0.00000326	0.0000118
housexp	0.0000118	0.00000459	2.58	0.010	0.00000285	0.0000208
dummarital	0.2835819	0.3144438	0.90	0.367	-0.3327166	0.8998804
dumgenawr	0.1456207	0.4931664	0.30	0.768	-0.8209676	1.112209

The results of marginal effects demonstrate that the dummy of education, the dummy of social outlook and household expenditure are significant at 5 per cent significant level. It is evident from the results that if women have formal education the probability of empowerment of women in household decision making increases by 40.74 per cent. In contrast, the coefficient of the dummy of social outlook is negative implying that it reduces the probability of empowerment of women in household decision making by 15.91 per cent. In addition, if the household expenditure increases by BDT 1000 per month the probability of empowerment of women rises by 0.118 per cent. However, all the regressors have a significant impact on household decision making of women, as the LR statistic is 32.38, whose p value is about 0.0003, which is very small.

6. Conclusion

This paper strives to find out the factors influencing the women's empowerment i.e. household decision making in Old Dhaka. The results and finding on the basis of field level data demonstrate that education of women, social outlook toward women's empowerment and household expenditure of family per month significantly affect the decision making of women in the survey area. These findings have been supported by all four models used in the study. Empowerment of women is positively associated with both the education of women and household expenditure. It implies that the educated women are more careful about rights and thus they are much empowered than the uneducated counterparts. In families with comparatively higher

expenditure per month, give the women more space to engage in formal employment and thus contribute positively to their household decision making. On the contrary, social outlook obstructs the women's empowerment.

These results point out some crucial message given the socio-economic context of Old Dhaka. The women of this area could be more powerful in household decision making if they become educated. In addition, the current awkward situation of women of this area could be improved if people of this area become more generous towards women's empowerment. Again education could bring a dramatic change in current backward social outlook of Old Dhaka.

Women's empowerment is crucial issue in current development context. Till date neither academics nor practitioners could able to develop a rigorous method to measure and track changes in levels of empowerment of women. Without incorporating such measures, it will be difficult for the international development community to be successful in their effort to empower women and to achieve Millennium Development Goals.

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Technical Stock Valuation of a Company: Bangladesh Perspective

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Abstract The paper describes the relationship between risk and expected return and determination of risk free rate in valuation of a stock. The stock pricing says that the expected return of a security equals the rate on a risk-free security plus a risk premium. If this expected return does not meet or beat the required return, then the investment should be taken carefully considering the growth potentiality of the stock. Using the ACI stock price and DSE all share price index we can compute the expected return. If the average risk-free rate of 91-day government treasury bill is 7 per cent, the beta (risk measure) of the stock is 1.14 and the average expected market return over the period is 10 per cent, the stock expected return is 10.42 per cent [7 per cent + 1.14 (10 per cent - 7 per cent)]. Here the risk premium is 3.42 per cent. In evaluating the ACI stock we have used the OLS method considering the unit root and other tests of signification. The time path of risk free rate is impacted by trend, seasonality, cycle and irregularities. BB prudently maintains the inflation rate among others through risk free rate using its instruments. Risk free rate has role to calculate the value of a stock and maintaining inflation and GDP growth. This paper analyzes the risk free rate, risk premium and related variables to evaluate the stock in order to maintain financial stability.

Keywords Financial Econometrics, Financial Market, Technical Stock, Risk Free Rate.

*The authors are respectively Deputy General Manager, Deputy General Manager, Deputy Director and Deputy Director of Bangladesh Bank. Views expressed in the paper are authors' own and do not reflect those of Bangladesh Bank.

1. Introduction

Determination of risk free rate of 91-day government treasury bill is crucial, which is basically impacted by inflation trend in the country. Inflation rate is also used as underlying factor in determining interest rate and exchange rate in Bangladesh. The average inflation rate during 1994 to 2014 was 6.64 per cent with a peak of 12.71 per cent in December 1998 and a record low of 0.02 per cent in December 1996. Inflation rose to 10.96 per cent in February 2012 starting from as low as 2 per cent in 2001. Rise and fall in inflation rate do not immediately impact bank deposit and lending interest rate due to stickiness or inelasticity of interest rate. High CRR and SLR in Reserve Money (RM) are also in determining risk free rate in Bangladesh. Prevailing fixed deposit (term deposit) rate of 12.50 per cent for six months tenor is ample to attract local currency and foreign funds in the banking system. Bangladesh observed stable money demand function with limited short term fluctuation and long run convergence. Dhaka Inter-Bank Offered Rate (DIBOR) is calculated for near term and far term settlement accepting rational expectation. Surge in inter-bank call money rate is addressed using Open Market Operation (OMO) of BB. To reduce the currency growth and mobilize the marginal savings risk free instrument, the Directorate of National Savings (DNS) has role to play. In the case of India and Pakistan DNS rates are higher compared to average inflation rate.

2. Objective and Methodology

The objective of this study is to examine the underlying factors of an investment decision in a stock market. Also the study aims at seeing economic factors affecting the stock price valuation and financial stability. Judgmental and econometrics exercise have been pursued using ACI monthly data in analyzing issues related to stock price valuation from multidimensional perspectives for maintaining financial stability. Starting point April, 2010 is considered to calculate the after share market slowed down effect of 2010. Later on July, 2013 new index was launched. These factors insist us to chose this data range.

The paper is organized as follows: Section 3 reviews the literature survey considering elements of stock price evaluation and financial stability. Section 4 analyzes the evaluation of ACI stock price. Determinants of risk free rate and financial stability issues are described in Section 5. Section 6 concludes with suggestions and policy implication.

3. Literature review

Bhatti, (2010) has concluded that the Capital Asset Pricing Model (CAPM) in Pakistan is not supportive in high risk securities, it is only supportive in low risk securities. Because CAPM in most of the years give results of expected return totally different from the actual returns. In this test 60 samples of the different companies were taken and out of 360 only 28 results were supportive and show the accuracy of CAPM. While in the study of Bangladesh the Capital Asset Pricing Model is strongly supportive for Bangladesh stock market (Baten, 2006). Market inefficiency is the major drawbacks for developing countries like Bangladesh where the regulatory system and information transparency is not certainly proficient to get the confidence of the investors and provide the sufficient basis for analyzing the data without anomalies. Evidences found that the stock markets of Bangladesh are weak form inefficient pointed out by Moberk and Keasey (2000). Sometimes it is assumed that to some extent stock markets of Bangladesh are weak form efficient. In this paper it was tried to analyze what are the influence of some micro economic factor such as net asset value per share, dividend percentage and earnings per share on the equity return of bank leasing and insurance companies of Bangladesh? Stock prices have a significant positive effect on long term money demand and its omission can lead to serious misspecification in the money demand function in both short and long term elaborated by Baharumshah et.al (2009). Rahman et.al (2006) in their article has been made an attempt to investigate an empirical study to find that the CAPM is still alive in DSE with the consideration of two more variables. This study also attempts to take into account of whether the Fama-French's CAPM model is applicable in Bangladesh DSE with the consideration of not only the beta factor but also the factors such as book to market value and size (market capitalization and sales), stock return and minimize the gap between theoretical and empirical studies. Girard and Rahman (2007) suggest use of a multifactor CAPM model to investigate whether country investable risk drives cross-sectional expected returns in investable emerging market stocks in addition to established firm-specific risk components such as beta, size, and price-to-book-value ratio. LeRoy and Porter (1981) and Shiller (1981) found that under the assumption of constant discount factor stock prices were too volatile with movement in future dividends. The decomposition of stock price movement is very sensitive to what assumption is made about the presence of permanent changes in either real dividend growth or excess stock return mentioned by Wohar and Mark (2006).

4. Evaluation of ACI Stock Price

Recent developments in financial econometrics suggest the use of nonlinear time series structures to model the attitude of investors toward risk and expected return. For example, Cochrane and Hansen (1992) have remarked that “a major contribution of the autoregressive conditional heteroskedasticity (ARCH) literature is the finding that apparent changes in the volatility of economic time series may be predictable and result from a specific type of nonlinear dependence rather than exogenous structural changes in variables.” Bera, A. K., and Higgins, M. L. (1993) have argued that “it is both logically inconsistent and statistically inefficient to use volatility measures that are based on the assumption of constant volatility over some period when the resulting series moves through time.” In the case of financial data, for example, large and small errors tend to occur in clusters, i.e., large returns are followed by more large returns, and small returns by more small returns. This suggests that returns are serially correlated.

When dealing with nonlinearities, Campbell and MacKinlay (1997) make the distinction between: a. linear Time Series: shocks are assumed to be uncorrelated but not necessarily identically independent distributed (iid), b. nonlinear Time Series: shocks are assumed to be iid, but there is a nonlinear function relating the observed time series $\{X_t\}_{t=0}^{\infty}$ and the underlying shocks, $\{\epsilon_t\}_{t=0}^{\infty}$.

However, considering the essence of ARCH model we have deployed OLS model to determine the fair price of an investment. We have tested the properties of OLS and found that our model is iid, which addressed the clustered errors and nonlinearities mentioned in ARCH model. Calculating the risky asset's rate of return using Capital Asset Pricing Model (CAPM) can then be used to discount the investment's future cash flows to their present value and thus arrive at the investment's fair value. One can then compare the fair price with its market price. If the price estimate is higher than the market's, one can consider the stock may move lower. If the price estimate is lower, it could consider the stock to be overvalued. Using the ACI stock price and DSE all share price index we can compute the expected return. If the average risk-free rate of 91-day government treasury bill is 7 per cent, the beta (risk measure) of the stock is 1.14 and the average expected market return over the period is 10 per cent, the stock expected return is 10.42 per cent [7 per cent + 1.14 (10 per cent - 7 per cent)]. Here the risk premium is 3.42 per cent. The paper describes the relationship between risk and expected return and determination of risk free rate in valuation of a stock. The stock pricing says that the

expected return of a security equals the rate on a risk-free security plus a risk premium. If this expected return does not meet or beat the required return, then the investment should be taken carefully considering the growth potentiality of the stock. The beta of ACI indicates that it is over performed compare to market (DSE). Additional incorporation of variables such as risk free rate, CPI, gold price and petroleum price increased the ACI beta at 1.24 per cent. This reflects that other factor is closely associated with the pricing of ACI. Increase in risk free rate and CPI has negative relation with ACI stock price. The rise in interest rate will increase the bank deposit rather investing money in individual stock, which supports the theory. The movement of ACI and DSE can be seen in chart 1.

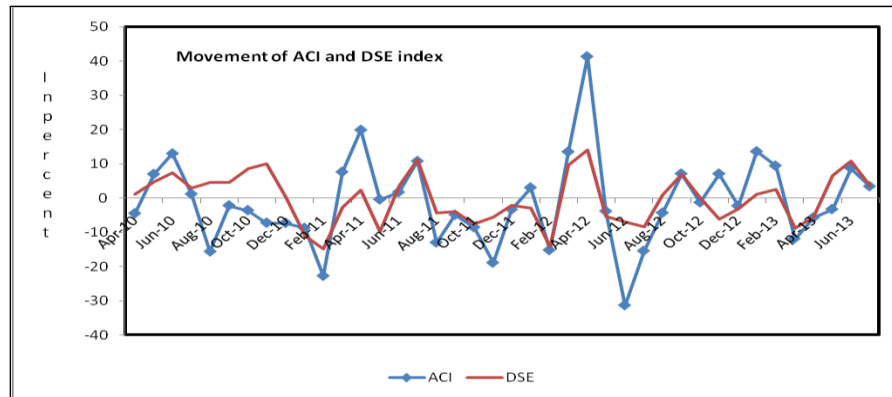


Chart 1: Movement of ACI and DSE Index

5. OLS Regression Model

OLS Regression Model stated below has been used in our analysis:

$$Y = \beta_1 + \beta_2 X_1 + \beta_3 X_2 + \beta_4 X_3 + \beta_5 X_4 + \beta_6 X_5 + U_i$$

Here dependent variable is ACI stock price denoted by Y and the independent variables are - X_1 = DSE all share price index; X_2 = Risk free rate of return; X_3 = Consumer Price index (CPI); X_4 = Gold Price and X_5 = Petroleum Price.

Results of the regression are shown as:

Dependent Variable: ACI

Method: Least Squares

Sample: 2010M04 2013M07

Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.966595	1.570704	-0.615390	0.5420
DSE	1.137708	0.219661	5.179371	0.0000
R-squared	0.413814	Mean dependent var		-1.166465
Adjusted R-squared	0.398388	S.D. dependent var		12.80369
S.E. of regression	9.931003	Akaike info criterion		7.477907
Sum squared resid	3747.743	Schwarz criterion		7.562351
Log likelihood	-147.5581	Hannan-Quinn criter.		7.508439
F-statistic	26.82588	Durbin-Watson stat		1.311209
Prob(F-statistic)	0.000008			

Dependent Variable: ACI

Method: Least Squares

Sample: 2010M04 2013M07

Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.010902	2.124196	0.946665	0.3505
DSE	1.244717	0.225810	5.512226	0.0000
TBILL	-0.231788	0.230091	-1.007376	0.3209
CPI	-3.342698	1.925086	-1.736389	0.0915
GOLD	-0.108116	43.56681	-0.002482	0.9980
PETROLEUM	18.50999	28.00575	0.660935	0.5131
R-squared	0.489164	Mean dependent var		-1.166465
Adjusted R-squared	0.414041	S.D. dependent var		12.80369
S.E. of regression	9.800962	Akaike info criterion		7.540319
Sum squared resid	3266.001	Schwarz criterion		7.793651
Log likelihood	-144.8064	Hannan-Quinn criter.		7.631916
F-statistic	6.511506	Durbin-Watson stat		1.568975
Prob(F-statistic)	0.000240			

The plots of ACI and DSE exhibits normal distribution pattern. As a result, we find there is no unit root in the ACI and DSE data, which support to conduct of OLS method.

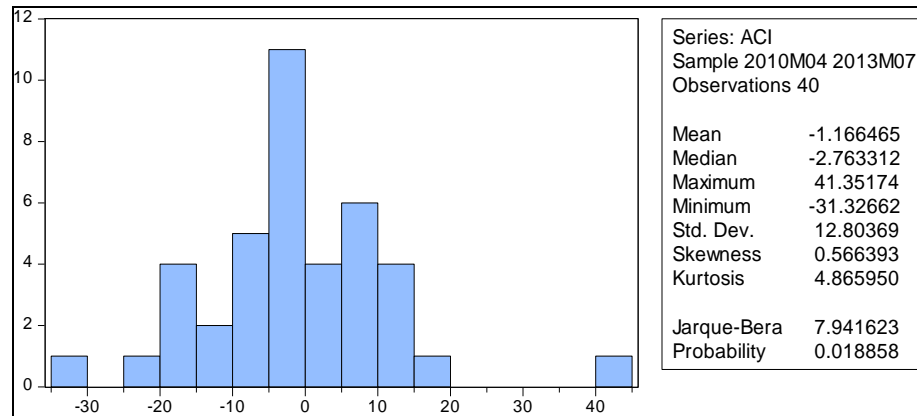


Chart 2: Plot of ACI

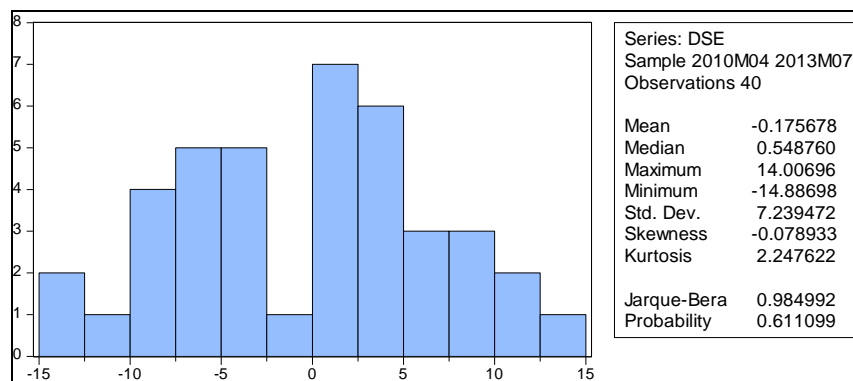


Chart 3: Plot of DSE

6. Determinants of Risk Free Rate and Financial Stability Issues

Trends of call money rate, overall liquidity of the market and government finance need are the underlying factors of determination of risk free rate in Bangladesh. Theoretically rise in call money appreciate the Taka comparing foreign currency. Export, import and remittances are impacted by exchange rate. BB prudently maintains this rate bearing in mind the consequences of inflation and output. As a lender of last resort BB supply and mop-up the liquidity allowing market first in balancing liquidity. Considering interest rate, exchange rate, inflation and GDP growth BB use its instrument to attain the financial stability. Due to lack of secondary market banks are using yield curve rates for valuation of government securities in their book according to Sayed (2014). Development of secondary market using

government securities will enhance the liquidity in the market in case of need. The outcome of BB's policy action can be shown in yield curve plot shown next.

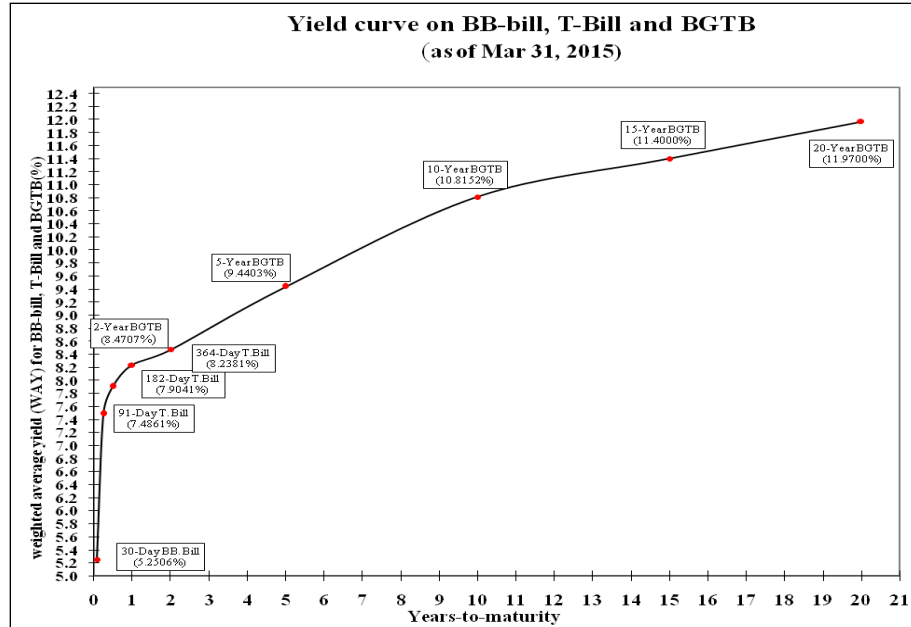


Chart 4: Yield Curve on BB-bill, T-bill and BGTB (as of March 31, 2015)

7. Conclusion

The deposit rate and lending rate of banks are determined using the risk free rate as an underlying factor. The average inflation rate and call money rate are contributed in arriving risk free rate and average market rate. Government savings instrument rates also crucial in this regard. The ACI beta is calculated econometrically bearing in mind the consequences of balance sheet value effect of the listed companies. Expected return and growth potentiality of the company stimulate the stock valuation. Financial innovation through quantitative monetary easing of the BB will effectively monitor the interest rate bringing stability in inflation for stable GDP growth and expected return attaining financial stability in the country.

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Factors Affecting Consumer's Choice of Website for e-Shopping

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Abstract The trend of consumer's shopping through online is becoming popular day by day all over the world. Companies are either shifting their businesses to virtual place from the real world or making an alternative store in online in order to catch online savvy consumers, which make the virtual market place more competitive for the e-marketers than ever. The study attempts to find out the factors related to online shopping environment and determine the influence of those factors on the consumer's intention to choose a particular web store for shopping over others. Descriptive study has been used here to analyze the influence of the factors. Survey was conducted to collect primary data using a structured questionnaire which was filled in by respondents from selected samples through websites. Various published materials like journals, newspaper and websites has been used for gathering secondary data. The study found that among the factors related to shopping environment, easy and error free ordering system, low price, more payment options, secure transaction, protected privacy, on-time product delivery and delivery of the actual product are the most important factors in selecting a web company for shopping. Moreover, all the factors analyzed are found to significantly explain the consumer's intention to choose from a particular web store over others. The study suggests some recommendations for the e-marketers to improve their shopping environment in order to attract and retain online consumers for shopping.

Keywords E-commerce, Online Shopping, Websites, Social Network, E-marketer.

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1. Introduction

Electronic commerce (e-commerce) is becoming a global phenomenon over the years. Its popularity is increasing every year all over the world. And the reasons can be attributed to several benefits like convenience, easy comparison of products and prices, more customized products and services, broader assortments, less stress and effort, increased coverage and speed etc. According to the Information Economy Report 2015, the number of online shoppers will grow 50% by 2018 from 1.073 billion in 2013 to 1.623 billion.

The report also notes e-commerce progress in developing countries during the past few years because of the improved connectivity, widespread uptake of mobile telephones, social media and rising levels of Internet use.

The report cites Bangladesh and Cambodia as locations where new e-retailers are beginning to sell online. At present, there are about 20 to 25 online shopping sites. The most popular online shopping portals at present are Bikroy.com, OLX, Ekhanei.com and Amar Desh Amar Gram e-shop (Prothom Alo, 2014). Approximately 1.5 to 2 million people is shopping online every year in the country. Although online shopping is increasing 15% to 20% per year, it is only one to two per cent of the total internet users in Bangladesh, (Daily Star, 2015).

While the share of web users who buy online is relatively low in developing regions, the use of social networks is high. For example, about 80% of Internet users in Mexico use social networks (Information Economy Report, 2015). Google Trends gives an idea of what sort of web portals Bangladeshis like to use the most. In the sites searched through Google, the shopping sites come up fourth after SSC exam result, HSC exam result and Facebook (Daily Star, 2015).

Moreover, it has been found from the previous researches that “purchase abandonment” has become a common phenomenon now-a-days, which means that consumer’s search in online often doesn’t convert into the actual purchase (Kim, lee & Kim, 2004). Kearney (2001) found out that around 82% of experienced internet shoppers left the online retailers’ website in the middle of shopping process due to the problems they faced as a result of poor interface features of the website. Research indicates that purchase efforts of consumers often fail because they can’t find the right products or they can’t complete the online transactions, or they doubt the credibility of the payment procedure (Adnan, 2014). Because of the increased benefits and ever increasing internet users, competition has been intense among the web companies to attract and retain the online shoppers. Rosen and

Purinton (2004) found out that instead of developing their own virtual spaces, companies often imitate other successful websites in an attempt to increase their online traffic and sales. But the thing is web companies need to understand the most important factors that influence online shoppers to choose their website over others and incorporate those factors in their websites. This paper aims to explore the factors that influence the consumer's decision to select a particular website for shopping over others and enhance consumer's website experience.

2. Literature Review

There are several studies showing factors that affect consumer's intention to purchase from a particular website. A few relevant studies are presented below.

Kim and Kim (2004) examined the effect of certain demographic variables such as gender, age, income, education, and number of children on online purchase intentions and showed that gender, income, and number of children had significant direct effects on online shopping and website preference.

Mithas et al. (2007) have found empirically that relevant, updated and in-depth product information generates loyalty to a specific web store. Ranganathan and Ganapathy (2002) have empirically shown right and detail information on the website generates purchase intention. Price is a variable that has a significant effect on consumer's intention in a complex way. Low price and discounted price give consumers a good reason to shop from a website. Many researches discussed the price as a possible determinant of e-loyalty. For example, Jiang and Rosen-bloom (2005) examined the role of price on customer retention and found a positive direct association between favorable price perceptions and customer intention to return. Product elements affecting the web experience are the online brands and broader product assortment, product features and product presentation (Constantinides 2004).

More payment options and error free & easy ordering system have been described by constantinides (2004) as usability factors. Nah and Davis (2002) define Web usability as "the ability to find one's way around the Web, to locate desired information, to know what to do next and, very importantly, to do so with minimal effort. Various payment options give consumers many alternatives for payment and thus make the purchase convenience. Easy and error free ordering system develops the positive attitude toward the website. Customized service has been identified by the researcher as the interactivity factor,

which increase the consumer's satisfaction and ensure the repurchase. According to Miyazaki and Fernandez (2001), gathering, sharing personal information by placing cookies on the computer and contacting the consumer without his consent, reduces privacy. As a result consumer's privacy become unprotected and vulnerable. Consumers hesitate to provide information on the internet as they fear their private information may be misused and compromised by some unauthorized person. Jarvenpaa and Tractinsky (1999) argued that a consumer may agree to buy from a particular web store if it is perceived to be of low risk even if he does not have a highly positive perception for the store. Krishnamurthy (200) pointed out that the web store should also be approved by third party assurance to improve the transaction security. Ranganathan and Ganapathy (2002) emphasize the use of SSL protocol.

Constantinides (2004) describes warranties and return policies as psychological factors that have a significant influence on consumer's intention. Guarantees gain reliability and trust for the web store by removing uncertainty and hesitation of consumers. Proper return policies and procedures make the consumers more willing to shop by removing the fear of consumer's of not liking the product in real world. On-time delivery is an important order fulfillment factor, which influence consumer attitude and intentions significantly. The importance of the other factors related to online shopping sites has changed around 2004 since certain differences are found (Ruby and Miao, 2010). The authors also suggest that online shopping firms should bring order fulfillment factors to strategic level. Delivery of the actual product- Jarvenpaa and Tractinsky (1999) argued that there is no assurance that the consumer will get exactly what he sees or order on the web store. That's the reason consumers often feel uncertainty whether web company will deliver the actual product they have ordered online.

Well organized appearance of the website deals with the aesthetic beauty of the website and the use of graphics, colors, photographs, various font types in a way that will make the site organized and thus attractive. Karvonen (2000) had shown that well organized appearance positively affects trust. Cyr (2008) argued and empirically established that the well organized appearance of the website positively affects trust. Special attention must be paid to website appearance, not only because it indicates the web store quality (Vrechopoulos et al., 2000) but also provides a sense of credibility for the majority of Web users (Fogg et al., 2002).

3. Objectives and Methodology

3.1 Objectives

The broad objective of this study is to identify the online marketing factors that influence consumer's intention to choose a particular website for e-shopping.

The specific objectives are,

- To identify the factors influencing consumer's intention to select a particular website for online shopping.
- To determine the influence of each factor on overall intention.
- To recommend some suggestions for online marketers for building preference and attracting consumers to choose their website for online shopping.

3.2 Methodology

This research is a descriptive one. Both primary data and secondary data were used for this research. Primary data were collected from selected samples using a well-administered structured questionnaire. Secondary data were collected from published journals, articles, books and websites. Previous researches were studied to explore the factors.

Questionnaire used for the primary data collection was divided into two parts. One part was developed on demographic variables like age, gender, internet usage preference of products shopping through online and online shopping expenditure. Another part concentrated on the 12 major factors that affect consumer's preference to select a particular website for shopping. Responses were collected from consumers using seven point likert scales except the demographic information. Targeted population was consumers who shop through online. Sample was selected on the basis of non-probability convenience sampling technique from Dhaka, Bangladesh.

Collected data were analyzed using statistical tool (SPSS). Multiple regression model and cross tabulation under SPSS has been used to assess the relative influence of identified factors affecting consumer's preference for a particular website while shopping online. Preference for a particular website is determined as a dependent variable. Independent variables were in-depth product information, low price, broader assortment, more payment options, error free & easy ordering systems, customized service, well organized appearance, protected privacy, warranties & return policies, on-time product delivery, delivery of the actual product, and protected transaction.

4. Data Analysis & Interpretation

It has been hypothesized, here, that the consumers will select a particular website for shopping if in-depth product information, low price, broader assortment, more payment options, error free & easy ordering systems, customized service, well organized appearance, protected privacy, warranties & return policies, on-time product delivery, delivery of the actual product, and protected transaction facilities are provided by the particular website.

Above mentioned variables has been determined to develop the model. The model was settled on the basis of significance of partial correlation coefficient. Thus the estimated model is

$$Y = -.911 + .069X_{i1} + .108X_{i2} - .005X_{i3} + .166X_{i4} + .440X_{i5} + .106X_{i6} - .138X_{i7} + .172X_{i8} + .043X_{i9} + .178X_{i10} + .117X_{i11} - .093X_{i12} + \mu_i$$

Table 1: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.911	.502		-1.814	.078
In-depth product information	.069	.042	.080	1.629	.112
Low price	.108	.040	.132	2.684	.011
Broader assortment	-.005	.047	-.006	-.101	.920
More payment options	.166	.059	.198	2.817	.008
Error free & easy ordering system	.440	.057	.420	7.659	.000
1 Customized service	.106	.057	.145	1.864	.070
Secure transaction	-.138	.054	-.203	-2.563	.015
Protected privacy	.172	.078	.161	2.204	.034
Warranties & return policies	.043	.038	.053	1.141	.261
On-time product delivery	.178	.060	.177	2.959	.005
Delivery of the actual product	.117	.045	.132	2.585	.014
Well organized appearance	-.093	.048	-.095	-1.943	.060

a. Dependent Variable: Preference for a Particular Website

From the above coefficient table 1, the independent variables-low price, more payment options, error free & easy ordering system,

protected transaction, protected privacy, on-time product delivery and delivery of the actual product have been found to be the significant variables of consumer's preference of a particular website for shopping. The most significant variable, error free and easy ordering system of a website, found in this research, has a significance value of .000 which is less than .005. It means that consumers rely mostly on the error free and easy ordering system feature of a website for choosing that website as a means for online shopping. The significant values of other variables like low price, more payment options, secure transaction, protected privacy, on-time product delivery and delivery of the actual product, which have been found to be significant in this research, are .011, .005, .015, .034, .014 and .008 respectively.

Goodness of Fit

Table 2: Model Summary^a

Model	R	R Square (R^2)	Adjusted R Square	Std. Error of the Estimate
1	.971a	.943	.924	.208

a. Predictors: (Constant), Well organized appearance, More payment options, Secure transaction, Warranties & return policies, Low price, Delivery of the actual product, In-depth product information, Error free & easy ordering system, Broader assortment, On-time product delivery, Protected privacy, Customized service.

R^2 , coefficient of determination, measures the strength of association between dependent and independent variable. It signifies the proportion of the total variation in y that is accounted for by the variation in x (Malhotra, 2007). It is the percentage of the dependent variable that can be explained by the independent variables. In this research, is 0.943 which means that 94% of the dependent variable can be explained by the selected independent variables.

Table 3: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	26.421	12	2.202	50.963	.000 ^b
1 Residual	1.599	37	.043		
Total	28.020	49			

a. Dependent Variable: Preference for a particular website

b. Predictors: (Constant), Well Organized appearances, More payment options, Secure transactions, Warranties & returns policies, Low price, Delivery of the actual product, In-depth product information, Error free & easy ordering system, broader assortment, on-time product delivery, Protected privacy, Customized service.

The statistical significance of the R^2 value is calculated through the value of F statistics. In this research, the value of F statistics is calculated at the 0.05 significance level. The F value has been found to be 50.963, which is highly significant at 0.00 level.

Demographic Profile

This research was conducted on various age groups such as- under 21, 21-29, 30-39 and 40-49. It was found from the analysis that 48% of the respondents were from the age group 21-29 and 36% were from 30-39. Female respondents were 38% and male were 62%. 33% of the age group 21-29 were female and 67% were male. Of the age group 30-39, 39% were female and 61% were male. Among the 50 respondents, 36% were using internet for shopping for the last 6-12 months, 18% for 3-6 months, 16% for 1-2 years, 14% for 2-3 years, 10% for 3-5 years and 6% for less than 3 months. 36.7% of the total respondents said they purchase apparel and accessories, 18.4% electronic goods and gadgets, 18.4% books and magazines, 4.1% cinema tickets, 6.1% financial services, 6.1% daily items and 10.2% others from various websites.

5. Research implications

Before choosing any website for shopping consumers make tradeoff among many factors. These factors all together influence the consumer's preference for website. Though a few factors have found to be significant illustrator of preference, other factors also carry weight and this is theoretically proved. In this study, a wide range of factors have been collected from the study of the previous researches. Therefore all of them have a profound effect on consumer's preference while choosing a particular website for shopping. From this research it is found that, among all the factors easy and error free ordering system is the most significant feature of a website as it has the most significant effect on consumer's website choice. Consumers choose the website that offers the low price, broader assortment and more payment options. Moreover, online shoppers are also concern about the security of their transactions and privacy. Company must have the reputation of delivering the right product at the right time. Furthermore, no delay and malfunctioning product is expected by the consumers. Besides, factors like warranties & return policies, in-depth product information, customized service, well organized appearance are also considered by online shoppers before choosing any website for shopping. Therefore, it is important for the online marketers to

understand that, consumer's choice of a website for conducting shopping is not the result of a single factor, rather a number of factors influence their preference simultaneously. Online marketers need to accommodate all these factors as features in their websites to attract online shoppers and gain their trust. Accommodation of these factors will increase the website's reputation in the virtual world and also the number of transactions.

6. Conclusions

The study has significant implications for the online marketers. The findings of this research will help online marketers better understand the online shopper's behavior and the factors that influence their website preference. This will help, in turn, to develop a website that are expected and preferred by the virtual shoppers resulting in the increasing numbers of online shopping. However, the research has some limitations. Firstly, questionnaire was administered on 50 respondents selected from Dhaka, Bangladesh. Besides, samples were selected using non-probability convenience sampling method, which may not reflect the total target population. Moreover, factors chosen were in a limited scale. Therefore, all these things do not allow the result to be generalized and representative. But this research will definitely provide more clear insights for virtual marketers in terms of understanding what factors are important to online shoppers while selecting a website for transaction and how to design an effective website that will motivate online shoppers to transact through that particular website. Still, further researches should be conducted on a larger sample taking more variables in consideration.

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Appendixes

Table 4: Gender* Age Category Cross Tabulation

		Age Category				Total	
		Under 21	21-29	30-39	40-49		
Gender	Female	Count	4	8	7	0	19
		% of Total	8.0%	16.0%	14.0%	0.0%	38.0%
	Male	Count	3	16	11	1	31
		% of Total	6.0%	32.0%	22.0%	2.0%	62.0%
	Total	Count	7	24	18	1	50
		% of Total	14.0%	48.0%	36.0%	2.0%	100.0%

Table 5: Age Category* Duration of using Internet Shopping Cross Tabulation

		Duration of using Internet Shopping						Total	
		Less than 3 Months	3-6 months	6-12 months	1-2 years	2-3 years	3-5 years		
Age Category	Under 21	Count	1	3	2	1	0	0	7
		% within Age Category	14.3%	42.9%	28.6%	14.3%	0.0%	0.0%	100.0%
	21-29	Count	2	3	10	5	1	3	24
		% within Age Category	8.3%	12.5%	41.7%	20.8%	4.2%	12.5%	100.0%
	30-39	Count	0	3	6	1	6	2	18
		% within Age Category	0.0%	16.7%	33.3%	5.6%	33.3%	11.1%	100.0%
	40-49	Count	0	0	0	1	0	0	1
		% within Age Category	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	Total	Count	3	9	18	8	7	5	50
		% within Age Category	6.0%	18.0%	36.0%	16.0%	14.0%	10.0%	100.0%

Table 6: Age Category* Preference Cross Tabulation

		Preference							Total	
		Apparel and accessories	Electroni goods and gadgets	Books and Magazines	Cinema tickets	Financial services	Use daily use items	Others		
Age Category	Under 21	Count	4	0	0	1	0	1	1	7
	% within Age Category	57.1%	0.0%	0.0%	14.3%	0.0%	14.3%	14.3%	100.0%	
	21-29	Count	7	5	4	0	1	2	4	23
	% within Age Category	30.4%	21.7%	17.4%	0.0%	4.3%	8.7%	17.4%	100.0%	
	30-39	Count	6	4	5	1	2	0	0	18
	% within Age Category	33.3%	22.2%	27.8%	5.6%	11.1%	0.0%	0.0%	100.0%	
	40-49	Count	1	0	0	0	0	0	0	1
	% within Age Category	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
	Total	Count	18	9	9	2	3	3	5	49
	% within Age Category	36.7%	18.4%	18.4%	4.1%	6.1%	6.1%	10.2%	100.0%	

Assessment of Radiation of Mobile Base Stations as well as Its Impact on Human Health and Environment in Dhaka city

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Abstract The telecommunications industry is experiencing a robust growth on a global scale. It is related to wireless technologies which are ubiquitous today. Mobile phone usage has been rapidly spreading globally and to provide proper coverage (signal strength), numbers of mobile base towers are also increasing worldwide generating a public concern as to whether frequent utilization of such devices is unsafe. Effects of Mobile Tower Radiations are seen in many countries as well as Bangladesh, especially densely populated zone like Dhaka city. In this backdrop the study looks into the pattern of radiation & effects of mobile base stations Radiation in Dhaka metropolitan area to address the issue. This study finds serious health hazards due to radiation from cell plans and cell towers.

Keywords Global System for Mobile, Frequency Division Multiple Access, Universal Mobile Telecommunication System, Specific Absorption Rate, Compressed Natural Gas.

1. Introduction

The telecommunications industry is experiencing a robust growth on a global scale. The telecommunications industry is related to Wireless technologies which are ubiquitous today. Worldwide in 2013, there were 6.8 billion mobile phone subscribers which are almost as many people on earth. In Bangladesh we have seen, the use of mobile phone has increased over the past few years with the total number of mobile phone active subscribers reaching 114 million at the end of December 2013 from 26.66 million at the end of May 2007. At the same time there has been a significant increase in the installations of mobile tower base stations, accompanied by public concern for possible

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health impacts associated with exposure to electromagnetic waves spreading from base stations. That number is expected to increase by another 10% to 5.6 billion in 2011, out of a total worldwide population of 6.5 billion. Growth is strong throughout Asia and in South America but especially so in developing countries where landline systems were never fully established. Mobile phones, sometimes known as cellular phones or handsets, form an integral part of modern telecommunications and are fast becoming a social lifestyle. People use mobile phones for the purpose of communication at home, work or anywhere they are but only few are concerned about the their health implications and possible safety measures. The wide use of mobile phones has inevitably raised the question of whether there are any implications for human health. There have been some reports relating to possible adverse health effects and these have understandably led to some concern from the members of the public.

Although most of the people are not aware of overusing mobile phone impacts and cell tower radiations which are very harmful to environment as well as human health due to electromagnetic radiation exposure. Such as eye cataract, cancer, damages body tissue, changes the genetic code etc.

Cell phone towers send high-power outgoing signals that travel hundreds of meters to establish contact with individual cell phones. These signals essentially bathe the body in low levels of sustained radiation. Risks from these whole-body exposures may be very different from risks associated with concentrated, intermittent cell phone radiation that penetrates a small area of the head. (Elliott et al., 2010)

2. Objectives and Methodology

The core objectives of the study are-

- To evaluate the status of mobile base stations radiation.
- To assess the impacts of radiation from cell phone towers to environment and human health.

Both primary and secondary data were collected for the purpose of this study. Primary data were collected by interviewing having cell phone tower on the roof of their buildings. In all 50 people were interviewed from Dhanmondi, Mohammadpur, Maghbazar, Shantinagar and Dhaka University areas of Dhaka city. Areas were selected purposively because of convenience and the respondents were selected randomly. There are about 6000 such cell phone tower in Dhaka city.

For the purpose of the study, data from a sample size of 50 can reasonably explain health and environmental conditions of cell phone users. In addition to this respondent, relevant information were collected from 10 key informants, which comprise specialist of biomedical sciences and executives Bangladesh Telecommunication Regulatory Commission. Secondary data comprising reports and documents from Bangladesh Telecommunication Regulatory Commission, Bangladesh Telecommunications Company Limited, Bangladesh Atomic Energy Commission were collected.

3. Status of Cell Phone Towers

Mobile phones use electromagnetic radiation in the microwave range and digital wireless systems such as data communication networks to produce electromagnetic radiation (Elliott, 2010). Cell phone technology has revolutionized the telecommunication scenario in Bangladesh. Due to its several advantages, cell phone use has grown exponentially in the last decade. Currently, there are more than 12 cores cell phone users and nearly 21,600 cell phone towers to meet the communication demand of Bangladesh. In Dhaka city there are more than 6000 cell phone towers. The distribution of cell phone towers according to cell phone operators is given is Table 1 below:

Table 1: Quantity of Cell Phone Towers

Mobile Operators	Quantity of Cell Phone Towers
Grameenphone	9,500
Banglalink	5,300
Robi	3,056
City cell	1350
Airtel	1700
Teletalk	594

Source: Bangladesh Telecommunication Regulatory Commission, (BTRC), 2014

The number of cell phones and cell towers are increasing without giving due respect to its disadvantages. As a result, people have been debating about associated health risks due to radiation from cell phone and cell tower. Radiation effects are divided into thermal and non-thermal effects.

Thermal effects are similar to that of cooking in the microwave oven. Non-thermal effects are 3 to 4 times more harmful than thermal effects (Kumar et al., 2011).

Mobile tower is a great threat for Bangladeshi people. In Dhaka city, cell towers are mushrooming all over the places. Specially in city area it is a great concern for public health. Due to great demand of mobile phone in Bangladesh various mobile operators have built up their tower & networking systems through antenna all over the country. Grameen Phone, Banglalink, Rabi, City cell, Airtel, Tele Talk, Airtel are the major mobile carriers in Bangladesh. All of these companies have set up their mobile antenna over the roof of houses or institutions without considering the minimum distance from the people's living area. They never followed the international strategy to do it. In developed countries it is established by keeping minimum distance from the residential area. But in Bangladesh especially at Dhaka city no operator cares this important and sensitive point. From the tower electromagnetic waves or radiation is coming out continuously which affects the public health. It can cause cancer, heart diseases, hyper tension, headache and other ailments. Mobile towers should be established at the minimum height from the ground usually starting from 40th floor but in Bangladesh most towers have been established from 4th or fifth floor. Although it is prohibited in residential and educational institutes but most of the cell phone carrier did not respect this common law for building up mobile tower. In 2008, the Bangladesh Telecommunication Regulatory Commission (BTRC) formed a committee to assess the impact of mobile tower radiation on plants, in view of the fact that a governmental organization had found mobile towers hampering coconut and betel nut production in Barisal and Khulna divisions. Field workers found that the sizes of these two species of plants were becoming gradually smaller and showed black spots on the plants near mobile towers. An expert panel of the Global System for Mobile (GSM) communications, a world-renowned telecom research organization, conducted a small study in Dhaka city, 2010. The study indicated that the number of different types of birds have been decreasing in Dhaka city owing to the radiation caused by the growing number of mobile towers.

Dr. Satyaprashad Majumder, professor of telecommunications engineering at Bangladesh University of Engineering and Technology (BUET) finds that radiation emanating from a mobile tower per square meter ranges from 17,100 micro-watts to 72,000 micro-watts. The human body can tolerate radiation up to 1, 00,000 micro-watts, but birds and other flying animals cannot tolerate more than 40,000 micro-watts. He also found that the tolerance level of some people has decreased to 50,000 micro-watts. In Dhaka city, the densely populated zone in Bangladesh, core of people reside within high

radiation zones. If they are directly exposed, they might suffer from skin diseases, as well as cancer.

In Bangladesh, three types of mobile towers are used:

Table 2: Types of Cell Phone Towers

Towers type	Features
Roof top Tower	Pole: 6 to 10 meters long. Mast: Up to 23 meters height.
Green field Tower	It is generally 32 to 75 meters long.
Green field Roof top Tower	Most GFRT towers are 25 or 32 meters long.

Source: Survey

Cell tower antennas transmit in the frequency range of 869 to 890 MHz (CDMA), 935 to 960 MHz (GSM900), 1810 to 1880 MHz (GSM1800) and 2110 to 2170 MHz (3G). Mobile phone operators divide a region in large number of cells, and each cell is divided into number of sectors. Generally, there are three sectors with equal angular coverage of 120 degrees in the horizontal direction. The base stations are connected to directional antennas that are mounted on the roofs of buildings Roof Top Tower (RTT) or on Ground Based Towers. The antennas may have electrical or mechanical down-tilt, so that the signals are directed towards ground level. Large numbers of these towers are mounted near the schools, hospitals, residential and office buildings to provide good mobile phone coverage to the users. These cell towers transmit radiation continuously. So people living within 100's of meters from the tower will receive 10,000 to 10,000,000 time's stronger signal than required for mobile communication (Kumar, 2011)

In accordance with the above mentioned reviewed studies, the present study evaluates the status of cell tower radiation and assess frequency based impacts on environment and human health in study area.

4. Results and Discussion

4.1 Power Density

Power density or volume power density or volume specific power is the amount of power (time rate of energy transfer) per unit volume. In energy transformers like batteries, fuel cells, motors, etc. refers to a volume. It is then also called volume power density which is expressed

as W/m^3 . Volume power density is sometimes an important consideration where space is constrained.

Power density P_d at a distance R is given by $Pd = \frac{PT*GT}{4\pi R^2}$ W/m^2

where, P_t = Transmitter power in Watts

G_t = Gain of transmitting antenna

R = Distance from the antenna in meters

For $p_t=20w$, $G_t=50w$, P_d for various values of R is given in the Table 3.

Table 3: Relation between Power Density and Distance

Distance R(m)	Power density P_d (W/m^2)
1	79.6
3	8.84
5	3.18
10	0.796
50	0.0318
100	0.008
500	0.000318

According to the world health organization, the safety limits of radiation levels at different frequency bands are given in table 4.

Table 4: Safety Limit of Radiation Level for Different Frequency Bands.

Frequency band	Power density
CDMA 450	2.2 W/m^2
GSM 900	4.7 W/m^2
GSM 1800	9.0 W/m^2
UTMS	10.01 W/m^2

Source: World Health Organisation

Bangladesh telecommunication regulatory commission has carried some measurements of radiated power density from all mobile phone tower sites in Dhaka metropolitan city and found the following outputs.

Table 5: Radiated Power Density from Mobile Towers in Dhaka City

Frequency Band	Power Density
CDMA 450	2.5 W/m ²
GSM 900	10.38 W/m ²
GSM 1800	10.35 W/m ²
UTMS	5.5 W/m ²

Source: Bangladesh Telecommunication Regulatory Commission

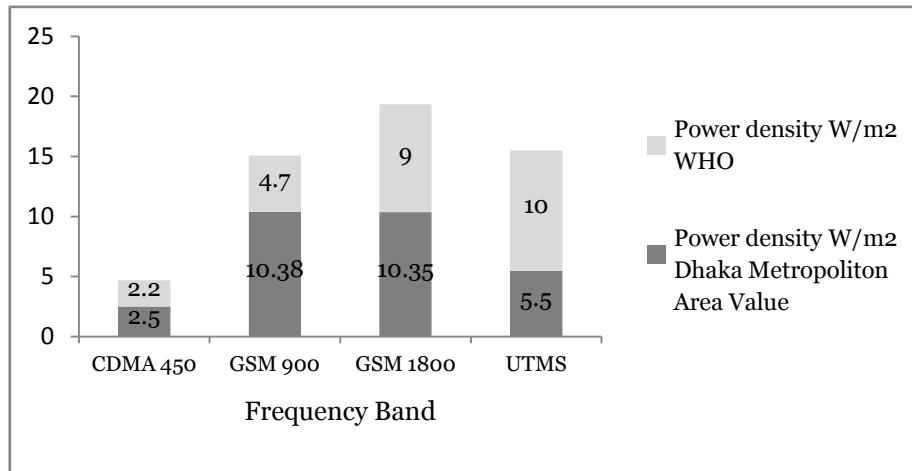


Figure 1: The Comparison of Radiated Power Density between WHO and Dhaka Metropolitan Area.

4.2 Electric field strength

Electric field strength is a quantitative expression of the intensity of an electric field at a particular location. The standard unit is the volt per meter (v/m). Field strength of 1 v/m represents a potential difference of one volt between points separated by one meter. The equation of electric field strength is:

$$E = \frac{F}{q} \text{ v/m}$$

Where, E = electric field strength

F = force acting in newtons

q = the charge in coulombs

According to the world health organization (WHO), the safety limits of electric field strength at different frequency bands are:

Table 6: Safety Limit of Electric Field Strength According to Frequency Band

Frequency Band	Electric Field
CDMA 450	29 v/m
GSM 900	42 v/m
GSM 1800	58 v/m
UTMS	61 v/m

Where, according to Bangladesh telecommunication regulatory commission electric field strength at different frequency bands from all mobile phone tower sites in Dhaka metropolitan city are:

Table 7: Electric Field Strength According to Frequency Bands from Mobile Towers of Dhaka City.

Frequency Band	Power Density
CDMA 450	62.56 v/m
GSM 900	51.05 v/m
GSM 1800	71.50 v/m
UTMS	65.05 v/m

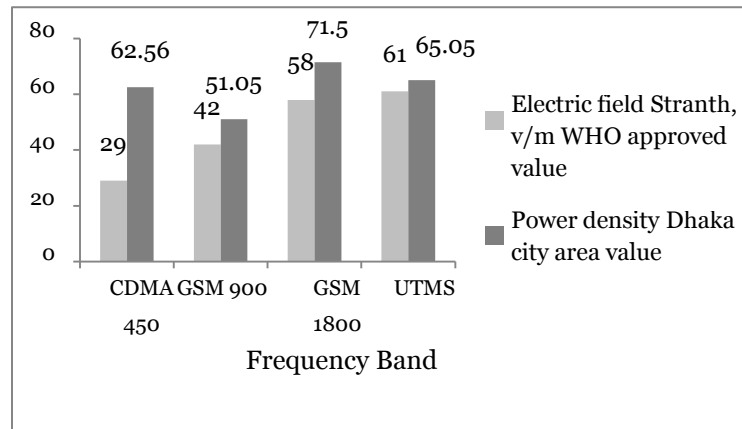


Figure 2: Comparison of Electric Field Strength between WHO & Dhaka Metropolitan Area.

4.3 Specific Absorption Rate

Specific absorption rate (SAR) is a measure of the rate at which energy is absorbed by the human body when exposed to a radio frequency

(RF) electromagnetic field; although, it can also refer to absorption of other forms of energy by tissue, including ultrasound. It is defined as the power absorbed per mass of tissue and has units of watts per kilogram (W/kg).

Specific absorption rate is related to electric field value and absorption of human tissue, can be used to check safety hazards. The world health organization has given the standard value of specific absorption rate which is 1.66 w/kg.

Table 8: Specific Absorption Rate at Different Frequency Band

Frequency Band	Specific Absorption Rate
CDMA 450	1.75
GSM 900	1.83
GSM 1800	1.91
UTMS	2.05

Table 9: Impacts of Radiation on Environment & Human Health

Frequency, MHz	Specific Absorption Rate, w/kg	Power Density, w/m ²	Effects
915	1.68	5.5	Genetic changes in human white blood cells.
500	1.67	2.5	DNA damage in human glial cells.
1800	1.83	8.5	Increase cancer cells in brain.
2450	1.98	10.38	Decreases the blood concentration of testosterone & insulin.
88.5	1.66	2.2	Damage memory functions.
383	1.67	2.7	Metabolic changes.
3000	2.05	10.45	Damage reproductive system.

Radiation from Cell phone and cell tower affects birds, animals, plants and the environment. One would never see a bee, sparrow, pigeon, or any bird flying and staying near the cell tower. The reason is that surface area of a bird is relatively larger than their weight in comparison to human body, so they absorb more radiation (power = power density \times area). Since fluid content is small due to less weight, it gets heated up very fast and also the magnetic field disturbs their navigational skills. In several countries, an abrupt disappearance of bees has been several years back and was associated with the rising

electromagnetic pollution. This is known as Colony Collapse Disorder (CCD) where bees cannot find their way back to the hive as a result of consistent electromagnetic background noise that seems to disrupt intercellular communication within individual bees. When honey bee colonies were exposed with radiation, the honeycomb weight and area were reduced and returning time of honey bees increased compared to similar non-exposed colonies. The current dying/vanishing of honey bees can have serious consequences for human health. When birds are exposed to weak electromagnetic fields, they disorient and begin to fly in all directions, which explain migratory birds undermining navigational abilities. A large number of birds like pigeons, sparrows, swans are getting lost due to interference from the new "unseen enemy", i.e. mobile phone masts. During recent decades there has been a marked decline of the house sparrow population. A house sparrow is most preferred indicator species of urban ecosystems. A stable house sparrow population indicates a healthy ecosystem for human beings in terms of air and water quality, vegetation and other parameters of habitat quality. Whereas, a declining population of the bird provides a warning that the urban ecosystem is experiencing some environmental changes unsuitable for human health in the immediate future. It is proved that cows grazing near cell towers are more likely to experience still births, spontaneous abortions, birth deformities, behavioral problems and general declines in overall health. Moving cattle herds away from such towers has reportedly led to immediate health improvements. Exposing dairy cows to magnetic fields can also result in reduction in milk yield, changed milk composition and fertility problems. Similarly, impaired immune system in sheep, reproductive and developmental problems in dogs and cats, anxiety and alarm in rabbits, frequent death of domestic animals such as, hamsters, and guinea pigs living near base stations of mobile telecommunication towers has been observed. Apart from bees, birds and animals, electromagnetic radiation emanating from cell towers can also affect vegetables, crops and plants in its vicinity. Studies show definitive clues that cell phone/tower radiation can choke seeds, inhibit germination and root growth, thereby affecting the overall growth of agricultural crops and plants. Trees located inside the main lobe (beam), have much lower fruit yield, have dried tops, show slow growth and high susceptibility to illnesses and plagues. Also, electromagnetic radiation generates heat, which may kill micro-organisms present in the soil near it. This in turn harms those organisms which feed on them and disturbs the ecological cycle. We have seen different problems among the people in Dhaka city.

Different mobile operators have established their tower at populated zone. As a result, nowadays people are facing inimical problems. Such as sleeping disturbances, headache, dizziness, changes in anxiety, depression, generalized burning sensation, episodes of shaking, fits, mood disorders, palpitation, diarrhea, skin rash, libido disease, fatigue, irritability, memory loss, hopelessness, heaviness of chest etc. But the important factor here, most of the people Dhaka city has no knowledge about electromagnetic radiation and its impact.

7. Concluding Remarks

The seriousness of the health hazards due to radiation from the cell phones and cell towers has not been realized among the common man in Bangladesh. Cell operators continue to claim that there are no health issues. Cell phone industry is becoming another cigarette industry in Bangladesh, which kept claiming that smoking is not harmful and now there are millions of people around the world who have suffered from smoking. In fact, cell phone/tower radiation is worse than smoking; as one cannot see it or smell it, and its effect on health is noted after a long period of exposure. Therefore, majority of people tend to have casualness towards personal protection. Unfortunately, ignorance and non-awareness adds to this misery and all of us are absorbing this slow poison unknowingly. Even if people are aware of the radiation hazard, they may not have the choice to move away from it if the tower is installed near their office or residential building. In addition to the continuous radiation from cell towers, there is radiation from cell phones, wireless phones, computers, laptops, TV towers, FM towers, AM towers, microwave ovens, etc. We are exposed to all these radiations which are additive in nature. Hence, it is imperative that stricter radiation norms must be enforced by the policy makers. This does not mean that we have to stop living near these towers. We all know that automobiles create air pollution– have we stopped using them? Instead, solutions were found such as unleaded petrol, catalytic converters to reduce emission, CNG driven vehicles, hybrid vehicles, etc. If people in the mobile companies think there is no health hazard, then let them stand in front of their own transmitting tower at 1m distance in the main beam for 6 hours– are they willing to take the risk? Similar effect will be there at 10m distance in about 600 hours. If mobile companies accept that radiation causes serious health problems, will people stop using cell phones? Not really, because the cell technology has its several advantages. However, then researchers/technocrats/entrepreneurs will come out with possible solutions, which may be

expensive but that cannot be greater than the health risk faced by humans, birds, animals and environment. The following should be borne in mind.

- World Health Organization (WHO) has given some standard levels for the establishment of mobile base station. These should be maintained for the installation of cell phone towers.
- Base stations must be installed at desolate area from the densely populated zone. Towers both ground based and roof based should not be installed within 50 meters from schools or hospitals. New towers should be located 50 meters away from school and hospital buildings.
- Establishment of mobile towers at the roof of educational, residential, hospital and commercial building should be avoided.
- Hotline or email-id or websites must be created, where people can call or write their health problems associated with cell phone/tower radiation.

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Foreign Direct Investment in Bangladesh: Issues and Challenges

Md. Alamgir*

Abstract The economic indicators are considered the mirrors of an economy depicting economic development of a country. Foreign Direct Investment (FDI) is one of the economic indicators. The objective of the study is to focus the current position of FDI in Bangladesh along with its problems and remedies. The study finds that the contribution of FDI of developed and developing countries including Bangladesh are not appreciable because of some uncertainties like uneven ratio in savings and investments. Yet Bangladesh's investment incentives and regulations for FDI are sometimes found competitive with those offered by other countries. Some recommendations to augment FDI inflow have been put forward in this study.

1. Introduction

One of the great development challenges of Bangladesh is to provide satisfactory employment to the 24 million new hands entering the job market over the next decade. If properly used, the foreign direct investment (FDI) could complement domestic investment and thus help address this challenge. It can provide not only more jobs but also quality jobs in terms of pay and benefits as well as safety and other working conditions. Both domestic investment and FDI can help resolve infrastructural constraints, particularly in energy and trade facilitation and access to land. Improvement of the business environment will facilitate investments by reducing the cost of transactions and risk taking, leading to a more dynamic private sector. Foreign Direct Investment (FDI) is considered as one of the significant constituents for promoting economic development of a

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developing country like Bangladesh. Countries that are lagging behind to attract FDI are formulating and implementing new policies for attracting more investment. Even compared to other South Asian countries, FDI inflow to Bangladesh has traditionally been lower. Recently, it is widely accepted that foreign direct investment produces economic benefits to the recipient countries by providing capital, foreign exchange, technology, competition and by enhancing access to foreign markets (e.g. Brooks and Sumulong, 2003; World Bank, 1999; Caves, 1974; Crespo and Fontura, 2007; Romer, 1993; UNCTAD, 1991). It is argued that FDI can also enhance domestic investment and innovation (Brooks and Sumulong, 2003). The benefits of FDI are clearly known to the Bangladeshi policy makers. They are trying to attract the FDI by taking different policy frameworks. At the time of independence in 1971, Bangladesh inherited only a small stock of FDI, and moved toward exploiting a domestic market protected by the then prevailing import-substitution policy. Since then Bangladesh has been trying to attract foreign investment to fill up its savings investment gap as well as to redress its export-import imbalance. Bangladesh has deregulated and liberalized its foreign investment regime over the last two decades. This has been done largely under a World Bank and International monetary fund (IMF) backed Structural Adjustment Policy (SAP) package. Moreover, with a view to encouraging the flow of FDI, EPZs were established. The capital markets were allowed to receive foreign portfolio investments in both primary and secondary markets. Bangladesh has promulgated Foreign Direct Investment Act to encourage and protect the FDI. It also ensured repatriation of profit, capital and dividend and equitable treatment with local investors. Intellectual property rights, such as patents, designs and trademarks and copyrights, are protected. The net inflow of FDI describes investments made by foreign investors to obtain a lasting management interest in an enterprise located in an economy other than that in which the foreign investor lives. The forms of FDI are usually participation in management of enterprises, joint ventures, technology transfer and expertise. The foreign direct investment made by foreign investor can be an individual or a group of related individuals, an entity, a public or private company, a government body, an estate, trust or a social organization. The investment can be made either through incorporating a company in host country, obtaining shares in a company of host country, or making participation in equity joint venture. Rapid industrialization is essential in Bangladesh to keep pace with its development needs. But

the low rate of Investment hampers the expected industrialization process. Though foreign aids and grants had been serving to bridge the gap, it is the foreign direct investment that can invigorate the efforts to achieve the expected industrialization of Bangladesh. Under this backdrop, this study has been undertaken to investigate the potential of foreign direct investment in Bangladesh and find out the way to improve it.

2. Objectives and Methodology

The objectives of the paper are: (i) to highlight the present scenario of foreign direct investment of Bangladesh; (ii) to make a comparison among export earning, foreign aid, remittance and FDI and also between FDI in EPZ and FDI in non-EPZ areas; (iii) to depict sectoral distribution and country-wise sources of FDI in Bangladesh; and (vi) to identify challenges faced by foreign direct investment in Bangladesh and to put forward some recommendations.

The study is mainly based on secondary data. Published materials of Bangladesh Bank, Bangladesh Bureau of Statistics, Board of investment, Ministry of Finance, various commercial banks, World Bank, IMF and writings of some scholars are the main secondary sources. Unpublished data have also been collected from various departments of Bangladesh Bank. Primary data have been collected through interviews of various concerned officials. The collected data have been processed manually and presented in order to make the study more informative, analytical and useful for further study.

The paper has been organized into six sections. The first section describes the background, objectives and methodology. The introductory section is followed by trend and analysis of foreign direct investment flow in Bangladesh. Third section depicts comparison among export earning, foreign aid, remittance and FDI. Section four portrays the inflow of FDI in EPZs and Non-EPZs. Section five presents the sectoral distribution and country-wise sources of FDI in Bangladesh. Section six displays major determinants and hindrances of FDI inflow in Bangladesh. Section seven shows ease of doing business by foreign direct investors in Bangladesh. Finally, a number of challenges have been identified and recommendations have been made in section eight.

3. Trend and Analysis of Foreign Direct Investment in Bangladesh

Bangladesh is in the process of transition from a predominantly agricultural economy to a modern economy. Considerable changes have occurred in the global flows of trade and finance including a boost in FDI. Despite being a recent phenomenon, several underlying factors have contributed to increasing the FDI inflow in Bangladesh. These are trade and exchange rate liberalization, current account convertibility, emphasis on a private sector led development, liberalization of the investment regime, opening up of infrastructure and services to the private sector– both domestic and foreign, and above all, the growing interest of foreign investors in energy and telecommunication sectors. It is argued that more open trade policies are associated with the presence of foreign firms and economy wide technological and productivity gains in developing countries like Bangladesh. The private sector is envisaged to play an increasingly active role with public sector development programs by focusing on basic infrastructure and human resource development. In recognition of the private sector's ability to contribute to the achievement of the goal of socio-economic improvement of its people, the government has recently implemented policy reforms and declared benefits to create a more open and competitive climate for foreign investment.

3.1 Flow of Foreign Direct Investment

There is no regular trend in the flow of FDI (Figure 1). The flow of FDI increased at a staggering rate of 64.45, 47.16 and 182.86 per cent in FY 1997-98, FY 2000-01 and FY 2004-05 respectively than that of FY 1996-97, FY 1999-00 and FY 2003-04. The flow of FDI totals at USD 600.3 million, USD 463.93 million and USD 840.78 million in FY 1997-98, FY 2001-02 and FY 2004-05 respectively. After FY 2005-06, the flow of FDI declined in the next three fiscal years. The country received an increased amount of USD 1000.59 million in FY 2009-10 but witnessed a fall in FDI inflow in next fiscal years.

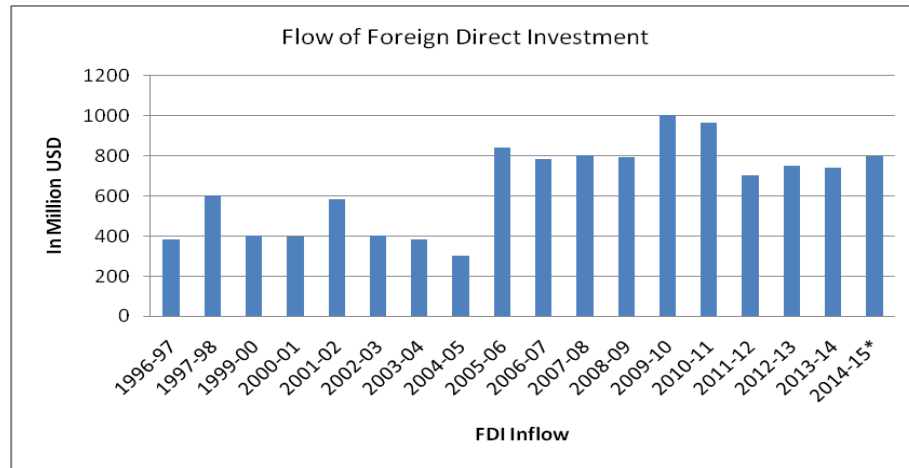


Figure 1: Flow of Foreign Direct Investment

Source: Author's own calculation from Bangladesh Bank data.

It is to be noted here that FDI inflow to Bangladesh has traditionally been lower, even compared with other South Asian countries. Considering FY 1996-97 as the base year, the statistics reveals that FY 2011-12 might be a net FDI receipt of USD 750.52 million. If the current trend of FDI inflow persists, the country might receive USD 795.96 million of FDI in FY 2014-15 and growth rate of FDI might be only 3.19 per cent. There was a significant jump from FY 2004-05 to FY 2005-06 but after that, the incremental growth rate is neither significant nor adequate.

3.2 FDI as a Percentage of GDP

Although the amount of FDI is increasing over the years, FDI as a percentage of GDP is following a declining trend after FY 2004-05. FDI as a percentage of GDP increased to 1.33 per cent in FY 2004-05 while GDP and FDI flow were BDT 3707.0 billion and BDT 49.34 billion respectively. Then FDI as a percentage of GDP declined until FY 2007-08 and the scenario changed only in FY 2008-09. The growth of FDI in FY 2008-09 was 24.96 per cent higher than that of previous fiscal year and FDI as percentage of GDP increased to 1.07 per cent. After FY 2008-09, FDI as a percentage of GDP started to decline sharply. In FY 2010-11, the amount of FDI and GDP were BDT 55.45 billion and BDT 7874.95 billion respectively against BDT 63.16 billion and BDT 6943.24 billion of FY 2009-10. The share of FDI in GDP in FY 2010-11 was only 0.70 per cent, which is 21 percentage points less than that of the previous fiscal year.

If the current trend continues, the inflow of FDI in the current fiscal year might reach at BDT 60.06 billion and the share of FDI in GDP might be only 0.67 per cent, which is 3 percentage points less than that of the previous fiscal year. Under the business as usual scenario, FDI in FY 2014-15 might increase to BDT 70.33 billion while FDI as per cent of GDP might stand at only 0.66 per cent.

3.3 FDI as a Percentage of Total Investment

The share of FDI in total investment is following a downward trend. FDI as percentage of total investment was the highest in FY 1997-98 while the contribution of FDI in total investment was 7.3 per cent. After then FDI as percentage of total investment was the highest in FY 2000-01 while the contribution of FDI in total investment was 5.6 per cent.

FDI as percentage of total investment was 5.43 in FY 2004-05 while the contribution of FDI in total investment was USD 49.34 million. The share of FDI in total investment in FY 2008-09 increased after continuous declining in three successive fiscal years. In FY 2008-09, the share of FDI in GDP was 1.07 per cent. Global economic recession had an adverse effect on the flow of FDI in the country. The share of FDI in total investment was 4.41, 3.73 and 2.85 per cent in FY 2008-09, FY 2009-10 and FY 2010-11 respectively. If the current trend of FDI inflow persists, the share of FDI in total investment might stand at 2.94 per cent in FY 2011-12 and 3.03 per cent in FY 2014-15.

3.4 Relation between GDP growth and FDI growth

There is no specific relation between the growth of FDI and GDP growth. FDI plays a negligible role in the growth of Bangladesh economy.

In the FY 2004-05, the growth rate of FDI touched its highest amount, which was 182.86 per cent. It occurred because of the higher inflow of FDI in power gas and petroleum, manufacturing, transport, storage and telecommunication. In that time, GDP growth rate was 5.96 per cent.

3.5 Component-wise FDI Inflow

This analysis is based upon the performance of the three components of FDI inflow, namely equity, reinvestment and intra-company borrowing. FDI flow to Bangladesh in the form of equity capital has been showing an erratic movement and it was difficult to estimate the

future trends of this. However, if we bank upon the trends after 2009, it can be assumed that there could be positive trend of FDI flow in equity form, if the current environment would prevail in the coming years. Whilst reinvestment is showing some steady trends, the intra company loan inflow reveals a downward trend.

3.6 Decision-making Authority of FDI in Bangladesh

The BOI is the agency responsible under the Act for implementation of the government policy relating to investment, both domestic and foreign, and for providing all kinds of support in the matter of such investment. In effect, the power of decision-making is spread out amongst a number of ministries, departments and other agencies and, consequently, the incentives and facilities are implemented not as a result of the decision of the BOI but of several participating organizations. As a matter of fact, the BOI is vested with a lot of authority, thanks to the Act, but at the practical level it has to function with heavy reliance on other agencies. Thus, the BOI has turned into a facilitator at best, not a provider of promised services and facilities. A shared authority under conditions where management does not act in unison at all levels does not bring the desired results.

4. Comparison among Export Earning, Foreign Aid, Remittance and FDI

In terms of foreign currency inflow, the contribution of FDI is negligible compared to the contribution of export earnings and remittance. In FY 2001-02 foreign exchange reserve was USD 1583 million in which the contribution of export was USD 5986.09 million, remittance USD 2501.13 million, net foreign aid USD 1006.93 million, FDI USD 400.93 million and the amount of import payment was USD 9658 million.

However, in FY 2010-11, foreign exchange reserve was USD 10912 million. The contribution of export in that reserve was USD 22924.40 million, remittance USD 11650.32 million, net foreign aid USD 1049.63 million, FDI USD 779.04 million and import payment USD 33657 million. If the current business cycle continues, export earning, net foreign aid and remittance in FY 2014-15 might reach at USD 29699.70 million, USD 1066.69 million and USD 15309.996 million respectively while the flow of FDI might increase to only USD 888.96 million.

5. The Inflow of FDI in EPZs and Non-EPZs

Low labor cost is often cited as the most important factor by the private as well as the public sectors in Bangladesh. For export-oriented activities, the government has set eight Export Processing Zones (EPZs). The advantages of EPZs include facilitation services and a variety of fiscal and non-fiscal incentives. However, the inflow of FDI in EPZs has not increased yet in comparison to non-EPZs. In FY 2008-09, FDI in non-EPZ areas reached its maximum amount at USD 831.25 million against USD 129.34 million of EPZs. FDI in non-EPZ areas does not create as much employment opportunities that are created in EPZ areas.

Until August 2011, total investment in EPZ areas is USD 53.18 million and total local employment is 1782. In FY 2010-11, non-EPZ areas received USD 597.59 million that is 76.71 per cent of total FDI and 21.57 per cent less than that of the FY 2009-10. USD 181.45 million was invested in EPZ areas in FY 2010-11 that is 20.08 per cent more than that of the previous fiscal year and only 23.29 per cent of total FDI. Under the business as usual scenario, FDI in EPZ areas might increase to only USD 217.54 million in FY 2014-15, which will be only 24.47 per cent of total FDI. At the same time, FDI in non-EPZ areas might increase to only USD 671.61 million that will about 75.48 per cent of total FDI. In recent years, FDI in non-EPZ areas increases more than that of EPZ areas. However, foreign investors are enjoying the following benefits:

- (i) Direct (100%) foreign investment or joint venture investment in the Export Processing Zones (EPZs) or outside EPZs.
- (ii) Portfolio investment by purchasing shares in publicly listed companies through the stock exchange.
- (iii) Investment in infrastructure projects such as power generation (private power generation policy announced); oil, gas and mineral exploration, telecommunication, ports, roads and highways.
- (iv) Outright purchase or purchase of shares of state-owned enterprises, which are under process of privatization.
- (v) Investment in private EPZ.
- (vi) Tax incentive.

6. Sectoral Distribution and Country-wise Sources of FDI in Bangladesh

5.1 Sectoral Distribution of FDI in Bangladesh

There have been several shifts globally in the concentration and composition of FDI among sectors. Consequently, the country has also witnessed a huge shift in sector-wise and country-wise flow of FDI in the current decade. The first major compositional shift was within manufacturing from import-substitutes to export oriented manufacturing. A more recent shift of FDI has been seen towards services.

No regular trend has been found in sectoral contribution of FDI inflow in the country in the current decade. In the FY 2003-04 to FY 2006-07, FDI inflow in power, gas & petroleum increased due to the investment of “Asia Energy” in Fulbari coal mining project. However, FDI in power, gas and petroleum in FY 2006-07 was USD 229.93 million and after that year, it started to decline and might follow an increasing trend in the fiscal year with an FDI flow of only USD 128.40 million. The receipt of FDI in telecommunication sector in calendar year 2008-09 was the highest in the current decade at USD 579.62 million because of entrance a new telecom company named “Warid” but it declined to USD 445.99 million in the next fiscal year. If FDI inflow in Bangladesh in recent years is analyzed, most of the FDI has gone to the transport, storage and telecommunication.

Comparatively, FDI in manufacturing sector is not high. This may be due to a perception that Bangladesh has a relatively small domestic market. One option might be for foreign investors are to choose Bangladesh looking at India’s “huge” market. The problem is that there are many tariff and non-tariff barriers in getting access to India’s market from Bangladesh. This problem may be a cause of disappointment for such types of foreign investors. FDI inflow increases only in those areas that are highly profitable. At the same time, it creates lower employment. There creates a lower opportunity of employment in telecommunication sector than that of manufacturing sector.

There is a large change in the flow of FDI by sectors between FY 2000-01 and FY 2009-10. In FY 2000-01, the main sectors of FDI were manufacturing power, gas petroleum, trade and commerce etc. However, in 2009-10, the main sectors of FDI were telecommunication, banking, textile and wearing, gas petroleum, power etc. Total receipt of FDI in FY 2000-01 was USD 563.93 million in

which USD 174.62 million in power, USD 112.76 million in textiles and wearing, USD 139.16 million in gases and petroleum, and USD 29.22 million in banking. Total receipt of FDI in FY 2008-09 was USD 960.59 million which declined by 18.89 per cent or USD 181.55 million in calendar year 2010 and reached at USD 779.04 million.

6.2 Country-wise Sources of FDI

Country-wise sources have shifted with the change of sectoral distribution of FDI. The emergence of new sources of FDI may be of particular relevance to low-income host countries like Bangladesh. Indeed, the role of developing and transition economies as sources of FDI is increasing with the passage of time. Transnational Corporations (TNCs) from developing and transition economies have become important investors in many countries.

Bangladesh has so far received FDI from more than 53 developed and developing countries across the globe. In FY 2000-01, USD 20.56 million came from U.S.A., USD 26.89 million from Hong Kong, USD 40.37 million from South Korea, USD 1.23 million from Pakistan, USD 0.85 million from Singapore, USD 8.80 million from India and USD 17.18 million from Japan.

In FY 2010-11, Bangladesh received total USD 779.04 million FDI from 44 countries among which the share of U.K. is the highest at USD 144.6 million. In the same fiscal year, major sources of FDI inflow were: Netherlands (USD 71.41 million), Hong Kong (USD 93.58 million), U.S.A. (USD 94.18 million), India (USD 20.71 million), South Korea (USD 73.84 million), Japan (USD 35.05 million), U.A.E. (USD 22 million) and Pakistan (USD 24.59 million). If the current trend exists, the inflow of FDI might be USD 24.2 million from Singapore, USD 147.2 million from U.K, USD 98.7 million from Hong Kong, USD 91.8 million from U.S.A., USD 73.3 million from South Korea and USD 76.4 million from Netherlands in the current fiscal year.

7. Major Determinants and Hindrances of FDI in Bangladesh

Though the FDI has been playing role for the economic development of Bangladesh since 1980, yet it has not taken the requisite momentum. Because, the quantity of FDI in Bangladesh is significantly lower than that of the other neighboring countries like Singapore, Thailand, Malaysia, India, Sri Lanka, South Korea etc. The following determinants and hindrances of FDI have been identified by most of the researchers:

(i) Motivational Factors/Major Determinants

Cheap labour cost is identified as the most significant determinant and motivational factor in case of FDI inflow to Bangladesh. Some researchers have identified government incentives and investment friendly public policy as motivational factors. About 48% investors mentioned that present government rules, regulations, and incentives are motivational factors for their investment (Nasrin et al. 2010).

(ii) Major Barriers to FDI

Previous literature found that good and productive physical infrastructure is a key factor which influences FDI inflow. Good infrastructure is essential for both industrialization and attracting investment. It includes utilities (gas, water, and electricity), transport, and communication. About 59% respondents from the investor group identified infrastructural constraint as one of the significant obstacles to FDI inflow in Bangladesh (Nasrin et al. 2010).

(iii) FDI Policy Regime

About 49% investors felt that present FDI policy regime, that is, government rules, regulations are motivational factors for their investment (Nasrin et al. 2010). But the recent trend of FDI flow to Bangladesh compared to other South Asian countries shows that its record in attracting FDI is not very impressive. This suggests that only having in place an investment supportive policy regime alone is not enough for attracting FDI.

(iv) Economic Environment

Previous literature identified factors such as income, GDP growth, interest rate and inflation, large size of the economy, wealth, and natural resources, international agreements that attract investors to the host country.

(v) Political Climate

Previous studies empirically found that political climate can deteriorate the investment environment. It includes corruption, frequent change of the Government, absence of accountability and transparency of the Government, and terrorism, which could negatively affect FDI inflows to a host country. Previous studies also identified that political unrest is one of the barriers which is slowing down the FDI inflow to Bangladesh (Mondal, 2003, Kafi et al. 2007; Alam et al. 2006).

(vi) Institutional Factors and Government Initiatives

Previous literature has shown that Government initiatives, incentives, assistance, monitoring, liberalization, tax reduction, grants, less bureaucratic regime, neutral legal framework, quality of institutions, free from or less corruption, transparency, and banking, tax and tariff reforms can play a pivotal role in attracting FDI. About 57% investors expressed their satisfaction on the existing government initiatives, rules, regulations and incentives and indicated that these factors motivated them to invest in Bangladesh (Nasrin et al. 2010).

8. Ease of Doing Business by Foreign Direct Investors in Bangladesh

According to Doing Business-2012, Bangladesh has gone down four steps than that of the previous Doing Business Report-2011. Bangladesh ranked 122 among 183 economies, where Singapore ranked first position and Pakistan secured the position of 105 (Doing Business-2012). In getting electricity and registering property, Bangladesh secured lower position at 182 and 173 respectively (Table 1). In 2005, foreigners needed 185 days to get the permission of construction in Bangladesh while it reached at 201 days in 2011. Required days for getting electricity connection in industries in 2011 was more than a year (372 days). In Bangladesh, to implement a contract, it takes 1442 days in and almost 63 per cent of the demanded property which is the highest time and cost considering the 183 economies. In trading across borders (export and import), Bangladesh needs 25 and 31 days respectively, that is very high in comparison with the rest of the world. The cost of doing business in Bangladesh is highly competitive in comparison to other economics not only in the region but also in the world.

8.1 The Position of Bangladesh in South Asian Countries

Bangladesh ranks fifth among the eight economies of South Asia. This index was prepared on 10 topics, made up of variety of indicators, giving equal weight to each topic. The rankings for all economies are benchmarked to June 2011. Maldives ranks top followed by Sri Lanka, Pakistan and Nepal. Bangladesh takes highest time in South Asia for getting electricity and registering property and ranks eighth in the respective categories. If the government of Bangladesh provides more facilities for getting electricity and registering property, the overall position of Bangladesh in Doing Business index will go up in South Asia. In starting business, the ranking position of Bangladesh is fifth

where Maldives is third (Table-2). Bangladesh has a better position than Maldives in getting credit and trading across borders. Bangladesh is top of the list in protecting investors. However, in paying tax, enforcing contracts and resolving insolvency, the ranking position of Bangladesh is 5, 7 and 5.

Table 1: The Position of Bangladesh in Ease of Doing Business
(days)

		Singapore	Bangladesh	India	Pakistan
Doing Business 2012	<i>Starting business</i>	3	19	29	21
	<i>Construction permit</i>	26	201	227	222
	<i>Registering property</i>	5	245	44	50
	<i>Getting electricity</i>	36	372	67	206
Doing Business 2011	<i>Starting business</i>	3	19	29	21
	<i>Construction permit</i>	25	231	195	223
	<i>Registering property</i>	5	245	44	50
	<i>Getting electricity</i>	36	109	67	266

Source: Doing Business, the World Bank, 2012

Table 2: Doing Business 2012 (South Asian Countries)

Economy	Rank	Starting business	Construction permits	Getting Electricity	Registering Property	Getting Credit	Trading Across Borders
Maldives	1	3	1	5	5	8	5
Sri Lanka	2	2	4	1	6	4	1
Pakistan	3	6	3	7	4	2	2
Nepal	4	7	6	3	1	2	6
Bangladesh	5	5	2	8	8	4	4
India	6	8	8	2	3	1	3
Bhutan	7	4	5	6	2	6	7
Afghanistan	8	1	7	4	7	7	8

Source: Doing Business, the World Bank, 2012

9. Concluding Remarks

In the global perspective FDI has great impacts on the country's economy. Since Bangladesh as a LDC faces capital problem for the implementation of capital projects which are absolutely essential for the alleviation of poverty through the industrial development. Therefore, Bangladesh should make itself a better place compared to many other countries for FDI. The recently published potential report by the World Bank and IFC has ranked Bangladesh 110th among 181 economies of the world in this regard. However, the rank of Bangladesh in 'investor protection' is 18, which is even better than many developed economies. Hence, FDI could really play a crucial role in Bangladesh.

In the process of attracting foreign direct investment, the policy makers have been facing several challenges. Some of the challenges include:

- (i) Reorganisation of the bureaucracy to bring about a perceptible improvement in its efficiency and productivity,
- (ii) Designing appropriate mechanisms encourage foreign investors to invest infrastructure services in both public and private universities to introduce courses/programs that produce graduates with technical and management skills required in modern industrial and other activities, to bring about improvements, in the port services, phased program of setting up new EPZs in order to extend facilities to export oriented investors. The private sector may also be encouraged to set up new EPZs.

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Green or Ethical or Sustainable: Reality in the Banks of Bangladesh

Maksuda Hossain*

Abstract Banks are considered as important of transforming agents a society like Bangladesh's from a rural to progressively industrial one. Now-a-days, more and more banks realize that by ignoring environment and social issues company profit may be increased but it will not ensure sustainability. By serving present and future generations sustainability can give competitive advantage to its business organizations, increase their market share and boost shareholders value. Though in Bangladesh some of the banks have come forward to attain sustainability, there are still many banks that are not working forwards attainment of sustainability. The aim of this paper is to find out situation as well as challenges in attaining sustainability in banking sectors of Bangladesh. At the last part of the study some proposals are suggested to ensure sustainability in our banks.

Keywords Green Banking, Sustainable Banking, Ethical Banking, CSR.

1. Introduction

Sustainable development is maintaining a balance between the human need to improve lifestyles and well-being on one hand, and preserving natural resources and ecosystems on the other, on which we and future generations depend. It meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 2012) as well as ensures long-term business success while contributing toward economic and social development, a healthy environment and a stable society. With the increasing concentration towards the society and environment the concept of sustainable banking emerges.

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Sustainable banking is a decision by banks to provide products and services only to those customers who take into consideration the environmental and social impacts of their activities. Sustainable banking not benefits its owners and employees alone, but also its customers and wider economy; while at the same time minimize any adverse effects on the society and the natural environment (Sansui, 2012). According to Jeucken, 2002, bank can play an important role in sustainable development by transferring money or financial policies. He added that banks have an enormous competitive advantage with respect to the knowledge and information regarding various market sectors, legislation and market developments.

There are basically three dimensions to sustainable banking: economic, social and environmental; seldom referred to as “the 3 bottom line” approach (Sansui, 2012). From the economic dimension, sustainable banking gives its customers what they want fairly, responsively and transparently and must provide good working conditions for staff and deliver profitable growth for stakeholders and the economy as well, with minimum negative impact on the environment and society (Emerson and Sim, 2010). By helping diverse community through employment and providing charity to disadvantaged group a bank can fulfill social dimension of sustainability. From environmental dimension such banking makes investments to danger free production and services; engage in eco development activities and can use environment technology in its activities.

2. Objective

The purpose of the study is to find out which practice/practices are undertaken by the banks of Bangladesh: green banking, or ethical banking or sustainable banking.

3. Literature Review

Since the 1980s sustainable development has become a new concept and getting popularity throughout the world for human development (Guo, 2005). To some people sustainable development involves taking care of the environment; but actually it includes more- “5 E’s: ethics, equity, environment, economy and empowerment; an interdependent outcomes of sustainable development by DEAT” (Hojtink, 2005 and Dlamini, 2010). The first bank was founded in the 16th century in Italy with the intention to generate financial flows between those that could provide capital and those that needed capital to conduct business (Weber, 2012). Following the political disturbance in 1960s,

the first discussions about environmentally and socially responsible businesses or ethical banks are founded in 1970s (Weber, 2012). Because of the high energy and waste management price as well as with the development of environmental regulations in 1990s sustainability opportunities are launched only in the developed countries. From the 2000s, sustainable banking has become a crying need and expands its scope in developing countries as well.

In many countries like Bangladesh, who is working to develop sustainable banking are initially starting to work with other banking concept: green banking and ethical banking. In many literatures though they are considered as the same, but they have some area of differences. Green banking and ethical banking are considered as a part of sustainable banking from environmental and ethical dimensions respectively.

3.1. Sustainable Banking approach 01: Green Banking

Green Banking is a smart concept that focuses banks to be green-environment friendly to all its investments made. "Green" is primarily to describe banks' impacts on the environment, environmental responsibility as well as environmental performances in their activities (Ullah, 2013). Green Banking considers all the social and environmental or ecological factors with an aim to protect the environment and conserve natural resources (Green Banking Policy, National Bank Ltd., 2014). Banks can be environmentally sustainable through green banking. Now a day, green banking is getting importance in our country as rapid population growth, globalization and industrialization have already caused a great environmental hazard. Considering the Bank's role as a key player of the country's economy, Bangladesh Bank, in BRPD Circular No. 02 dated 27.02.2011 advised all Banks to adopt a wide-ranging Green Banking Policy in a formal and structured manner to protect environmental degradation and ensure sustainable banking practices (www.bb.org.bd). BB has already announced 3 phases' guidelines to implement Green Banking as per circular (BRPD Circular No.2):

In Bangladesh, to develop and maintain green banking, banks are advised to facilitate their clients in financing for installation of ETP in industrial units, and to finance in solar energy, Bio-gas, ETP and HHK in brick field under refinance program of Bangladesh bank (Khan, 2012); where refinance line is 2.0 billion at only 5% interest rate (Millat, 2012). The aim of environmental dimension is to minimize or if possible totally mitigate any negative impact of banking activities on environment. Some green banking practices in our country are:

- (i) *Green Brick & Energy Efficiency:* Dutch Bangla has financed the first compost plant under CDM. EBL in collaboration with IFC has developed a creative financial product called “EBL Nobody” for generating electricity from poultry waste which will help prevent environment pollution (The New Nation, 2013). Steps have also been taken to set up solar power system at the rooftop of BB Head Office to encourage other banks and financial institutions to open refinance line for solar energy and bio-gas and ETP at reduced interest rate (The Daily Star, 2011a).
- (ii) *Micro Credit & Opportunities for Young Entrepreneurs:* As the birthplace, microfinance or micro credit is working successfully for poverty alleviation and reducing unemployment, which is one of the major issues of the economic and social development in the country. GB and BRAC are two of the most successful and the largest NGOs in Bangladesh that have created opportunities of social mobilization, health care, literacy and education, sanitation, water supply, agriculture, etc. for the poor women to become micro entrepreneurs. The emergence of micro finance creates opportunity in women’s micro entrepreneurship and made them empowered. (Sultana, Zaaba. and Umemoto, 2010).
- (iii) *Using Online:* Using online instead of paperwork and maintaining clean and hygienic environment within the organization are also the precondition of green banking. Bangladesh bank has already started receipt and delivery of inward remittances from workers abroad by online, e-mail and mobile phone. Purchases of goods and services through smart card and mobile phone are getting popular (The Daily Star, 2011b). A research by World Bank suggested that 59% of the population of developing countries have no bank account because of the high cost of traditional banking products and the amount of paperwork involved in opening accounts (Mazid, 2012). Mobile banking and online banking, using of ATM booths, a flexible SME section on e-banking can help the customers in this regard; side by side it can also work as green banking.

3.2. Sustainable Banking Approach 2: Ethical Banking

Ethics is the combination of moral principles- differentiation between acceptable or unacceptable. In every human or organization, there are some moral principles, some values. Generally, ethical banking works

with the policy or principles where it invests money and where to not. A bank has to provide a wide variety of services: managing clients' money, facilitating financial transactions, lending money to qualified borrowers and issuing debt securities that are backed by the previously mentioned loans. Keeping the profit making first and foremost priority the banks always try to provide loan where the change of zero default. From this point of view, they may also be reluctant to provide their services in lower-income neighborhoods and, in case of international banks, developing countries. The banks are similarly reluctant to lend money for ecologically friendly projects on the ground where profit making is not very smooth. This is the initial literature on what ethical banking entails. But the days are changed. Ethical banks are now starting to focus on environment friendly project investments. Otherwise, banks' interest will be achieved only, not the public interests. Today, ethical banks have the objective of achieving a positive impact in the collection and in the utilization of money. They are investing in organic farming, renewable energies, the third sector (or not-for-profit sector), fair trade. They respond more and more to the needs of savers and investors who are increasingly interested in the way their savings are used, beyond the banking system (febea, 2012). Such banking not only includes their ethics in the services but also in the duties of employees. According to Jasevičienė (2012) the important factor of an ethical banking is how honest and fair staffs are in performing their duties, whether they are reliable, principled, benevolent, loyal to the bank, work transparently, place the interests of the bank above their own. The policies and practices of ethical banking are described in figure 1.

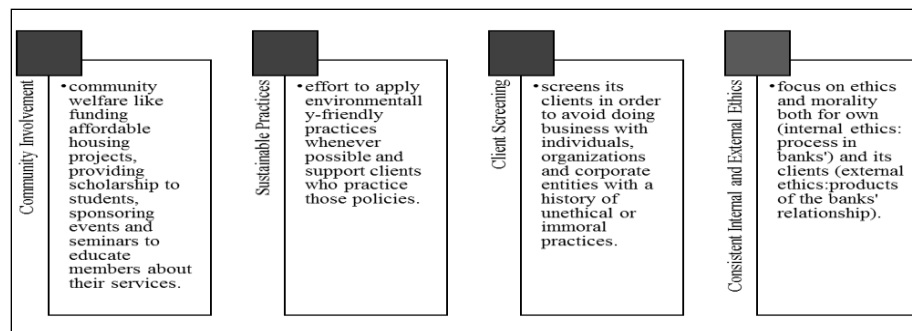


Figure 1: Policies and Practices of Ethical Banking

3.3. Sustainable Banking Approach 3: Corporate Social Responsibility

Sustainable banking has many labels. Alike green banking and ethical banking, in Bangladesh another sustainable banking practice is CSR (Emerson and Sim, 2010). CSR is the obligation of an organization towards the society, its people, government, its investors as well as its environment. Besides conducting business activities and pursuing economic gains, business houses also have several other roles and responsibilities toward society which would benefit the society at large (Sarkar, 2012). The banking sector of Bangladesh has a long history of involvement in benevolent activities like donations to different charitable organizations, to poor people and religious institutions, city beautification and patronizing art and culture etc. (Bangladesh Bank, Department of off-site supervision, 2010). Banks run mass awareness programs on different burning issues, like, Save the Nation from the curse of Dowry, Stop Acid violence, Prevent Drug Abuse, Tree plantation and preservation of the environment, Right of disable children etc. through print and electronic media (Islam, 2012).

Bangladesh is in a vulnerable position because of its geographical location; mostly to water-related natural hazards like floods, coastal cyclones, river erosion and groundwater arsenic contamination etc. are the common phenomenon in Bangladesh (Matin, 2002; Safiuddin and Masud, 2001). As a part of CSR banks provide relief in cash for flood, fire or cyclone victims and cold-stricken people with the aim of helping the target group to overcome their provisional sufferings and contribute to the socio-economic growth as soon as possible (EXIM bank, 2010).

Table 1 shows sectorial pattern of CSR expenditure by various banks (Agricultural credit and financial inclusion development, 2012). Whereas, figure 2 shows the increasing rate of CSR expenditure of banks according to Bangladesh Bank report.

Corporate social responsibility is such an important right for the consumers that if the organization does not practice any CSR activities customers and other stakeholders may claim for this. For some people CSR is the synonym of sustainability for an organization (Ebner and Baumgartner, 2006). Though this is not true, rather CSR is an initiative to reach the sustainability (Hermann, 2004). Sustainable development by banks can be augmented by responsibility linked to CSR (Dorasamy, 2013).

Table 1. Sectorial Pattern of CSR Expenditure by Banks in 2011

Segments	2011 (in million BDT)
Disaster relief & humanitarian	188.03
Education	612.48
Health	520.42
Sports	359.07
Arts & culture	171.52
Environment	138.07
Others	198.73

Source: Agricultural Credit and Financial Inclusion Development, Bangladesh Bank

4. Methodology and Data

It is a quantitative study in which the present situation of our banks is explored regarding sustainability. Both primary and secondary data are used for the study. For the purpose of primary data collection sample of 14 banks are selected (including both private and public) and a structured questionnaire was developed for interview. The questionnaire focused on banks' involvement with green banking, ethical banking and sustainable banking. There was also a part for CSR expenditure as it is considered as a precondition of sustainable banking. The questionnaire was surveyed by the public relation managers of the organizations. In many cases, primary data are verified by using various secondary data like annual reports, newspaper article and journal articles.

5. Research Findings

To ensure green banking the practice was divided into 4 activities: (a) practice of energy saving (in-house green practice), (b) investment on green brick plant or other green projects (non-in-house green practice), (c) microcredit finance and (d) using online banking. 71% respondents are engaged in in-house green practices; whereas 28% respondents are engaged in non-in-house green banking practice. Only 21% have provisions for microcredit loan. Only 21% banks are satisfying all green banking practices (figure 2).

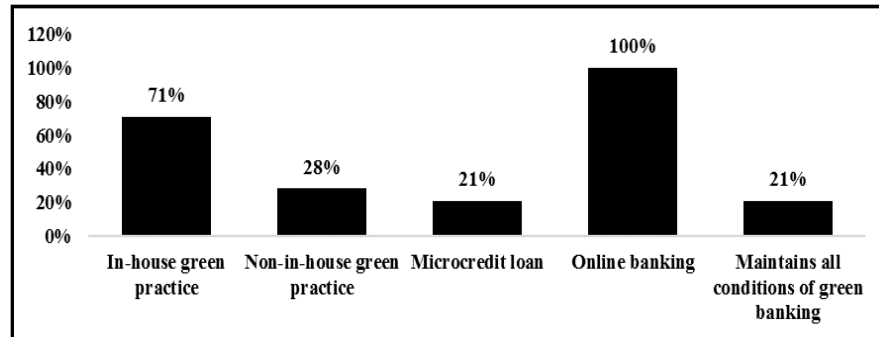


Figure 2: Per cent of Banks Practicing Green Banking

Alike green banking, ethical banking practice is also divided into 3 types of activities: (a) practice of ethics with employees and staff (in-house), (b) having bad debts, and (c) investment in immoral projects. The last two are the non-in-house activities of ethical banking. From the survey, it was found that 86% banks maintain in-house ethics. 43% respondents have bad debt and 93% have no investments in immoral projects. But 7% respondents agreed that they have to invest in immoral projects sometimes knowingly and unknowingly. Only 29% satisfied all the conditions of ethical banking.

5.1. Are All the Banks Sustainable?

Though the findings suggested that 21% banks satisfy the conditions of green banking and 29% of ethical banking; but there are very few banks which are mutually exclusive in the two areas. So, not all the banks of Bangladesh have become sustainable. Though 100% banks are practicing CSR and argued that they are doing green or ethical business through CSR; but the fact is that in most cases CSR is a donation for the banks only; whereas green banking or sustainable banking is not a donation. On the other hand, only 16% are found who are really sustainable by practicing both green and ethical banking. The study suggested that there are some reasons for practicing sustainability in banks on a limited scale. Some of them are: first, to ensure corporate growth most of the financial institutions including banks focus on profit. Sometimes it becomes too late to achieve sustainability after earning profit. Second, before investing money, sometimes banks even don't make proper investigation of their clients which results in bad debt ultimately. Hallmark scandal is an example of this. And last, to many financial institutions, SME loan and micro finance are the alternative names of burden.

5.2. BRAC Bank: A Role Model of Sustainable Banking in Bangladesh

BRAC is a commercial bank that was founded in 2001 with the 3P philosophy “people, planet and profit” by BRAC NGO, one of the largest development finance institutions in the world. Now it has become a role model of ‘sustainable banking’ throughout the Asia. 13 July 2010, BRAC Bank was awarded the ‘Emerging Markets Sustainable Bank of the Year Award’ for the Asian region. GABV, a network of 20 of the world’s leading sustainable banks from Asia, Latin America, North America and Europe takes SME financing of BRAC Bank as a model for sustainable economic development and replicate the financing model of a Bangladeshi bank to serve the unnerved community in many parts of the world. BRAC’s MF Program not only ensures economic sustainability for the poor by providing them credit but also encourage them to invest in various productive activities like micro-enterprises. To support green banking and encourage environment-friendly businesses through SME banking the bank is providing loan on bio-gas plant, effluent treatment plants, solar panels etc. Other sustainable activities that helped BRAC Bank to achieve such an honor were: financial support for Libya-returnees, KRISHAK CARD for unbanked mass farmers, and donation to International Rice Research Institute (IRRI) to facilitate research program and bKash mobile financial services for banked and unbanked populations in Bangladesh.

6. Conclusion

International Institute for Sustainable Development (2012) informs that there are 2 ways to integrate sustainability into banking sector: one is to pursue environmental and sustainable responsibility in a bank’s operations through both environmental and sustainable initiative and the second is to integrate environment and social concerns into product design, mission policy and strategies (Sansui, 2012). (Guo, 2005) and (Jeucken and Bouma, 1999) identified 4 development phases for sustainable banking; from their perspective, sustainable banking can’t be achieved overnight, it develops from the inner layer (defensive) to the outer (ultimately sustainable):

Sustainable banking is a continuous process, it has no destination. The concept of sustainability can be changed with the changing circumstances, with the new success criteria and new challenges. It is a good sign for Bangladesh that a large number of banks are practicing sustainability through CSR, environment friendly projects, SME financing and micro credit. To achieve sustainability banks should adopt proactive strategies to reduce internal risk and maximize

financing environmentally sustainable products. Besides, customers should become conscious about their investment decision so that their decision can't harm the environment and the planet too. Most of the banks in Bangladesh are practicing preventive and offensive banking stage. To ensure sustainability they should move the next stage as soon as possible.

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Labour Market Regulations and Formal Sector Employment: A Review

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Abstract A review of the nexus between labour market regulations and formal sector job creation is done here using studies from developing countries. Most of the findings exhibit a negative relationship between increased labour market regulations and covered formal sector employment. The studies which show increase in employment in the informal sector and self employment, as workers displaced from the formal sector took refuge in the uncovered informal sector. Stricter labour market regulations are also seen as hindrances to output growth and investment climate and eventually detrimental to workers' welfare. A very small number of studies however contradicted this claim that there is a negative relationship between labour market regulations and formal sector jobs by producing mixed results. As the number of available research is very limited, further research is imperative in many more countries to confidently validate the relationship in light of reality.

1. Introduction

Labour unions and employers have historically held conflicting views regarding job market regulations. Seldom do we hear about the two interest groups getting involved in heated debates, putting forward their own defenses. The key issue surrounding such debates is the imposition of minimum wages. Other job market regulation issues include employment protection, unionization; lay off rigidities, work hours, rest interval, maternity leave, casual leave, job quality, etc. Binding minimum wages help the new and inexperienced workers, as advocated by the proponents of minimum wage whereas its opponents

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blame it for adversely affecting businesses. It remains a challenge to strike a proper balance between mitigating exploitation of workers by ensuring fundamental rights, at the same time avoiding productivity loss or unemployment through stringent and excessive regulation (Nataraj, et al., 2012).

Labour market regulations differ greatly across countries and from time to time. The main motive behind job market regulation is to empower workers (Blanchard, 2002). Efficiency-wage arguments establish that labour productivity increases with higher wage, thus enabling employers to pay more. On the other hand the standard competitive model suggests that driving up the cost of hiring labour above the equilibrium would reduce employment in compliant formal firms and a subsequent increase in the informal sector employment. Any pro-worker job market regulation can be assumed to increase the cost of hiring labour. The relationship between regulations and employment is unclear as it reduces the number of new openings and at the same time makes firing more difficult, thus the direction of the overall effect is not obvious (Blanchard & Portugal, 2001).

Strict labour regulations are thought to be very controversial. Many find those as very significant deterrents of output and income growth (Ahsan & Pages, 2008). As firms face higher labour costs due to strict regulations, a possibility is that it may alter size or operate at a less efficient informal level, employing contract or casual workers. These firms are rarely compliant with limited access to finance, below standard working conditions and worker safety, low incentive to use technology, etc (Djankov, et al. 2003). Although there are downsides of regulations, it is difficult to overlook the distributive positive effect of minimum wage law on the workers.

This paper aims to provide a comprehensive review of existing literature on the relationship between labour market regulations and formal sector employment creation or destruction in developing countries. Formal sector is defined as registered and recognized income sources which are under the tax net where the workers are entitled to regular wages and normal work hours. Findings of each literature stream are presented and compared by forming geographic clusters and attempts were made at identifying the limitations and spot scope for further research in this topic.

2. Methodology

First, two major databases JSTOR and EBSCO were searched with relevant keywords. In addition to that, archives of international development and labour organizations like ILO, IZA, World Bank were searched for working and discussion papers on the topic. The abstracts were manually searched to screen the relevant articles after each query. Given the dearth of research focused on developing countries on the topic we obtained 11 articles to review comprehensively and a few other articles on developed countries for general reference. It was observed that the articles selected could be clustered and compared according to the type of data sets they used: time series, cross sectional and panel, or according to the geographical locations.

Three out of eleven articles reviewed were on India. One each based on Bangladesh, Kenya, Ghana, Honduras, Nicaragua and Indonesia. One was a cross country study and the last one was a survey of literature.

3. Wage-Employment Relationship

Competitive initiate theoretical construct of Wage-employment relationship is presented below:

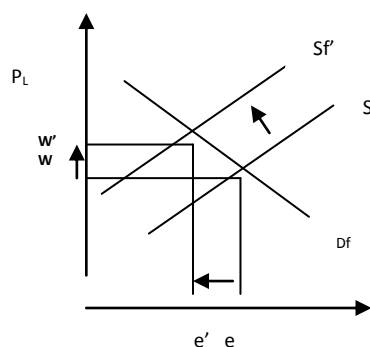


Figure A: Formal sector jobs

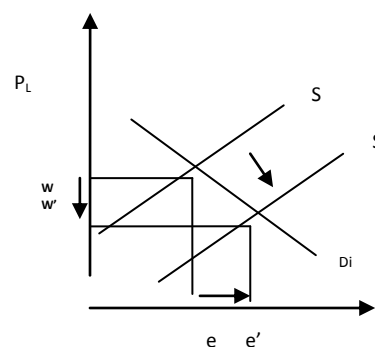


Figure B: Informal sector jobs

Figures A and B show the relationship between price of labour and employment in formal and informal sectors respectively. As previously mentioned, it is assumed that any pro-worker regulation would drive up the price of labour. Coverage of regulations might be incomplete in a country, meaning that certain firms or industries have the scope to evade compliance. Formal sector firms, in that case, are considered to be covered and the informal ones uncovered. According to the model,

in both sectors wage would be equal to w and employment equal to e in equilibrium. With stricter labour market regulations, cost of hiring labour would increase beyond equilibrium in the covered formal sector. Employment in formal sectors would decline with higher labour costs, resulting in fewer jobs in covered industries. These changes are reflected on Fig A as w increased to w' and employment decreased from e to e' . It is likely that those who lost formal jobs and can sense that there is no scope to bag a new job in the covered sector, seek employment in the uncovered, informal sectors. Employment in informal sectors thus increase from e to e' and the wage goes down from w to w' (shown in Figure B), with no overall effect on unemployment. However, in a hypothetical case where all labour is covered by minimum wage legislation, an increased minimum wage would increase unemployment.

4. Survey of Existing Literature

Considerable amount of empirical literature is available that study the relationship between labour market regulations and formal sector employment. But it needs to be noted that much of the existing works were based on developed countries. Until recently renewed interest in the topic produced a few studies which were conducted on developing countries. Most of the results exhibited a negative relationship between labour market regulations and formal sector employment, consistent with our standard competitive model. A few studies found no relationship between the two factors or found mixed relationship.

The studies which were reviewed can be geographically clustered into 4 distinct groups, with the exception of two, one which studied labour market rigidities and employment across many countries in different regions and the other analyzed existing literature. Another reasonable choice of clustering can be comparing studies which exploited different techniques or type of data sets like experiments, quasi experiments, cross sectional analysis, time series or panel data, each having their upsides and downsides. In this paper, the studies have been clustered geographically for comparison and analysis, with the exception of the aforementioned two studies which were analyzed separately.

Indian Sub-continent

Four different papers reviewed, three based on India and one based on Bangladesh, which studied the relationship between labour market regulations and employment, would fall into this region. Besley and Burgess (2004) examined what role labour market regulations played

in manufacturing output from 1958 to 1992, a period of unsatisfactory growth that is often attributed to labour organizations' too much bargaining power which hindered investment, in a host of Indian states. Ahsan and Pages (2008), in their paper, looked into the economic impacts of laws involving employment protection and dispute resolution and a boost in the practice of hiring contract workers. Using micro level data set on 1948 retail stores of India, Amin (2008) investigated the effect of labour regulations on employment at the micro level. Most previous studies were based on employment in the manufacturing sector although the service sector being highly labour intensive and providing employment for the majority in most countries. Anderson, Hossain and Sahota (1991) studied the impact of labour practices and laws on employment and industrialization in the case of Bangladesh.

Although each paper aimed at studying similar relationships, their methodologies and estimation techniques applied to that end had noticeable differences along with certain similarities. Besley and Burgess (2004) carried out an econometric analysis based on panel data regressions using data from multiple sources. Similarly, Ahsan and Pages (2008) also carried out panel data regression using manufacturing data from 1959 to 1997 for India. A cross section data set of retail stores in India operating at the formal level was used as the data source by Amin (2008). It was collected in 2006 by The World Bank through the Enterprise surveys, which was very informative containing annual sales, access to finance, employment, etc. Use of micro level data also provided means for analyzing any heterogeneity, in case it was present, in comparison to macro level data which were mostly used in the past. The author formed two separate indices for labour regulations, namely, the regulation index and the enforcement index. These two indices were used in separate regressions with other explanatory variables on employment. Anderson, et al. (1991) used data from a 1988 survey of a random sample of 594 firms in Bangladesh. For the purpose of analysis they narrowed down to firms located in urban areas only. To estimate the effect of labour practices and legislation on employment they could only carry out cross-sectional wage regression as over time data on wages was not available.

Despite using different methodologies and data sets, all the studies from the Indian sub-continent indicated that greater labour market regulations end up adversely affecting registered formal sector employment. The findings of Besley and Burgess (2004) indicated that pro-worker amendments of industrial laws resulted in reduced

investment, productivity, output and number of jobs in the formal sector. The authors also found a relationship between ideological differences of state governments and labour regulations. States controlled by leftist hardliners depressed manufacturing growth by imposing stricter labour regulations. With pro-worker amendments, the output in unregistered manufacturing or informal sector increased also did urban poverty. They argued that pro-worker law amendments can end up making workers worse off instead of improving their livelihoods. Such amendments were rather counterproductive pulling back economic growth and alleviation of poverty. The only gainers were those states where capital and labour flowed due to favourable business policy. They further concluded that regulations imposed by the governments in many developing countries did not always promote social welfare. Ahsan and Pages (2008) found that formal sector output and employment significantly declined with introduction of laws which increase regulations in the form of labour dispute resolution cost and employment protection. Although labour regulations are intended for the betterment of labour evidence suggested that workers are not benefitted by such legislation as labour's share of value addition does not go up, rather they get the same share of a smaller output. Worst hit by increased labour protection are labour intensive industries like clothing and textiles, whereas higher labour dispute resolution cost most adversely affects capital intensive industries. Ahsan and Pages (2008) also stated that such undesirable effects cannot be mitigated even by wholesale use of contract workers. Amin (2008) established that lenient labour regulation is conducive to job creation. It was also stated that flexible regulations also encouraged firms to function at the efficient formal sector. According to the regression estimates, an average store can increase employment by 22% with slacker regulations. Anderson, et al. (1991) estimated that minimum wage industries employed 41 fewer workers on average in contrast with non minimum wage industries, skilled labour being subjected to the largest decline and clerical workers the least. The authors also showed that union activities had a negative impact on skilled labour employment without any increase in wages as firms substituted wage labour in unionized firms by contract labour, reducing the negative employment effect and making unions potentially ineffective.

South-east Asia

Only one paper on Indonesia reviewed fit into this group. Alatas and Cameron (2008) carried out a quasi natural experiment in Indonesia

to determine how minimum wages affect employment in a low income country. Many of the studies, as we can see, used minimum wage as an indicator of labour market regulations, probably due to the fact that it is easily quantifiable and the availability of data. The data source of the Indonesian study was a comprehensive census of all medium and large enterprises which employ more than twenty workers for the years 1990 to 1996, collected by BPS-statistics Indonesia. Indonesia provided an ideal setting for such a study due to the fact that minimum wages went up markedly between 1990 and 1996 and there were geographical variations among average wages in greater Jakarta, the capital of Indonesia. As the textile, leather, footwear and clothing industries depended heavily on low wage less skilled workers, thus were chosen to study the impact of minimum wages on unemployment in those sectors. Employment effect estimates were derived by the comparison of the average change in manufacturing worker numbers employed by firms in Jakarta relative to that in Botabek, an area just outside Jakarta metropolis.

The authors found no negative impact of minimum wage increase on employment in large firms both local and foreign. But small local firm employees might have suffered from unemployment due to the same reason. One underlying possibility as Alatas and Cameron (2008) mentioned for no negative relationship between employment and increase in minimum wage could have been that although there was a significant increase in minimum wage, the wage levels were still very low. In contrast with the Indian Sub-continent studies, here no evidence of any impact of higher labour hiring costs with formal sector jobs in large firms was found.

Sub-saharan Africa

Two studies that fit into this region, one on Kenya and another on Ghana were reviewed. Andalon and Pages (2008) studied the effects of minimum wage law with respect to employment and wages, considering its enforcement and coverage in Kenya. In the other research, Jones (1997) examined the effect of binding minimum wage on formal and informal employment in Ghana with incomplete coverage. The Kenyan study by Andalon and Pages (2008) based its analysis on micro level, cross sectional data from 1998-1999 labour force survey. Robust techniques to measure the relationship between employment and minimum wage require longitudinal micro data or household survey data which was limited in the case of Kenya, which acted as an inadequacy. On the other hand, Jones (1997) used both time series regression and cross-sectional regression separately. Time

series data ranged from 1970s to early 1990s and cross-sectional data was for 1991-1992. The use of aggregate data in time series has obvious limitations as many factors which affect wages cannot be controlled and thus their omission might lead to biased estimations. However it can be used to compare the results with results obtained from other samples.

Both Kenya and Ghana experienced a fall in formal sector employment and a rise in informal employment with increased price of labour, as the studies revealed, exhibiting apparent similarities with the Indian sub-continent studies. Andalon and Pages (2008) found that minimum wage laws had stronger effects and were more thoroughly enforced in non agriculture sector. It was indicated that occupation and location specific formal sector employment fell with increased minimum wage. 1.2-5.6 percentage points of decline in formal employment was estimated with a ten percentage point increase in minimum wage. Subsequently 2.7 to 5.9 percentage point of self employment increased. Jones (1997) argued that although minimum wage laws are popular with policy makers as it ensures low skilled workers adequate income to meet basic needs, the disadvantages are often overlooked. In developing countries, many workers are not covered by minimum wage laws and employers are not legally bound to pay minimum wage to less skilled or casual workers. Another reason, according to the author, was that many workers in developing countries worked outside the wage sector. Firms in developing countries often tend to dodge compliance and pay workers less than the stipulated minimum. The results of Jones (1997) were consistent with the standard theory and were true for both time series and cross sectional data sets, the formal sector jobs decreased with minimum wage laws and the number of uncovered, informal sector jobs went up. The cross sectional analysis also revealed that compliant firms, on average fired 2.5 more workers than the non compliant ones. By implication, the investigator argued that the increase in informal sector jobs could have possibly lowered the informal wages and adversely affected the less skilled low income group for whom the minimum wage legislation was aimed.

Central America

The cases of Honduras and Nicaragua in Central America were studied in two papers. Gindling and Terrel (2007) explored the connection between changes in minimum wage and employment between 1990 and 2004 in Honduras, where a complex minimum wage structure was in effect. They also investigated alterations in

employment and average pay across sectors and types of establishments. In Nicaragua, how shifts in statutory minimum wage might affect wages, employment and across job transitions were studied by Alaniz, Gindling and Terrell (2011). Gindling and Terrell (2007) gathered data from Minimum Wage Decrees and Permanent Household Surveys from 1990 to 2004. For estimations, they used firm size panel data set which they constructed using statutory minimum wages, employment levels, average wages and other control variables by firm size for every survey. While making such estimations, endogeneity problem poses as a concern and may make biased estimations. A dynamic panel model put forward by Arellano and Bond (1991) was used to overcome the problem of endogeneity. For investigating the impact of legal minimum wages, Alaniz, et al. (2011) used yearly panel data from FIDEG for 1998 to 2006. The data set used contained household survey data and was considered representative of Nicaragua's population. Minimum wage decrees were another source of data.

Evidence from Central America showed that public sector was not responsive to changes in wages even though covered private sector experienced employment reduction to some extent with in a raise in minimum wage and other regulations. The results of Gindling and Terrell (2007) showed that a 1% increase in minimum wage decreased employment by 0.46%, at the same time it increased average wage by 0.29%. They observed that minimum wage was enforced only in large and medium firms. Public sector wages changed with changes in private sector wages with no reduction in public sector employment. Increase in unemployment is also plausible according to some evidence due to higher minimum wage. Additionally, they found that wages of self employed workers and small firm workers were not related to minimum wage changes. Gindling and Terrell (2007) concluded that the welfare of low income workers in covered sectors ultimately fell with higher minimum wages. Alaniz, et al. (2011) deemed Nicaragua a suitable study location because legal minimum wage is high relative to average wage, time and industry specific variations in minimum wage, a large uncovered private sector and many small firms which try to evade minimum wage laws. Results of that study showed that wages went up and employment went down as a result of an increase in minimum wage in covered private sector. However, this effect was confined within those with before change wage being close to the minimum (within 20%). The mentioned effect was dominant in large firms compared to the smaller ones. Higher minimum wage caused private covered sector jobs to decrease as

existing workers lost jobs and there was a decline in new openings. Majority of the workers who were laid off as a consequence of increased minimum wage got involved in unpaid family work or left the labour force, as no corroboration was found of their unemployment.

Cross Country

In a paper, Vandenberg (2010) questioned what type of government policies intended for the betterment of workers end up harming them, paradoxically. Data of 90 countries for 2003 to 2005 was used for the study, which included both developed and developing countries but were dominated mainly by the developing ones. Using panel regression, the author found that worker protection regulations do not have any significant impact on unemployment but unemployment insurance with higher and longer benefits might result in higher unemployment. In concluding the paper, Vandenberg (2010) observed that the dominant perception that governments need to liberalize labour regulations to improve outcomes of labour markets should be given another cautious thought. It was stated that as regulations are put in place for improving workers' welfare, any law that does not increase unemployment might work to protect the interests of labour. Cross country analysis results were similar to that obtained from South-east Asian study of Indonesia with no negative relationship between worker regulations and employment but differ from most other studies discussed here.

Another study similar to this one was also reviewed where the authors studied low income countries and analyzed existing literature based on the income status of the countries. Nataraj, et al. (2012) studied the impact of labour market regulations and formal sector employment and whether it varies with gender or not in low income countries. For the purpose, they reviewed existing literature depicting the connection between labour regulations and employment in countries which were then LICs or had very recently been upgraded from the LIC status. Among the studies they analyzed, 4, 11 and 2 were from LICs, recent LICs and cross country respectively, which examine the effect of various regulation parameters on formal, informal and self employment. Nataraj, et al. (2012) found that all the studies from LICs and those were recently LICs to exhibit a negative correlation between minimum wage and formal sector employment. One study also revealed a positive relationship between higher minimum wages and self employment. The two cross country studies showed mixed results. These cross country studies were non-LIC biased but

contained at least one LIC. They also conducted a meta regression analysis on a few comparable studies and found that a 10% increase in minimum wage would reduce formal sector employment by 0.8%. Such results are consistent with economic theory which states that increase in formal labour price would drive down equilibrium demand for formal labour and the displaced workers would move into informal or self employment. However, as the study was based on a very limited number of reviews, the conclusions need to be interpreted with due caution and it needs to be kept in mind that the results might not be representative of all the LICs.

5. Conclusion

There is considerable evidence that increase in labour market regulations decrease employment and deter creation of new jobs in the registered formal sector. Higher and stricter pro worker regulations can be assumed to increase the cost of hiring labour which businesses do not find conducive to output growth. Investment climate becomes unfavourable for firms to operate. As a result, the displaced workers move into the uncovered informal sector or self employment, where wage is usually lower than the covered formal sector. The inflow of new workers in the informal sector further brings down the wage. The regulations which intend to support workers eventually end up hurting them, according to most studies.

A few studies however oppose this claim that there is a negative relationship between labour market regulations and formal sector jobs. Wage-Employment relationship might vary from country to country and at different points in time due to political and economic reasons. Our analysis was based on a very small number of studies. It points out the necessity of further research on many other countries with robust data to clearly understand the dynamics of labour market regulations and formal sector employment. It is also imperative to break down developing countries into low income, lower middle income and higher middle income countries for analysis as there are potentially stark differences between these groups. Until further results are available, the mixed findings of those studies cannot be obviously ruled out and the hypothesis that increased labour regulations always adversely affect formal sector job creation cannot confidently established.

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Appendix

Table 1: Some Labor Market Regulations (Service Sector) Across a Few Developing Countries.

	Bangladesh (Dhaka)	Ghana	Honduras	India (Delhi)	Indonesia (Jakarta)	Kenya	Nicaragua
Fixed-term contracts prohibited for permanent tasks?	No	No	Yes	No	Yes	No	No
Maximum length of fixed-term contracts (months) ^a	No limit	No limit	24	No limit	36	No limit	No limit
Minimum wage for a full-time worker (USD/month) ^b	0.00	64.97	455.04	181.12	248.17	241.39	200.12
Ratio of minimum wage to value added per worker	0.00	0.26	1.51	0.91	0.55	1.72	0.84
Standard workday	8 hours and overtime, but not exceeding 10 hours in total. Section 102 of BLA 2006.	8 hours	8 hours (day); 7 hours (mixed); 6 hours (night)	9 hours	8 hours for 5 workdays/week or 7 hours for 6 workdays/week (Art.77 (2))	8 hours (Regulation 5(1) of the RWGO).	8 hours
Maximum working days per week	5.5	5.0	6.0	6.0	6.0	6.0	6.0
Premium for work on weekly rest day (% of hourly pay)	0	0	100	0	0	0	100
Paid annual leave (working days) ^c	17.0	15.0	16.7	15.0	12.0	21.0	30.0
Maximum length of probationary period (months) ^d	3.0	6.0	2.0	3.0	3.0	12.0	1.0
Dismissal due to redundancy allowed by law?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Third-party notification if one worker is dismissed?	Yes	Yes	Yes	Yes	Yes	Yes	No
Third-party approval if one	No	Yes	Yes	No	Yes	No	No

	Bangladesh (Dhaka)	Ghana	Honduras	India (Delhi)	Indonesia (Jakarta)	Kenya	Nicaragua
worker is dismissed?							
Priority rules for redundancies?	Yes	No	Yes	Yes	No	Yes	No
Priority rules for reemployment?	Yes	No	No	Yes	No	No	No
Notice period for redundancy dismissal (weeks of salary) ^ε	4.3	3.6	7.2	4.3	0.0	4.3	0.0
Severance pay for redundancy dismissal (weeks of salary) ^ε	26.7	46.2	23.1	11.4	57.8	2.1	14.9
Unemployment protection scheme?	No	No	No	No	No	No	No
Health insurance for permanent employees?	No	No	Yes	Yes	Yes	Yes	Yes
Courts or court sections specializing in labor disputes?	Yes	Yes	No	Yes	Yes	Yes	Yes

Source: LMR-DB15-service sector data points and details (2015). Doing business database. The World Bank Group

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