Sixth Five Year Plan of Bangladesh 2011-2015

Background Papers

Volume 2 Economic Sectors

> Editors Mustafa K. Mujeri Shamsul Alam



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ACRONYMS

ACSPD	Agricultural Credit and Special Program Department
ADB	Asian Development Bank
AI	Artificial Insemination
AIC	Agricultural Information Centre
AWD	Alternate Wet and Dry
BARD	Bangladesh Academy for Rural Development
BASIC	Bangladesh Small Industries and Commerce Bank Limited
BB	Bangladesh Bank
BBS	Bangladesh Bureau of Statistics
BDC	Business Development Centers
BDS	Business Development Services
BDT	Bangladesh Taka
BEI	Bangladesh Enterprise Institute
BEPZA	Bangladesh Export Processing Zones Authority
BFDC	Bangladesh Fisheries Development Corporation
BFRI	Bangladesh Fisheries Research Institute
BFWE	Bangladesh Federation of Women Entrepreneurs
BHWWA	Bangladesh Home Workers Women's Association
BIIF	Bangladesh Infrastructure Investment Fund
BINA	Bangladesh Institute of Nuclear Agriculture
BKB	Bangladesh Krishi Bank
BLRI	Bangladesh Livestock Research Institute
BMRE	Balancing, Modernization, Replacement and Expansion
BOI	Board of Investment
BOO	Build-own-operate
BOOT	Build-own-operate-transfer
BOT	Build-operate-transfer
BPDB	Bangladesh Power Development Board
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
BRRI	Bangladesh Rice Research Institute
BSCIC	Bangladesh Small and Cottage Industries Corporation
BWCCI	Bangladesh Women Chamber of Commerce and Industries
CA	Chartered Accountant
CBC	Cross Breed Cow

CBO	Community Based Organisation						
CC	Cash Credit						
CC	Climate Change						
CCEA	Cabinet Committee on Economic Affairs						
CHP	Combined Heat and Power						
CIB	Credit Information Bureau						
CSR	Corporate Social Responsibility						
CW	Credit Wholesaling						
CWCCI	Chittagong Women Chamber of Commerce and Industries						
DAM	Directorate of Agricultural Marketing						
DBFO	Design-build-finance-operate						
DCC	Dhaka City Corporation						
DCCI	Dhaka Chambers of Commerce and Industries						
DEA	Department of Economic Affairs						
DESA	Dhaka Electric Supply Authority						
DESCO	Dhaka Electric Supply Company						
DIP	Draft Industrial Policy						
DLS	Department of Livestock Services						
DOF	Department of Fisheries						
EBL	Eastern Bank Limited						
EC	European Commission						
EEF	Equity Entrepreneurship Fund						
EEZ	Exclusive Economic Zone						
EFC	Expenditure Finance Committee						
EPB	Export Promotion Bureau						
EPIDC	East Pakistan Industrial Development Corporation						
FAP	Flood Action Plan						
FBCCI	Federation of Bangladesh Chambers of Commerce and Industry						
FCB	Foreign Commercial Bank						
FDI	Foreign Direct Investment						
FDR	Fixed Deposit Receipt						
FI	Financial Institution						
FMD	Foot and Mouth Disease						
FY	Fiscal Year						
GDP	Gross Domestic Product						
GOB	Government of the People's Republic of Bangladesh						
GVP	Good Veterinary Practices						

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Acronyms

GWH	Gross Electricity Generation
НАССР	Hazard Analysis and Critical Control Points
HISE	Household Income and Expenditure Survey
ICB	Investment Corporation of Bangladesh
ICT	Information Communication Technology
IDA	International Development Assistance
IDCOL	Infrastructure Development Company Ltd
IDESI	Institute for Development of the Informal Sector
IDLC	Industrial Development Leasing Company of Bangladesh Limited
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IIF	Infrastructure Investment Fund
IIFC	Infrastructure Investment Facilitation Center
IMF	International Monetary Fund
IP	Industrial Policy
IPFF	Investment Promotion and Financing Facility
IPP	Independent Power Producer
IRR	Internal Rate of Return
IRRI	International Rice Research Institute
JOBS	Jobs Opportunities for Business Development
LBC	Local Breed Cow
LC	Letter of Credit
LCC	Leaf Colour Chart
LOI	Letter of Intent
LSBPC	Leather Sector Business Promotion Council
LSI	Large Scale Industry
MELA	Micro Enterprise Lending and Assistance
MFI	Microfinance Institution
MGDP	Real Manufacturing GDP
MIDAS	Micro Industries Development Assistance and Services
MoF	Ministry of Finance
MOI	Ministry of Industries
MSI	Medium Scale Industries
MSME	Micro Small and Medium Enterprise
MTCC	Major Terms and Condition Committee
MWCA	Ministry of Women and Children Affairs

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NAP	National Action Plan					
NASIB	National Association of Small Industries of Bangladesh					
NBFI	Non-Bank Financial Institutions					
NCB	Nationalised Commercial Bank					
NCC	National Credit and Commerce Bank					
NGO	Non-Government Organisation					
NHDP	National Highway Development Plan					
NIP	New Industrial Policy					
NLP	National Livestock Policy					
NPL	Non-Performing Loan					
NPV	Net Present Value					
O&M	Organisation and Management					
PAU	Policy Analysis Unit					
PC	Privatisation Commission					
PCB	Private Commercial Bank					
PDF	Power Development Fund					
PFI	Private Financial Institution					
PICOM	Private Infrastructure Committee					
РМО	Prime Minister's Office					
PPA	Public Procurement Act					
PPP	Public-Private Partnership					
PPPAC	Public-Private Partnership Appraisal Committee					
PPPC	Public-Private Partnership Council					
PPPTA	Public-Private Partnership Technical Assistance					
PPR	Public Procurement Regulation					
PPRC	Power and Participation Research Centre					
PPR	Public Procurement Rules					
PRSP	Poverty Reduction Strategy Paper					
PSIG	Private Sector Infrastructure Guidelines					
REB	Rural Electrification Board					
RFQ	Request for Qualifications					
SCB	Specialised Commercial Bank					
SEBL	Southeast Bank Limited					
SEDF	South Asia Enterprise Development Facility					
SEED	Small Enterprise Development Programme					
SEL	Small Entrepreneur Lending					
SFC	Standing Finance Committee					

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Acronyms

SFYP	Sixth Five Year Plan
SIBL	Social Islami Bank Limited
SME	Small and Medium Enterprise
SMEF	SME Foundation
SOB	State-owned Banks
SOE	State-owned Enterprises
SPV	Special Purpose Vehicle
SRI	System of Rice Intensification
SSC	Secondary School Certificate
SSCI	Small Scale and Cottage Industries
TBT	Technical Barriers to Trade
TIN	Tax Identification Number
VDP	Village Defense Party
VFM	Value for Money
VGF	Viability Gap Funding
WEA	Women Entrepreneurs Association
WEAB	Women Entrepreneurs Association of Bangladesh
WEPD	Women Entrepreneurship Development Project

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FOREWORD





Air Vice Marshal (Retd.) A. K. Khandker Minister Ministry of Planning Government of the People's Republic of Bangladesh

I am happy to learn that the General Economics Division (GED), Planning Commission and the Bangladesh Institute of Development Studies (BIDS) are jointly publishing the technical framework results and the background studies conducted for preparation of the country's Sixth Five Year Plan (2011-2015).

The technical framework of the Sixth Plan and the background studies generated quantitative/qualitative benchmark values and targets for all relevant sectors/indicators of the plan and identified critical macroeconomic foundation for future intervention. It also forms the basis for determining sectoral targets for prudent responses during the Sixth Plan period.

I am particularly pleased to note that this is a first attempt made in our plan history to publish the results of the economic models and background papers in six volumes that form the basis for the preparation of the Sixth Five Year Plan Document. It will be a useful reference to the policymakers, development planners, academics and researchers alike to examine and evaluate the rationale of plan targets and resource allocation. I am sure it will also provide impetus for preparing future models when formulating Seventh Plan for Bangladesh.

I am confident that the Sixth Five Year Plan will amply guide us in realising our "Vision 2021" goal of becoming a middle-income country by 2021 when we will celebrate the Golden Jubilee of our Independence.

Both the GED of the Planning Commission and the BIDS deserve my special thanks for undertaking this novel venture.

pethand

Air Vice Marshal (Retd.) A. K. Khandker

PREFACE

The National Economic Council (NEC) in May 2009 decided to prepare the country's Sixth Five Year Plan (2011-2015) within the framework of the Perspective Plan (2010-2021) and keeping the goals of the Vision 2021 in view. The Planning Commission constituted a high level inter-ministerial "Steering Committee" with the Planning Minister as its chair and formed a "Panel of Economists" for guiding the process of formulating the Plan within a participatory framework.

The preparation of the Plan necessitated the formulation of the technical framework for finalising the Plan strategies and indicating the desirable development path that would lead to fulfilling its objectives. Several background studies were also undertaken for generating quantitative/qualitative benchmark values and targets for relevant indicators of the Plan and fill-in critical knowledge gaps. The Bangladesh Institute of Development Studies (BIDS) was assigned to conduct the background studies and develop the technical framework of the Plan for which renowned economists and development practitioners in the relevant fields were engaged to complete the tasks within the stipulated time period. The drafts of the studies were reviewed by relevant experts in the government as well as from the professional and academic community. Based on such elaborate feedbacks, the drafts were modified and finalised by the authors under the overall supervision of BIDS.

These studies provided valuable information/inputs which significantly contributed towards drafting the Sixth Five Year Plan. The studies are rich in contents and, if made available, will enrich the knowledge base relating to development challenges and development options facing Bangladesh. In view of the importance of these studies, it has been decided that BIDS and the General Economics Division (GED) of the Planning Commission will jointly publish these studies, including the technical framework, for making these available to interested readers and users. It may be added here that similar studies conducted during the preparation of the earlier Plans have not been made available in the public domain.

The studies have been published in six separate volumes. It is expected that these volumes will help the readers to understand the rationale for the choice of the specific paradigm underlying the Plan and the design of the policy package adopted for the Plan for reconciling the goals of efficiency with those of equity. The studies attempt to spell out a reform strategy and agenda for agriculture, food security, industrialisation, poverty reduction, social development, sustainable management of

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natural resources, and other development issues in Bangladesh in the light of current conditions as well as past experience.

We would like to express our deep gratitude to the authors of the technical framework and background studies for their sincere efforts in finalising the manuscripts in time. We are also indebted to the relevant officials of GED and BIDS for their untiring support and cooperation. We hope that the relevance of the issues and the diverse contents and analysis of the publications would make these volumes useful for the research community, policymakers, and others interested in understanding the development challenges of Bangladesh.

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Chapter 1

Crop Agriculture and Agrarian Reforms in Bangladesh: Present Status and Future Options

Mahabub Hossain Uttam Deb

1.1 INTRODUCTION

Agriculture is the backbone of the economy and the source of production of food for the people, raw materials for industries, and timber for construction. Despite the gradual decline of the share of agriculture in the gross domestic product with economic progress, the sector still contributes about a fifth to the national incomes, and employs nearly half of the labour force. Agricultural growth is crucial for making food available for the growing population, for generating income for the 70 per cent of the population still living in rural areas, and production of marketed surplus for the rapidly growing urban population.

Agricultural growth has accelerated from less than 2 per cent per year during the first two decades after independence to nearly 4 per cent during the last decade (Table 1.1). The acceleration of growth has come more from increased growth of fisheries, forestry and livestock than from crop sector. The crop sector has remained the most important sector of agriculture, accounting for 56 per cent of the agricultural GDP (Table 1.2). The crop sector provides staple food, rice and wheat, and other daily necessities such as pulses, oil, sugar, and vegetables and spices. Rice is the principal economic activity and a sensitive commodity that affects socio-economic and political stability. Crop sector thus occupies an important place in the policy making of the country.

Crop production is inextricably linked to water resource management because Bangladesh has no further scope of expanding the land frontier. Future growth of production must depend on vertical expansion of continued increase in land productivity for which efficient irrigation, flood control and drainage are essential (Ahmed 2001). Much of the increase in rice production in the past has been through expansion of irrigation, particularly through exploitation of ground water resources. But availability of fresh water resources has been declining partly due to harnessing

of water for irrigation and generation of electricity upstream in India. It will continue to decline even at a faster rate due to increasing competition for water from the expanding urban and industrial sector. Water resource management has thus become a key area for sustaining growth in crop production and achieving and sustaining food security.

	2001/02	1996/97	1991/92	1981/82	1975/76	1975/76
	to	to	to	to	to	to
	2008/09	2000/01	2000/01	1990/91	1999/00	1990/91
Agriculture	3.8	4.8	3.4	1.9	2.2	2.0
Crops	3.4	4.7	2.3	1.8	1.8	2.0
Forestry	4.9	4.8	3.9	0.8	3.3	3.6
Livestock	5.0	2.7	2.8	2.8	3.4	1.6
Fisheries	3.6	6.2	7.1	1.8	3.0	0.0
Non-agriculture	6.4	5.4	5.4	4.7	5.4	4.8
Gross domestic product	6.0	5.2	4.9	3.9	4.1	3.6

 TABLE 1.1

 PERFORMANCE OF AGRICULTURE COMPARED TO OTHER SECTORS

Source: Estimated from BBS data reported in Statistical Yearbook and Monthly Statistical Bulletin.

 TABLE 1.2

 CHANGES IN THE SHARE (%) OF SUB-SECTORS TO AGRICULTURAL GDP

Year	Crops	Livestock	Forestry	Fisheries	Agriculture Sector
FY81-FY83	65	13	7	15	100
FY91-FY93	64	13	7	17	100
FY01-FY03	58	12	8	22	100
FY07-FY09	56	13	8	22	100

Source: Authors' calculation based on data reported in BBS, Statistical Yearbook.

Despite a steady growth in agriculture and food production, Bangladesh has been facing persistent challenges in achieving food security due to scarcity of land, continued growth of population, natural disasters and fluctuations in food prices from the influence of the volatile international market for basic food items (Deb *et al.* 2009). Sudden increase in the price of the staple food, rice and flour erodes the purchasing capacity of the bottom 40 per cent of the poor people and the large lowearning labour force who depend on the informal market for livelihoods. Access to food will continue to depend on comprehensive economic development including faster growth in the industry and the service sector of the economy. But since almost half of the labour force still depend on crop sector for employment, the growth of the crop sector and the favourable terms of trade for agricultural

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commodities are crucial for increasing incomes of the low-income people and their capacity to access food.

1.2 PERFORMANCE OF THE CROP SECTOR

1.2.1 The Record of Growth in Production

The crop sector accounts for almost 12 per cent of the GDP and 56 per cent of the agricultural value added. Rice, the dominant staple food, occupies over three fourth of the copped area in Bangladesh (Table 1.3). The other major crops are jute, wheat, potato, rapeseed and mustard, different types of pulses, chillies and onions and vegetables, sugarcane, tobacco and tea. None of these crops occupy more than 4 per cent of the total cropped area. The cropped area did not increase much over the last four decades due to extreme scarcity of land, but there has been substantial reallocation of land among different crops depending on the potential for increase in productivity and profitability of different crops (Table 1.3). The cropped area under boro rice, wheat, maize, potato and vegetable has increased, while the area under aus rice, pulses, oilseeds and most industrial crops has increased.

Crops	TE 1982	TE 1990	TE 2000	TE 2004	TE2009
Cereal Crops					
Aus	24.19	12.32	9.93	8.65	7.21
Aman	34.00	37.00	40.00	39.90	40.06
Boro	9.94	15.06	26.28	27.12	34.08
Wheat	4.20	4.19	6.02	4.90	2.97
Maize	0.02	0.02	0.13	0.26	1.18
Non-cereal crops					
Jute	4.55	3.99	3.23	3.05	3.21
Potato	0.81	0.84	1.78	1.77	2.87
Sugarcane	1.21	1.33	1.24	1.15	1.02
Rape and Mustard	1.48	2.42	2.22	2.06	1.66*
Til	0.31	0.62	0.27	0.27	0.25*
Musur	0.61	1.50	1.30	1.09	0.87*
Mung	0.12	0.42	0.53	0.31	0.18*
Gram	0.42	0.72	0.12	0.10	0.09*
Cotton	0.27	0.32	0.27	0.09	0.07
Others	17.89	19.27	6.81	9.54	9.73
All crops	100.00	100.00	100.00	100.00	100.00

TABLE 1.3 SHARE OF DIFFERENT CROPS TO THE GROSS CROPPED AREA IN BANGLADESH: TE1981/82, TE1990/91, TE2003/04 AND TE2008/09

Source: Authors' calculation, based on data reported in BBS, Statistical Yearbook (various years). **Note:** * indicates data for TE2007-08 (average of FY2005-06 to FY2007-08).

The trend in production of major crops over the last two decades can be seen from Table 1.4. Rice production has tripled from 11 million tons (milled rice) to about 32 million tons since independence in 1971. Growth in rice production was very high at 2.8 per cent per year in the 1980s, and 3.5 per cent per year since 1990/91. Most of the growth has occurred since the late 1980s, through adoption of improved rice varieties supported by rapid expansion of ground water irrigation (Tables 1.4 and 1.5). Over 80 per cent of the increase in rice production during the last two decades came from the expansion of irrigated boro rice in the dry season, with reallocation of land from low-yielding rain fed aus rice. Over three-fourths of the rice area is now cropped with improved varieties developed in the Bangladesh Rice Research Institute (BRRI) in collaboration with the International Rice Research Institute (IRRI) (Hossain *et al.* 2006).

TABLE	1.4
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TREND IN THE PRODUCTION OF DIFFERENT CROPS, 1990/91 TO 2008/09 (In thousand metric tons)

					(
Crops	1990/91	1995/96	2000/01	2005/06	2008/09	Growth rate (percent/ year): 1991-92 to 2008-09
Cereal Crops						
Rice	17,785	17,687	25,086	26,530	31,318	3.5
Aus	2,261	1,676	1,916	1,745	1,895	-1.1
Aman	9,167	8,790	11,249	10,810	11,613	1.3
Boro	6,357	7,221	11,921	13,975	17,810	6.4
Wheat	1,004	1,369	1,673	735	849	-2.6
Maize	3	3	10	523	730	28.3
Non-cereal Crops						
Pulses	521	522	365	279	204*	-5.6
Oilseeds	448	471	384	322	367*	-1.8
Spices	319	314	394	1,182	1,368*	9.7
Jute	962	739	821	821	842	-0.6
Sugarcane	7,682	7,165	6,742	5,511	5,233	-2.2
Tea	46	48	57	58	59*	1.4
Tobacco	34	39	37	43	40*	0.7
Potato	1,237	1,492	3,216	4,161	5,268	9.8

Source: Bangladesh Bureau of Statistics: Statistical Yearbook of Bangladesh, and Monthly Statistical Bulletin, various issues.

Note: * indicates data for FY2007-08.

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Crops	1981/82-	1991/92-	2001/02-	1981/82-	1991/92-
	1990/91	2000/01	2008/09	2008/09	2008/09
Rice	2.8	3.3	3.2	2.9	3.5
Aus Total	-3.1	-1.7	-1.3	-2.8	-1.1
Aman Total	1.7	0.9	-0.3	1.5	1.3
Boro Total	8.2	7.0	6.2	6.4	6.4
Wheat	-1.9	6.7	-11.3	-0.1	-2.6
Total Food grains (Rice and Wheat)	2.5	3.5	2.6	2.8	3.2

TABLE 1.5 ANNUAL COMPOUND RATE OF GROWTH (%) IN PRODUCTION OF FOOD GRAINS IN BANGLADESH

Source: Calculations are based on data reported in BBS, Statistical Yearbook (various years). For detailed analysis on the growth in rice sector with earlier data, see Ahmed (2001) and Zohir *et al.* (2002).

TABLE 1.6

ANNUAL COMPOUND RATE OF GROWTH OF NON-FOOD GRAIN CROPS IN BANGLADESH

					(% per annum)
Crops	1981/82- 2008/09	1991/92- 2008/09	1981/82- 1990/91	1991/92- 2000/01	2001/02- 2008/09
Pulses	-0.8	-5.6	11.8	-3.9	-8.4
Oilseeds	0.3	-1.8	6.4	-1.2	-2.0
Vegetables	6.4	10.7	2.7	4.2	34.2
Potato	6.8	9.8	0.5	9.9	9.7
Sugarcane	-0.9	-2.2	0.6	-1.0	-4.3
Fruits	2.9	6.3	0.3	0.9	22.0
Теа	1.8	1.4	1.1	2.0	1.4
Tobacco	-0.8	0.7	-4.3	-0.6	1.4
Jute	-0.9	-0.6	-0.4	-1.5	0.6
Source: Author	s' calculation base	d on data reporte	d in BBS Statisti	cal Vearbook (ve	rique veare)

Source: Authors' calculation based on data reported in BBS, Statistical Yearbook (various years).

Wheat, the minor food staple, also had a respectable growth till the late 1990s, but has recently given way to maize because of favourable agro-ecological environment for maize that gives higher productivity compared to wheat, and a stable and expanding market for maize as feed for the expanding poultry sector. The production of maize was negligible till the end of 1990s, but has grown very fast in the current decade and has now overtaken wheat (Table 1.4). Since maize is used as poultry feed, the substitution of wheat by maize has had a negative impact on the supply of staple food for people, and has put more pressure on rice to meet the growing demand.

Over the last two decades, good progress has also been achieved in the production of potato and vegetables (Tables 1.4 and 1.6). The growth has been particularly impressive in the last decade. The major problem faced by potato and vegetable production is the volatility in prices leading to large year-to-year fluctuations in production. It will be difficult to sustain the growth of production of these high-value and labour- intensive crops unless (a) investment is made in the processing and storage to stagger marketing of the crops throughout the year to match the demand that remains stable across the season, and (b) exploiting international market for the surplus after meeting domestic needs. Penetration in the world market for vegetables is, however, difficult due to phyto-sanitary regulations and concerns of developed country people regarding food safety.

The production of most other crops including pulses, oilseeds and jute and sugarcane has either remained stagnant or has declined (Tables 1.4 and 1.6). The production of pulses and sugarcane has been consistently declining over time. The production of oilseeds and jute has picked up in recent years due to favourable markets, some progress in recent years in the development of higher yielding varieties, and identification of favourable agro-ecological niche for these crops.

1.2.2 Drivers of Growth

Major drivers of crop production have been development and diffusion of improved crop varieties, and more effective water management, particularly expansion of irrigation infrastructure (mostly shallow tube well based groundwater irrigation). More than 500 modern varieties of different crops have been developed in the national agricultural research systems (Hossain et al. 2006a, 2006b). Among them only a few have remained popular with farmers. For rice, the most popular varieties are BR11 developed in 1981 and Brridhan 28 and Brridhan 29 developed in 1994. A few Indian varieties such as Swarna and Shatabdi (mini kit) have moved into Bangladesh through farmer to farmer exchange because of their special characteristics (such as improved grain quality, shorter maturity, and low-input intensity). Swarna is grown widely in the border districts during the aman season. Farmers have also started growing hybrid rice, the seed of which is imported from China. In recent years some private sector farms have started producing seeds of hybrid rice and maize within the country through contract farming. Gradual adoption of these improved varieties by replacing low-yielding traditional varieties has contributed to increase in yield, reduction in per unit cost of production, and increased profitability in farming. Thus, real price of agricultural products declined over time without hampering incentives for the farmers which has been a major factor behind the progress made in the reduction of poverty.

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The technological progress has been supported by public and private investment for the infrastructure for irrigation; flood control and drainage, because the optimum exploitation of the yield potential of improved varieties depend on water management. The area irrigated has expanded rapidly since 1989 with the liberalisation in the import of diesel engines and reduction in import duties and withdrawal of restrictions on standardisation of irrigation equipment (Mondal 1993, Ahmed 1995). As a result, the unit cost of small scale irrigation equipment such as shallow tube wells and low-lift power pumps has declined, leading to massive private sector investment on minor irrigation. Almost 1.4 million shallow tube wells now operate in Bangladesh providing services to 10 million farmers for lifting ground water for dry season irrigation (GoB 2008). Shallow tube wells now account for over 70 per cent of the irrigated area. A water market has emerged that provides irrigation services to adjoining plots in the command area. The water market provides access to irrigation to small and marginal farmers who cannot afford to invest in the irrigation equipment. The irrigated area has expanded to over 5.5 million out of eight million hectare of cultivated land. It has facilitated the cultivation of dry season irrigated rice farming known as boro rice by replacing low-yielding pre-monsoon aus rice, and deep water aman rice in the extreme lowlands. The boro rice, which accounted for only 10 per cent rice production before Independence, now accounts for nearly 60 per cent of the annual rice production. Over 80 per cent of the growth in rice production since 1989/90 came from the expanded area and higher yield of boro rice (Hossain 2010).

1.2.3 Dependence on Imports for Food Availability

Despite the progress made over the last two decades, Bangladesh is yet to achieve self-sufficiency in food production. Bangladesh is a net importer of both rice and wheat. It is also a net importer of pulses, edible oils, spices, fruits, sugar, milk and milk products.

Bangladesh has undertaken a series of agricultural policy measures and policy reforms for the development of the agriculture sector (Ahmed 1995, 2001). These were related to inputs (seed, fertiliser, irrigation, farm machineries, and agricultural credit), outputs (procurement and distribution of food grains) and investment for agricultural development. For improving efficiency in the delivery of inputs, government has encouraged pro-market distribution of seeds, fertilisers, pesticides and diesel fuel for irrigation. In 2009 and 2010, the government has taken a number of steps for improvement in delivery mechanism for public support and input delivery to the farmers. These include introduction of agriculture inputs assistance cards for farmers, direct disbursement of diesel subsidy to the farmers' bank

account, free electricity for irrigation to face early drought in the monsoon season, new mechanism for fertiliser delivery, collateral free credit for tenant farmers and increased amount of agricultural credit provided to the farmers.

Output market related interventions were made by the government through domestic procurement of rice and wheat, distribution of food grains through public food grain distribution system, and through tariffs on imported rice and wheat (Deb *et al.* 2009). Domestic procurement of both rice and wheat is made by the government with a view to provide support to the farmers and to procure required quantity of food grains to support the public food grain distribution system. The government reduced the level of domestic procurement of rice in the early 1990s and then has started to increase the procurement level again since the late 1990s. However, proportion of procured rice to the total rice production is very minimal (about 3 to 4 per cent of total production). Wheat procurement was substantial when production of wheat was high. However, in the recent years, along with decline in wheat production, domestic procurement of wheat has declined substantially. During the last two years government was not able to procure any wheat from the domestic market. In recent years, the government has taken steps to increase domestic procurement of Boro rice.

In 1993, the government opened the import food grains to the private sector. Currently, most of the import of rice and wheat is done by the private sector. The import of rice has declined in normal years but increased substantially in the years of floods and cyclones. Import of wheat has increased in recent years due to (a) decrease in domestic production, (b) substantial reduction in food aid that the government used to receive in the form of wheat for implementing disaster relief and safety net programmes, and (c) increase in demand for products made from wheat flour in urban areas. Import of pulses, edible oils, spices and sugar has been on the rise at an alarming rate (Table 1.7). For example, the import of edible oil has increased from 153,000 tons in 1990/91 to 473,000 tons in 2004/05 and further to 865,000 tons in 2008/09. Similar trend is observed in the import of wheat and pulses. The import bill on account of food has grown at more than 10 per cent in the current decade, and now accounts for over one-fifth of the export earnings of the country. The volatility of prices in the world market for these basic necessities get transmitted in the domestic market and contributes to food insecurity of the lowincome households. The government must plan import substitution of many of these crops after assessment of their competitive edge, through promotion of crop diversification.

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						(In mil	lion US\$)
Year	1990/91	1995/96	2001/02	2005/06	2006/07	2007/08	2008/09
Export Items							
Raw Jute	104	91	61	148	148	165	147
Tea	43	33	17	12	7	15	12
Agricultural Products	8	22	23	106	88	121	122
Vegetables	4	15	15	32	30	60	45
Fruits	1	3	0	7	5	9	6
Tobacco	2	1	5	19	18	22	41
Other Agricultural Products	1	2	2	48	34	29	20
Frozen Foods	142	314	276	460	516	534	455
Others Primary Products	9	17	13	48	74	153	256
Total Primary Export	306	476	391	774	833	988	870
Total Export	1,717	3,882	5,986	10,514	12,154	14,088	15,537
Import Items							
Rice	-	358	15	117	180	874	239
Wheat	297	228	171	301	401	536	643
Milk & cream	72	53	59	73	83	137	96
Spices	19	23	13	32	76	80	62
Oil seeds	16	89	72	90	106	136	159
Edible oil	153	179	251	473	583	1006	865
Pulses all sorts	26	24	88	164	195	327	234
Sugar	-	6	23	124	294	396	413
Fertiliser	90	97	107	342	357	632	955
Raw cotton	68	185	312	742	858	1,212	1,291
Total Agricultural Import	744	1,247	1,116	2,458	3,133	5,336	4,958
Total Import	3,510	6,931	8,540	14,746	17,157	21,629	22,507

TABLE 1.7 TRENDS IN EXPORTS AND IMPORTS (000 TONS) OF AGRICULTURAL COMMODITIES BY BANGLADESH: 1990/91-2008/09

Source: Export figures were obtained from Export Promotion Bureau (EPB); Import figures were obtained from Bangladesh Bank website.

1.2.4 Food Intake and Nutritional Imbalance

The availability and access of food are major elements of food security. The per capita intake of rice has increased over time and reached the level of 477 gm per person per day for the rural area and 389 gram for the urban area (Table 1.8). The intake of cereals has remained almost stagnant in urban areas, indicating that the consumption level has reached almost the saturation point. The intake of wheat has declined substantially both in urban and rural areas. The intake of potato and

vegetables has also increased over time and has reached almost 250 gram per person per day, close to the recommended norm for achieving balanced nutrition.

Items	Rı	ural Area	Urb	an Area	National
	Gm/day/	Consumption	Gm/day/	Consumption	Consumption
	person	(million ton)	person	(million ton)	(million ton)
Cereals	489	18.65	417	5.81	24.46
Rice	477	18.19	389	5.42	23.61
Wheat	12	0.46	28	0.39	0.85
Pulses	13	0.50	19	0.27	0.76
Vegetables	221	8.43	228	3.18	11.61
Potato	63	2.40	68	0.95	3.35
Brinjal	25	0.95	25	0.35	1.30
Pumpkin	27	1.02	21	0.29	1.31
Leafy veg	29	1.11	32	0.45	1.56
Tomato	5	0.19	10	0.14	0.33
Others	72	2.74	72	1.00	3.74
Fruits	34	1.30	35	0.48	1.78
Mango	9	0.34	8	0.11	0.45
Banana	7	0.27	7	0.10	0.37
Jackfruit	11	0.42	6	0.08	0.50
Others	7	0.27	14	0.20	0.47
Spices	51	1.95	64	0.89	2.84
Onion	16	0.61	26	0.36	0.97
Chilies	10	0.38	10	0.14	0.52
Salt	16	0.61	16	0.22	0.93
Others	9	0.34	12	0.17	0.51
Oils/fats	15	0.57	23	0.32	0.89
Soybean/palm oil	10	0.38	22	.31	0.69
Mustard	5	0.15	1	0.01	0.16
Sugar/gur	8	0.30	10	0.14	0.44
Fish	40	1.53	50	0.70	2.23
Meat/eggs	18	0.69	32	0.45	1.14
Beef	7	0.27	12	0.17	0.44
Chicken	6	0.23	11	0.15	0.38
Eggs	4	0.15	8	0.12	0.27
Milk	32	1.22	36	0.50	1.72

 TABLE 1.8

 ESTIMATE OF THE LEVEL OF CONSUMPTION OF DIFFERENT

 FOODITEMS, 2005 (HIES)

Source: BBS, Report of the Household Income and Expenditure Survey, 2005.

The level of consumption of cereals and vegetables has increased over time and the gap in consumption for the poor and non-poor has narrowed down (Table 1.9). However, substantial gap remains in the consumption of quality food items such as pulses, oils, fish and livestock products. The level of intake of these food items has remained substantially below the level recommended by nutritionists for achieving balanced nutrition for people to live a healthy and productive life. The middle and



high income group have started reducing rice consumption in favour of a more diversified diet. But balanced consumption of different food items remains an issue for the low-income households. The price of pulses, oils, fish and meat has increased at a much higher rate than the price of rice (Table 1.10), which indicates growing demand-supply imbalance for the non-cereal food items. The Sixth FiveYear Plan (hereinafter Sixth Plan) must give priority for faster growth of non-cereal food crops to address the issue of unbalanced diet of the poor people.

TABLE 1.9

TREND IN THE FOOD CONSUMPTION OF THE BOTTOM AND THE TOP QUINTILE GROUPS (GRAM/PERSON/DAY)

	Bottom 2	0 per cent ho	ouseholds	Top 20 per cent households		
	1983-84	1991-92	2005	1983-84	1991-92	2005
Rural area						
Cereals	332	386	427	665	647	521
Vegetables	98	119	224	228	261	231
Pulses	5	8	8	22	28	16
Fish	12	13	21	51	60	64
Urban area						
Cereals	315	413	417	516	470	417
Vegetables	107	142	207	282	284	287
Pulses	11	16	11	33	29	26
Fish	18	25	30	62	81	89

Source: Hossain *et al.* (2005) for 1983-84 and 1991-92, and own estimate for 2005 based on BBS HIES report 2005.

TABLE 1.10

TREND IN THE PRICES	OF PULSES.	FISH AND	OILS RELA	ΓΙVΕ ΤΟ	RICE
INCLUDING THE INCLES	OI I ULDLD		OILD KLLM		INCL

Commodity	1975-77	1980-82	1998-00	2005-06	2008-09
Pulses/Rice	1.5	1.9	2.6	2.8	3.6
Fish/Rice	4.2	4.7	8.8	9.5	8.1
Oils/Rice	6.1	4.7	4.3	4.1	4.3

Source: Authors' calculations based on BBS (various years).

In recent years, the volatility in prices of food commodities has increased which is a major concern for poor consumers. Several studies have predicted that volatility in food prices in the international market is likely to continue indicating that heavy reliance on international market for food commodities will have negative consequences on the food security situation in Bangladesh. Therefore, the Sixth Plan must aim at reducing the dependence on the world market for basic necessities such as rice, pulses, oils and sugar to overcome nutritional imbalance and to reduce volatility in prices of these commodities in the domestic market.

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1.3 CHALLENGES TO ACHIEVING FOOD SECURITY

Bangladesh has made good progress in reducing population growth from over 2.5 per cent in the 1970s to 1.4 per cent during the 1990s. But the population is still growing at 1.8 million per year (Table 1.11). The production of rice must increase by over 300,000 tons per year to meet the growing demand for food from the additional population. It is also projected that the rural population has almost reached at the stationary level while most of the increase in population in future will be located in urban areas due to rapid rural to urban migration. The growing urbanisation means that marketed surplus must increase at a fast rate to feed the urban population, for which farmers have to be provided adequate incentives. The generation of the marketed surplus will depend on sustaining high levels of profitability in farming and maintaining a favourable terms of trade for agriculture. This prognosis is apparently in conflict with the election pledge of the government to keep food prices low for the consumers. It is possible to overcome this apparent conflict through sufficient increase in yield so that per unit cost of production declines and the farmer can share the savings with the consumer in the form of lower prices.

TABLE 1.11

PROJECTED GROWTH IN POPULATION, RURAL AND URBAN

				(in million)
	2005	2010	2015	2020
Urban	34	37	44	50
Rural	105	110	112	114
All	139	147	156	164
Urban population as % of total population	24	25	28	30

Source: BBS and World Bank population projection.

The per capita consumption of rice has reached almost at a saturation point for the rural areas and has started to decline in urban areas. The level of rice consumption in Bangladesh is one of the highest in the world, and is not expected to increase any further. Rather with faster economic growth and growing urbanisation, the per capita rice consumption will decline as people will go for diversification of the diet substituting rice for better quality non-rice food items. The population growth will be the main driver of the increase in demand for rice.

But the demand for other food items continues to increase much faster than the growth of population because of (a) strong income growth induced demand (high income elasticity) of non-cereal food items, (b) recent acceleration in the growth of per capita income (Over 4.5 per cent per year) which is expected to accelerate further in future, and (c) the diversification of diet in favour of non-rice food items associated urbanisation and income growth. The Report of the National

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Commission of Agriculture (1999, unpublished) estimated that if the GDP growth accelerated to seven per cent per year, the demand for food crops will increase at 3.1 per cent per year during 2010-2020.

We have updated the income elasticity of demand for different food items with the household level data from the 2000 Household Income and Expenditure Survey of the BBS by using the Almost Identical Demand System, and used the estimated system to project the income elasticity of demand for 2011 and 2021 by putting in the equation the projected income levels. The projected numbers can be seen from Table 1.12. It can be noted that the demand response to income growth will turn negative for cereal crops by 2021 if income growth accelerates to 8 per cent per year during the Sixth Plan period and to 10 per cent per year by 2021. But the income elasticity of demand will remain very high for fruits, pulses oilseeds and sugar. The per capita consumption of these food items will grow fast with the acceleration of economic growth over the next decade. The demand growth will remain highest for food and livestock products.

TABLE 1.12
PROJECTED INCOME ELASTICITY OF DIFFERENT AGRICULTURAL
PRODUCTS

INODUCIS				
	Expenditure elasticity	Income elasticity	Projected income elasticity	
	2005	2005	2011	2021
Cereals	0.35	0.25	0.18	-0.08
Vegetables	0.70	0.49	0.43	0.30
Spices	0.81	0.60	0.53	0.44
Fruits	1.13	0.86	0.74	0.58
Pulses	1.02	0.72	0.61	0.30
Oils	0.87	0.58	0.51	0.43
Fish	1.23	0.86	0.71	0.48
Livestock products	1.71	1.20	1.02	0.63
Savings		1.42		

Source: Estimated by fitting AIDS model with household level data from 2005 HIES.

We have projected the change in per capita consumption of food items by applying the projected income elasticity of demand on the projected growth of income which is assumed to be 8 per cent per year for 2011-2016 and 10 per cent per year for 2016-2021. The projected numbers are shown in Table 1.13. The projected demand for different food items was estimated by applying the projected population for urban and rural areas. The estimated numbers and the required growth in supply to meet the demand are shown in Table 1.14. The demand growth is estimated at 1.5 per cent per year for cereals; 3 to 4 per cent for pulses and vegetables and spices; over five per cent for oils, sugar and fruits; and over 8 per cent for fish and livestock products.

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The growth in the supply of food to match the demand from domestic production will, however, be difficult due to several factors (Hossain and Deb 2009).

TABLE	1.13

					(811)	person/uuy)	
Food Items	Benchm	ark, 2011	20)16	2021		
	Rural	Urban	Rural	Urban	Rural	Urban	
Cereals							
Rice	530	430	530	420	520	400	
Wheat	15	30	20	35	24	45	
Non-cereals							
Pulses	15	22	19	27	22	34	
Oils	17	25	20	30	24	38	
Potato	70	80	80	96	94	112	
Other vegetables	170	180	200	208	220	240	
Spices	60	75	70	90	90	112	
Fruits	40	54	50	73	65	110	
Sugar	10	15	13	20	17	27	
Other Food							
Items							
Fish	48	62	60	80	76	100	
Meat and eggs	23	42	32	61	40	85	
Milk	40	50	50	73	65	100	

TABLE 1.15	
PROJECTIONS OF PER CAPITA CONSUMPTION OF DIFFEREN	NT FOOD ITEMS
	(gm/person/dav)

Source: Authors' calculation.

Note: The projections are based on growth of national income at 8 per cent per year for 2011-2016, and 10 per cent per year for 2016-2021.

TABLE 1.14
PROJECTIONS OF GROWTH IN DEMAND FOR DIFFERENT CROPS AND FISH AND
LIVESTOCK PRODUCTS, 2011 TO 2021

Food Items	Projected	demand (mil	lion tons)	Required growth in supply (%/yea			
	2011	2016	2021	Sixth Plan (2011-2016)	Seventh Plan (2016-2021)		
Cereals							
Rice	27.40	28.71	29.00	1.0	0.2		
Wheat	1.02	1.41	1.85	6.5	4.5		
Non-cereals							
Pulses	0.92	1.23	1.56	5.8	4.5		
Oils	1.04	1.32	1.72	4.5	4.5		
Potato	3.95	4.88	6.00	4.0	3.8		
Other vegetables	9.38	11.67	13.64	4.0	3.5		
Spices	3.48	4.37	5.85	4.5	4.0		
Fruits	2.23	3.27	4.60	6.0	6.0		
Sugar	0.62	0.87	1.22	6.0	6.0		
Other Food Items							
Fish	2.81	3.80	5.04	6.3	6.0		
Meat and eggs	1.52	2.33	3.28	8.3	6.5		
Milk	2.32	3.46	4.86	8.3	6.5		

Source: Estimated by applying the projected rural and urban population on the projected per capita consumption as estimated in Table 1.10.

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The natural resources, land and water and soil fertility, available for agricultural production have been declining. It is estimated from the report of Agricultural Census that cultivated land has been declining by almost one per cent per year due to its demand for increased habitation, industrial and commercial establishment, transport infrastructure, river erosion, and intrusion of saline water in the coastal areas. Conversion of prime agricultural land, at both sides of newly constructed roads, into sites for factories and commercial establishments for future use is a common site in Bangladesh. The low-lying lands are being converted into ponds for aquaculture, and the highlands into orchards, particularly by absentee landowners. The land available for crop production has been declining and the trend is likely to continue. The increase in crop yield will have to be targeted at a faster rate than the required growth in supply.

The soil fertility has declined due to high cropping intensity and un-balanced and over use of chemical fertilisers. The exploitation of ground water for irrigation for dry season rice farming (boro) has gone beyond the capacity of annual recharge of aquifers, with adverse effects on the supply of safe drinking water. The irrigated area has expanded to over 5.5 million hectare out of 8.0 million hectare of cultivated land, and over three-fourths of the area is irrigated with ground water, mostly by privately installed shallow tube wells (GoB 2008, Hossain 2010). The arsenic contamination of drinking water in large parts of the country is often blamed to exploitation of ground water for irrigation with shallow tube wells. For sustainable development, the dependence on ground water for further expansion of irrigation infrastructure must be reduced. The country must give attention to surface water irrigation which will need massive public sector investment. The management of the surface water irrigation project and their operation and maintenance has been proved to be difficult.

Bangladesh is projected to be most seriously affected by climate change and sea level rise. The land available for crop farming in the large coastal belt is going to be gradually reduced due to inundation from sea water and intrusion of saline water inwards. The risk in rain fed rice farming will further increase due to erratic monsoons and increased incidence of floods and droughts. Due to high risks farmers will continue to use inputs at sub-optimal levels in crop farming in the monsoon season. The high risk will be a constraint to adoption of improved crop varieties that are input-intensive.

The agrarian structure in Bangladesh is dominated by small and tenant farmers and scattered holdings (Hossain *et al.* 2006b). Despite rapid rural urban migration, the number of farm households continues to increase and the size of farm is getting smaller and smaller. The Report of the 2005 National Level Sample Survey conducted by the Bangladesh Bureau of Statistics shows that the number of farms

has increased by 25 per cent during 1996-2005, while the number of tiny farms with holding of less than half an acre has increased by 67 per cent (Table 1.15).

There is hardly any large farm in Bangladesh. The farms with holdings of over 3.0 hectare were only 300,000 in 1996 (out of 11.8 million farms); their number has further declined to 171,000 by 2005. The medium and large farms are investing the surplus for non-farm activities, leaving farming to agricultural labourers and marginal farmers. As a result, the tenancy market has been expanding. The area under tenant farming has increased from 23 per cent of the cultivated land in 1996 to 38 per cent in 2005 (Table 1.16), which is the main factor behind the vast increase in the number of marginal farmers. Tenancy arrangement has also changed in many areas from share cropping to fixed cash renting system and to one to three-year leasing arrangements with advanced payment of rents. This change in tenancy arrangement has created the opportunity for the tenant to benefit from additional production but increased his/her risk, particularly arising from floods, cyclones, tidal surge and other natural disasters. Under the crop sharing arrangement, loss occurred by such disasters was shared by both the land owner and the tenant. Now, with the cash renting arrangement, it is the tenant only who has to face the loss.

There are also questions regarding adequate incentives for farmers for continued growth of production. Farmers continue to face large fluctuations in farm gate prices. The price of most farm produce remains low at harvest that helps market intermediaries and large farmers to mobilise most of the farm surplus. The rapid migration to urban areas and oversees, and an inactive land market lead to increasing concentration of land in the hand of the absentee landowners. The large and middle farmers are increasingly leaving farm in favour of non-farm activities in rural and urban areas and getting the land cultivated by agricultural labourers and marginal landowners with unviable tiny holdings. The exploitative rental arrangements, the inability to mobilise savings and credit to finance working capital needs, and lack of access to modern agricultural information and knowledge may act as constraints to adoption of improved technologies and investment in agricultural enterprises.

As mentioned earlier, a large part of the increased demand for different food items is met through imports. The global market for staple food, particularly rice, has become tight with rapid increase in prices since 2006. The market has also become unreliable with governments in exporting countries imposing export bans to protect the interest of their own low-income people. The prices of the food items in the world market fluctuate widely making the domestic market highly volatile in the case of heavy dependence on imports. Sudden increase in prices emanating from the connectivity with the world market imposes hardship on low-income consumers.

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CHANGES IN THE STRUCTURE OF FARM HOLDINGS IN RURAL BANGLADESH, 1996 TO 2005									
Size of	1996	Census	2005 Sa	mple Census	% change, 1996-2005				
Holding	No. of farms	Cultivated area	No. of	Cultivated area	Farms	Cultivated			

TABLE 1.15

1//0	Cenbub	1 000 D u		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
No. of farms	Cultivated area	No. of	Cultivated area	Farms	Cultivated	
(000)	(000 acre)	farms (000)	(000 acre)		area	
3,356	655	5,598	1,329	67	103	
2,437	1,431	3,486	2,477	43	73	
1,757	1,803	2,077	2,492	18	38	
1,872	3,197	1,831	3,479	-2	1	
2,078	7,537	1,536	5,897	-26	-22	
298	3,125	171	2,020	-43	-35	
11,798	17,749	14,700	17,692	25	-0.3	
	No. of farms (000) 3,356 2,437 1,757 1,872 2,078 298 11,798	No. of farms (000) Cultivated area (000 acre) 3,356 655 2,437 1,431 1,757 1,803 1,872 3,197 2,078 7,537 298 3,125 11,798 17,749	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	

Source: BBS, Agricultural Census 1996, and Agricultural Sample Survey 2005.

TABLE 1.16

CHANGES IN THE INCIDENCE	OF TENANCY BY S	SIZE OF LANDHOLDING
--------------------------	------------------------	---------------------

Size of Holding	1	996 Census	2005 Sample Census		
(acres)	% of farmers	Rented-in land as % of	% of farmers renting land	Rented land as	
	renting land	cultivated area		% of cultivated	
				area	
0.05 to 0.49	25	29	29	64	
0.50 to 0.99	44	34	47	52	
1,00 to 1.49	44	29	54	57	
1.50 to 2.49	45	26	47	38	
2.50 to 7.49	43	21	41	25	
7.50 and above	36	15	33	15	
Total	38	23	40	38	

Source: BBS, Agricultural Census 1996, and Agricultural Sample Survey 2005.

1.4 OPPORTUNITIES

Against the constraints to increase crop production mentioned in the earlier section, there are some opportunities that can be harnessed to further increase in production and productivity. These are discussed below.

Unexploited potential exists for expansion of rice cultivation particularly in the southern coastal belt and also in the Sylhet region. The spatial distribution of cropping intensity, obtained from the district level data reported in the 2005 Sample Survey, can be seen from Map 1 in appendix. The areas of low cropping intensity are concentrated in South-Western Coast, and in the Sylhet and the Chittagong Hill Tracts regions. These are also the regions with low coverage of irrigated boro rice cultivation in the dry season (Map 2 in appendix). Approximately one million

hectare of land can be brought under dry season farming in these areas. Analysis of area under rice in different districts revealed that it is possible to expand cultivation of Boro rice in these areas by expanding surface water irrigation system. Earlier, it was difficult to expand Boro rice cultivation in these areas due to non-availability of suitable salt-tolerant varieties. BRRI and Bangladesh Institute of Nuclear Agriculture (BINA) have developed salt-tolerant high yielding rice varieties for cultivation in the salinity affected southern-coastal region. Further research is ongoing for development of varieties with increased level of salt tolerance (Hossain and Seraj 2008).

Bangladesh has not made much progress in increasing rice yield in the aman season due to slower adoption of modern varieties and low use of inputs in modern varieties in response to high risks. The yield in traditional aman varieties is 2.0 to 2.5 t/ha compared to 5.5 t/ha in boro rice. The yield of improved aman varieties is 1.5 t/ha below the level achieved in boro. The reduction of the yield gaps in the flood-prone ecosystem can contribute to increase in production in the aman season in future. The spatial distribution of the adoption of high yielding varieties in the Aman season, reported in MAp 3 in appendix, shows that the Sylhet basin and flood-prone areas surrounding the major rivers (Mymensingh, Sylhet, Dhaka, Faridpur and Barisal region) are lagging behind in technological progress in the aman season. Scientists have developed several submergence tolerant high yielding aman varieties (swarna Sub1, BR11 Sub1, IR64 Sub1) that can survive under water for upto 10-12 days without much yield penalty (Hossain and Seraj 2008). The adoption of these varieties and development and deployment of intermediate height improved varieties can help increase aman production in the low-lying areas.

In the low intensive areas of hilly regions (Chittagong Hill Tracts) sedentary agriculture in valley lands and horticulture, agro-forestry and tree farming on hill slopes shows promise from pilot experiments.

With recent favourable trend in farm gate prices of agricultural produce, the profitability in farming has gone up. The estimates of cost and returns of different crops at input coefficients for 2007/08 and prices prevailing in 2008/09 are reported in Annex Tables 1.A1, 1.A2 and 1.A3. The net returns from farming are fairly high for most of the crops. The highest returns are for Boro rice, maize, tobacco and potatoes. The net return per unit of land is modest for pulses, oilseeds and wheat, and is negative for aus rice and sugarcane.

Shahabuddin (2002) estimated the comparative advantage in production of rice and wheat in Bangladesh using input-output coefficients and prices for the late 1990s and prevailing market distortions. We have updated the estimate using

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information on input coefficient for 2007/08 and applying price data for 2008/09 (Hossain and Deb 2009). The following conclusions can be drawn from the numbers.

- At export parity price, Bangladesh has comparative advantage in the production of aman rice, potatoes and jute. Bangladesh can expand production of these crops beyond the limit of the domestic market and gain through export of the surplus production in the world market. The Aman crop is, however, subjected to high risks due to floods and droughts. If we make provision for insurance against frequent production losses, the normalised unit cost will be higher, and Bangladesh would not have comparative advantage at that cost.
- At import parity price, Bangladesh has comparative advantage in the production of boro rice and maize. Bangladesh will not be able to compete in the export market for this crop. But considering the transport cost and trading margin, the cost of importing rice into Bangladesh would be higher than the opportunity cost of producing it within the country.
- Bangladesh does not have comparative advantage in the production of wheat, pulses and oilseeds. Bangladesh will gain by importing these commodities if the resources tied in the production of these commodities can be diverted to the production of other crops. If we can find agro-ecological niche for these crops, or can fit them in the cropping system at a time when there is no opportunity cost of land (e.g. through relay cropping), these crops can also compete with imports.

The other opportunities for increasing crop production are as follows:

• *Yield gaps in the irrigated ecosystem*: The yield gap between experimental stations and farmers' field is still substantial. The yield of rice in the irrigated environment could be increased by another 10 per cent through use of good quality seeds since farmers use seeds from their own harvest which is often degenerated. The System of Rice Intensification (SRI) contains several crop management methods that have demonstrated an yield gain of 30 to 40 per cent in several Indian states as well as in Bangladesh. The elements are (a) use of young seedlings with larger spacing, (b) use of only one to two seedlings per hill instead of 4 to 5 that farmers currently use, (c) wet and dry irrigation system, and (d) use of farm yard manure as supplementation to chemical fertilisers. The fine tuning of crop management practices using adoption of SRI can help increase in yield in the irrigated system by 1 to 2 t/ha.

- Low adoption of hybrid rice. The hybrid rice technology has demonstrated an yield gains of about 20 per cent with the same level of inputs. The hybrid rice has so far spread to only about 15 per cent of rice land in the boro season. With the diffusion of hybrid technology the yield will increase over time. The major constraint to adoption is the high cost of seeds, complete dependence on the market for seed and the low quality of grain.
- Development of technologies for the unfavourable ecosystems. The present yield in the unfavourable environments is very low due to non-availability of improved technologies. As mentioned earlier, scientists have already developed technologies for these ecosystems that include submergence tolerance and salt-tolerant rice varieties, heat tolerant maize and wheat varieties, and short maturity varieties to help escape drought. Fast reaching of these technologies to farmers will require farmer-participatory validation to demonstrate their potential compared to farmers' current practices.
- Promotion of pulses and oilseeds in the drought prone north-western regions during the dry season. To face the increasing water scarcity during the dry season and also to increase production of pulses and oilseeds, vegetables and other water efficient crops such as maize can be grown in the north-western regions, particularly in the Barind Tract. Development of short duration and high yielding varieties will be required to realise this potential.
- *Promotion of horticultural and perennial crops*. Horticultural crops and perennial crops like mango, guava, and other fruits may be promoted in the high lands and water scarce regions to meet the growing demand for such products.

1.5 TARGETS FOR THE SIXTH PLAN

In consideration of the demand trends, the need for import substitution for basic food items, the natural resource and socio-economic constraints to increasing domestic production, excess capacity with existing technologies, and international competitiveness mentioned above, we suggest the following as feasible targets for the crop sector for the Sixth Plan (2011-2015):

Cereal crops: The growth target for the cereal crops may be set at 2.0 per cent per year. There is no prospect for increasing the production of wheat because of adverse agro-ecological environment (short winter) for this crop. But the target for the growth of production of maize should be set at 7.0 per cent per year. The demand for maize is going to grow at the same rate as the demand for meat and

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milk since maize is used as feed for the poultry and livestock industry. For rice, the target growth may be set 1.5 per cent per year, 1.0 per cent for boro and 2.5 per cent for aman and aus. The growth in yield should be targeted at a higher rate for these crops so that additional land could be released for the expanding non-cereal and non-crop sectors.

Non-cereal crops: The target for growth of non-cereal crops may be set at 5.0 per cent per vear. The target for the pulses and sugarcane has to be set at a lower level because these crops cannot compete with cheap imports. The consumers will be better off if pulses are imported from countries such as Myanmar and Middle East which produce these crops at a much lower cost than in Bangladesh. But potential of some pulses as relay crops within the rice-rice system may be explored. In the drought-prone Barind region, pulses and oilseeds may be promoted. Development and dissemination of short-duration pulse varieties will be required for this purpose. The production of sugarcane needs to be subsidised for feeding the existing sugar mills. The extension system should encourage farmers to grow sugar palm (Khejur) in the ails and embankments for production of gur which is a substitute for sugar. The agronomic feasibility of the production of tropical sugar beat should be explored. The target for the increase in the production of vegetables, spices, potatoes and oilseeds should be set at over 6 per cent per year. The international market for vegetables and spices should be explored and support may be given for private investment in processing, storage and quality control for these crops.

1.6 STRATEGY AND POLICIES

The following strategy and policies should be adopted for achieving the targets for the Sixth Plan.

- Achieving self-sufficiency in the production of rice, our dominant food staple should be accorded top priority in the agricultural development strategy. We can no longer depend on the world market for meeting our needs for staple food. Studies show that we have comparative advantage in rice production on the import parity basis.
- We must also aim at diversification in food production to address the challenge of achieving balanced nutrition. To achieve this objective we must adopt system-based rather than crop-based planning for crop sector development. We must also use the rich information on agro-ecological zoning for identifying areas suitable for different crops and also use it for area based approach to development.

- For crop intensification, the coastal zone, the Sylhet region and the char areas in the Northwest Monga affected region must receive priority in crop sector development plans.
- We should keep the short winter season, November to February, for the production of non-rice crops, as this season is ecologically favourable for growing the high-profit non-rice crops. The remaining period could be used for growing two rice crops for meeting our rice needs. It will require development of shorter-maturity drought- and submergence-tolerant rice varieties. To this end, promotion of recently released submergence tolerant varieties of Aman rice, namely, Swarna Sub1 and BR11 Sub1 will be urgently needed through production and distribution of seed along with awareness campaign through media and extension services. This strategy will also help reduce dependence on expensive ground water irrigation.
- For further increase in productivity of land, we must continue to focus on expansion and efficiency of the R&D system. We must exploit the potential of the hybrid rice technology to further explore shifting the yield potential for the favourable ecosystem where technological progress has reached the plateau. In our R&D system, we must give high priority to develop and deploy stress tolerant varieties such as salt-tolerant, submergence tolerant and drought tolerant for rice, heat tolerant for wheat and moisture tolerant for maize.
- Further potential for increase in yield through reducing yield gap for existing technologies must be explored. There are possibilities of substantial increase in yield through use of better quality seeds, efficient management of seed bed, and the adoption of the SRI that includes, among others, use of young seedlings, one seedling per hill, larger spacing, wet and dry irrigation system, use of compost and farm yard manure, direct seeding, etc.
- Appropriate land reforms such as control of absentee landownership, ceiling of rents for the fixed rent system, distribution of khas land among landless and non-viable marginal farmers wherever feasible, imposing restriction on conversion of prime agricultural land for non-agricultural uses, hourly rental system for irrigation equipment (instead of crop-share based or season-based fixed irrigation charge), and computerisation of records of landownership and land transfer, etc. must be attempted.
- The information and communication technology could help information dissemination among farmers. Weather forecasts could be made available on a regular basis through TV, radio and cell phone systems. Bangladesh

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Space Research and Remote Sensing Organization (SPARSO) can play a vital role in this regard.

• The reliability of official data on area under different crops is often questioned. The Reports of Agricultural Censuses show aman rice area substantially lower than the official statistics. In order to get reliable data for policymaking, a project for accurate estimation of area under different crops, either through satellite imagery or through plot-to plot enumeration, may be undertaken during the Sixth Plan period.

1.7 IMPLEMENTATION PROCESS

Implementation of the plan for the crop sector will require a number of steps for ensuring incentive prices to the farmers for their products.

- Regular monitoring of the domestic as well as international production and price situation of various agricultural products will be needed for formulation of production plans and agricultural trade policies, and occasional modification.
- Directorate of Agricultural Marketing (DAM) may be reorganised and restructured with broader mandate. Currently, the DAM is collecting and disseminating data and preparing reports on prices of various agricultural commodities throughout the country. It may also be entrusted with conducting regular surveys to estimate the costs of and return from production of different crops and agricultural products grown by the farmers, estimation of demand-supply of agricultural inputs for the ministry, suggest procurement/ support prices for agro-products, monitor and analyse trends in prices and production of agricultural commodities in major producing and exporting countries including India, identify prospective commodities for exports and new markets for agricultural exports from Bangladesh, and suggest quick actions in the case of rapid changes (rise and fall) in international prices.
- Establish agricultural information centres (AICs) at the grassroot (Union) level for rapid dissemination of knowledge and modern technologies using information and communication technology such as Cell phones and web-based materials. Training of agricultural extension personnel working at the Union and Upazila level on new technologies and accessing web-based materials will be required.

1.8 CONCLUSIONS

Considering the hurdles of rice import faced in FY2007/08 and sudden export bans imposed by food exporting countries to protect their consumers at times of scarcity in the world market, Bangladesh must consider achieving self-sufficiency in the production of rice, our dominant food staple. For increased rice production, priority should be given to development and diffusion of technologies for unfavourable ecologies, promotion of hybrid rice for further shift in yield for the irrigated environment, and adoption of more efficient crop management practices for reducing the yield gap. Promotion of improved crop husbandry practices such as alternate wet and dry (AWD) irrigation technology, introduction of System of Rice Intensification (SRI), promotion of leaf color chart (LCC) for better management of urea fertiliser, and direct seedling of rice with Drum Seeders for cost reduction will be needed.

With proper support for tillage and water management, additional one million hectare of land in coastal areas could be brought under cultivation during the dry season (late boro and aus). It is possible to increase area under high yielding aman rice, particularly in the flood-prone areas through introduction of submergence tolerant and intermediate plant height varieties. Aman rice has lower unit cost of production and higher profitability compared to boro rice, and is competitive internationally. Therefore, adequate importance for increase in rice production in the Aman season should be accorded in the Sixth Plan.

Continuity of policies for agricultural diversification is justified. To this end, system-based research for fitting non-rice crops in the rice-based systems through introduction of shorter maturity rice varieties will be needed. Potential for introducing some pulses and oilseeds crops as relay crops in rice-based systems should be explored. Appropriate policies to promote private sector investment in processing, storage and quality control should be in place to stagger supply to match with demand year round volatility of prices across seasons.

Continuation of subsidies and monitoring of market situation for timely availability of essential inputs such as improved seeds, fertilisers, diesel for irrigation at affordable prices are needed. Adequate support for adaptive agricultural research, farmer-participatory technology validation, and more effective extension service would be required to achieve higher production. Training and research supports for frontier science, particularly for biotechnology, systems modeling and GIS should get priority. Training of extension workers, particularly for agricultural officers and extension workers at the Upazila and Block levels, is essential. Use of ICT and electronic media for dissemination of agricultural technologies should be promoted.

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Crops	Fer	tilisers (kg/	'ha)	Pesticides	Labour (day/ha)		
	Urea	TSP	MoP	(Tk/ha)	Family	Hired	Total
Cereal Crops							
Rice							
Aus TV	79	14	12	139	48	39	87
Aus MV	141	43	19	471	45	44	89
Aman TV	77	9	4	133	32	33	65
Aman MV	145	47	25	373	42	61	103
Boro MV	230	92	48	815	43	77	120
Brridhan 28	217	79	46	785	41	69	110
Brridhan 29	230	90	44	675	45	79	124
Hybrid	236	104	63	1043	39	79	118
Wheat	195	119	48	60	33	26	59
Maize	437	195	185	139	57	24	81
Non-cereal crops							
Jute	97	54	15	472	47	93	140
Pulses	24	11	3	40	22	21	43
Oilseeds	68	33	15	148	32	22	54
Onion	228	132	76	1303	97	222	319
Potato	436	388	328	5182	42	187	229
Sugarcane	219	90	48	263	52	118	170
Tobacco	226	80	44	511	121	31	152

TABLE 1.A1 USE OF AGRICULTURAL INPUTS IN DIFFERENT CROPS, 2007-08

Source: Authors' calculation based on a national level sample survey conducted by BRAC.

		r					n	
Items	Aus TV	Aus MV	Aman TV	Aman MV	Boro MV	BR28	BR29	Hybrid Rice
Human Labour	14,198	15,379	9,672	15,574	17,856	16,104	6,858	17,842
Family	7,834	7,776	4,762	6,350	6,398	6,002	12,040	5,897
Hired	6,365	7,603	4,910	9,223	11,458	10,102	18,898	11,945
Draft Power	2,079	1,062	531	647	357	576	275	116
Power Tiller	2,283	3,073	2,514	2,890	2,569	2,180	2,606	2,903
Seedlings	1,163	1,093	1,238	1,177	1,246	1,229	1,198	1,882
Manure	352	560	190	373	985	1239	698	925
Fertiliser	1,816	3,619	1,423	3,955	6,960	6,393	6,790	7,794
Urea	1,106	1,974	1,078	2,030	3,220	3,038	3,220	3,304
TSP	350	1,075	225	1,175	2,300	1,975	2,250	2,600
MP	360	570	120	750	1,440	1,380	1,320	1,890
Pesticides	139	471	133	373	815	785	675	1,043
Irrigation	0	191	14	192	9,810	8,994	10,112	9,109
Cost of Threshing Machine	273	445	313	347	618	421	689	823
Land Rent	9,286	13,766	12,979	17,639	27,311	26,210	28,180	32,745
Total Cost	31,590	39,660	29,007	43,166	68,527	64,131	58,081	75,182
Cost per metric ton (Tk)	17,648	17,471	22,313	15,640	12,785	13,008	10,677	11,692
Yield (ton/ha)	1.79	2.27	1.30	2.76	5.36	4.93	5.44	6.43
Value of By-product (Tk)	1,938	2,388	2,235	3,895	3,587	3,282	3,332	3,011
Price of main product (Tk/ton)	15,600	14,500	15,600	15,000	15,000	15,600	15,000	14,500
Value of main product (Tk)	27,924	32,915	20,280	41,400	80,400	76,908	81,600	93,235
Gross value of production (Tk)	29,862	35,303	22,515	45,295	83,987	80,190	84,932	96,246
Net Return (Tk/Ha): Cash cost basis	15,392	17,186	11,249	26,118	49,169	48,271	42,991	59,706
Net Return (Tk/Ha): Full cost basis	-1,728	-4,357	-6,492	2,129	15,460	16,059	26,851	21,064
Benefit-Cost Ratio (Cash cost basis)	2.06	1.95	2.00	2.36	2.41	2.51	2.03	2.63
Benefit-Cost Ratio (Full cost basis)	0.95	0.89	0.78	1.05	1.23	1.25	1.46	1.28

TABLE 1.A2 PER HECTARE COSTS AND RETURN (TAKA/HA) FROM CULTIVATION OF DIFFERENT RICE CROPS IN BANGLADESH, 2008/09

Source: Authors' estimate; based on input use level and yield data obtained from Sample Survey of 62 Villages conducted by BRAC in 2008.

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ITEMS Wheat Maize Jute Pulses Oilseeds Onion Potato Sugarcane Tobacco Human Labour 8,779 12,247 21,000 6,347 7,452 47,467 35,724 23,460 21,888 Family 4,910 8,618 7,050 3,247 4,416 14,434 6,552 7,176 17,424 Hired 3,869 3,629 13,950 3,100 3,036 33,034 29,172 16,284 4,464 Draft Power 256 1.485 471 840 1.214 265 438 0 1.278 3,082 2,028 Power Tiller 2,283 2,339 1,148 2,178 6,543 4,520 1,792 Seedlings 3,594 1,163 1,349 1,712 505 5,129 32,076 6,782 215 493 352 314 215 71 585 3.307 Manure 2,436 859 16,543 2,227 6,756 Fertiliser 7,145 3,158 701 8,772 25,644 6,484 2,730 6,118 1,358 336 952 3,192 6,104 3,066 Urea 3,164 TSP 2,975 4,875 1,350 275 825 3,300 9,700 2,250 2,000 MP 1,440 5,550 450 90 450 2,280 9,840 1,440 1,320 472 Pesticides 139 40 148 1,303 5,182 60 263 511 3,597 4,2700 1,024 31 2,428 4,257 Irrigation 26 0 1,876 Cost of Threshing Machine 1087 273 26 87 26 98 0 2923 0 Land Rent 9.286 9.286 9.286 9.286 9.286 9.286 27.311 27,311 27.311 Total Cost 37,379 48,041 20,000 21,924 136,044 70,948 39,233 84,740 64,598 Cost per metric ton (Tk) 8912 19,815 24,096 18,270 10,963 8,326 1,528 39,875 15,706 2.38 0.83 1.20 7.73 16.34 46.42 1.62 Yield per Hectare (ton) 5.39 1.98 1,938 Value of Byproduct (Tk) 2,344 6,469 1,283 722 264 13 2,192 0 22,350 15,920 28,000 45,000 31,800 14,697 9,675 1,342 50,620 Price of main product (Tk/ton) 53,193 85,808 55,440 37,350 158,090 62,296 82,004 Value of main product (Tk) 38,160 113,608 Gross value of production (Tk) 55,537 87,749 61,909 38,633 38,882 113,872 158,103 64,488 82,004 Net Return (Tk/Ha): Cash cost basis 32,354 57,610 39,012 31,166 30,660 52,851 55,922 28,027 62,141 Net Return (Tk/Ha): Full cost basis 39,706-22,676 18,633 16,958 29,132 22,059 18,158 -6,460 17,406 13,336 Benefit-Cost Ratio (Cash cost basis) 2.40 2.92 2.70 5.17 4.73 1.87 1.55 1.77 4.13 1.49 1.83 1.58 1.93 1.77 1.34 1.16 0.91 1.27 Benefit-Cost Ratio (Full cost basis)

TABLE 1.A3 PER HECTARE COSTS AND RETURN (TAKA) FROM CULTIVATION OF DIFFERENT NON-RICE CROPS IN BANGLADESH, 2008/09

Source: Authors' estimate based on input use level and yield data obtained from Sample Survey of 62 Villages conducted by BRAC in 2008.





MAP 1.1: Spatial Variation in Cropping Intensity, 2005

Source: Prepared by BRAC, based on *Agriculture Sample Survey of Bangladesh 2005*, Bangladesh Bureau of Statistics.





MAP 1.2: Spatial Variation in the Adoption of Modern Variety Rice, Dry Season, 2005

Source: Prepared by BRAC, based on *Agriculture Sample Survey of Bangladesh 2005*, Bangladesh Bureau of Statistics.





MAP 1.3: Spatial Distribution of Aman Modern Variety Adoption, 2005

Source: Prepared by BRAC, based on *Agriculture Sample Survey of Bangladesh 2005*, Bangladesh Bureau of Statistics.

Chapter 2

Developing Non-Crop Agriculture in Bangladesh: Present Status and Future Development

Quazi Shahabuddin Mohammad Yunus S.M. Zulfiqar Ali

2.1 INTRODUCTION

That non-crop agriculture (livestock, poultry, and fisheries) plays a significant role in Bangladesh economy is now widely recognised. These sub-sectors contribute output both for production and consumption. Cattle and buffaloes are used for draft power, rural road transport, and threshing purposes. Most of land is cultivated by bovine animals (cattle and buffaloes), although power tillers are emerging as an important substitute for draft power in the country. Moreover, livestock provides animal protein through milk, meat, and eggs for human consumption, and dung as fuel and manure. Although livestock sub-sector contributes about 3 per cent of total GDP, it employs about 20 per cent of rural labour force. The development of livestock sub-sector has, therefore, been considered as an important element for generating income and employment, especially in rural areas.

There exists a wide gap between total requirement of livestock products such as milk, meat, and eggs and their current levels of production. Moreover, the gaps between requirement and production are expected to widen due to population growth and, more importantly, to rapid increase in per capita income. As income rises, the demand for livestock and poultry products increases rapidly since the income elasticity of these products is quite high: 2.16 for milk, 2.45 for meat, and 1.40 for eggs. This underscores urgent imperative for rapid development of livestock sub-sector in general and growth of livestock products in particular in the future.

However, there are bright prospects for developing the livestock sub-sector, given that the sub-sector currently has extremely low per-bird and per-animal production of meat, milk, and eggs as it is constrained by disease, poor genetic stock, shortage of land for pasture, and inadequate feed supplies. Production is dominated by smallholder farmers who are mostly unfamiliar with basic animal

nutrition, the nutrient value of different feed sources, disease control, and breed selection. Hence, output can be increased relatively fast by introducing modern methods of production through wider dissemination of relevant information to the farmers and building a supportive infrastructure for this sub-sector (Mujeri and Shahabuddin 2001).

Bangladesh has one of the richest and largest floodplain systems in the world. Fisheries is the second largest sub-sector in agriculture, contributing to about 22 per cent of total agricultural GDP. Fish is a traditional food item and until recently it has been among the most important low-cost sources of protein for the majority of the people in Bangladesh. It contributes about 67 per cent of the average per capita daily intake of animal protein. The sub-sector also contributes to about 4 per cent of total exports and employs about 10 per cent of the total labour force.

Despite several impediments that the fisheries sub-sector has been facing, it still represents as one of the most productive and dynamic sub-sectors in Bangladesh. Till the early 1970s, small-scale open water capture fisheries were dominant in Bangladesh. Since then, aquaculture, close water capture fisheries, has been playing an important role in the development of the sub-sector. In fact, aquaculture has now become a vibrant non-crop agricultural activity involving a large number of people and providing fish for a wide group of consumers. It is also contributing significantly to foreign exchange earning of the sub-sector. Thus, it is important to devise appropriate strategies and policies for the development of fisheries in Bangladesh.

This paper is organised as follows. Following this Introduction, a review of performance of livestock development has been provided in Section 2.2. Section 2.3 reviews the past policies and programmes for livestock development in Bangladesh. The constraints and potential of livestock development have been analysed in Section 2.4. The future outlook in terms of projected supply-demand gap of livestock products, as well as targets and resource requirements for the Sixth Plan is presented in Section 2.5. Major issues for livestock development and strategic interventions and policy recommendations for the Sixth Plan have been discussed in Section 2.6. Sections 2.7 to 2.11 have been devoted to highlight the present status and future development of fisheries in Bangladesh.

2.2 DEVELOPMENT OF LIVESTOCK: REVIEW OF PERFORMANCE

2.2.1 Past Performance of Livestock Sub-sector

Agriculture accounted for about 30 per cent of GDP in 1989/90 which declined to about 21 per cent in 2008/09. The economy, however, still remains



predominantly agrarian with agriculture still providing employment to about 50 per cent of the country's labour force. Moreover, agricultural production provides critical linkages for development of other sectors in the economy. The crop sector has been the largest contributor to agricultural GDP, with a share of about 66 per cent in 1989/90 which declined to about 57 per cent in 2008/09 (Table 2.1). The contribution of animal farming (livestock) has remained largely stagnant with a share of around 13 per cent of agricultural GDP over the same period. However, the share has slightly increased in recent years.¹ The share of fisheries, on the other hand, has considerably increased from about 15 per cent in 1989/90 to 22.2 per cent in 2008/09.

TABLE 2.1 SHARE OF AGRICULTURE IN GDP (at 1995/96 prices)

Sector/Sub- sector	1989/90	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09 (P)
Agriculture of which:	29.51	25.03	23.99	23.47	23.08	22.28	21.85	21.37	20.83	20.60
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Crop and	19.33	14.70	13.75	13.43	13.23	12.51	12.28	12.00	11.64	11.55
Horticulture	(65.51)	(58.74)	(57.33)	(57.22)	(57.32)	(56.16)	(56.21)	(56.14)	(55.85)	(56.06)
Livestock	3.73	2.95	2.96	2.93	2.91	2.95	2.92	2.88	2.79	2.73
	(12.63)	(11.77)	(12.33)	(12.50)	(12.61)	(13.23)	(13.38)	(13.50)	(13.40)	(13.25)
Forestry	2.08	1.87	1.88	1.86	1.83	1.82	1.79	1.76	1.75	1.75
	(7.05)	(7.46)	(7.82)	(7.93)	(7.93)	(8.16)	(8.18)	(8.23)	(8.41)	(8.48)
Fisheries	4.37	5.51	5.40	5.25	5.11	5.00	4.86	4.73	4.65	4.57
	(14.81)	(22.03)	(22.52)	(22.35)	(22.14)	(22.45)	(22.23)	(22.13)	(22.34)	(22.21)

Source: Bangladesh Bureau of Statistics (BBS), *Statistical Yearbook of Bangladesh*, different issues, Ministry of Finance, *Bangladesh Economic Review*, 2007 and 2009, and authors' calculation.

Note: Figures in parentheses indicate share of sub-sectors in agricultural GDP. P represents provisional figures.

The pattern of agricultural growth and its sub-sectors (along with GDP and population growth) over the last two decades is shown in Table 2.2. Agriculture grew at an average annual rate of only 1.55 per cent during the first half of the 1990s. This was far below the growth of GDP and was even less than the growth of

¹ The indirect contribution of livestock, however, is large. As reported in the 1993/94 inputoutput table, the total value of intermediate deliveries of livestock sub-sector (including poultry) was Tk. 41,710 million. This largely comprised of draft power, manure, and other inputs. Moreover, tolls ("hasil") collected from market transactions of livestock animals, including those collected during the religious festival of the Eid-ul-Azha, constitute a significant source of revenue for local government institutions such as union parishads and city corporations (Mujeri and Shahabuddin 2001).

population during the period. The crop-sub-sector registered a negative growth during this period. The growth of both agriculture and crop sub-sector, however, accelerated during the second half of the decade (1995/96-1999/00). Animal farming (livestock) grew at an average rate of 2.38 per cent during the first half of the 1990s (thereby exceeding population growth of 1.76 per cent during the period); the rate slightly increased to 2.63 per cent during the second half of the decade. The growth rate accelerated considerably (4.85 per cent) during the first half of the current decade (2000/01-2004/05). As a result, per capita GDP originating from animal farming increased significantly during the period. The momentum was largely maintained during the second half, though with a declining trend in recent years. Fisheries registered robust growth (hovering around 8 per cent) during the 1990s. The growth, however, declined significantly (only 1.35 per cent) during the first half of the current decade, although it has increased in recent years (4.04 per cent during the 2005/06-2008/09 period).

TABLE 2.2
GROWTH RATES OF AGRICULTURE AND DIFFERENT SUB-SECTORS

						(per cen	i ai 1995	/90 prices)
Sector/Sub-	Average	Average of	Average of	2005/06	2006/07	2007/08	2008/09	Average of
sector	of	(1995/96-	(2000/01-				(p)	(2005/06-
	(1990/91-	1999/00)	2004/05)					2008/09)
	1994/95)							
Agriculture	1.55	4.70	2.51	4.94	4.56	3.20	4.63	4.33
Crop and	-0.43	3.70	2.22	5.03	4.43	2.67	5.02	4.29
Horticulture								
Livestock	2.38	2.63	4.85	6.15	5.49	2.44	3.46	4.38
Forestry	2.82	4.46	4.69	5.18	5.24	5.47	5.53	5.36
Fisheries	7.86	8.69	1.35	3.91	4.07	4.18	4.01	4.04
GDP	4.39	5.12	5.44	6.63	6.43	6.19	5.88	6.28
Population	1.76	1.63	1.47	1.49	1.48	1.48	1.48	1.48

Source: Bangladesh Bureau of Statistics, *Statistical Yearbook of Bangladesh*, different issues. **Note:** (*p*) *represents provisional figures*.

2.2.2 Growth Trends of Livestock Population

The growth of livestock population has been most rapid for poultry (chicken/ducks) and least for cattle/buffaloes over the 1983/84-2005 period (Table 2.3). In fact, the number of cattle/buffaloes increased by only 2.57 million (mostly during the 1996-2005 period) over the 22-year period. This has led to a decline of cattle/buffaloes per holding and per capita by 37.5 and 30.8 per cent respectively over the period. The number of chicken/ducks, on the other hand, increased significantly (by 52.96 million between 1983/84 and 1996, and by 55.12 million between 1996 and 2005), thereby registering per holding and per capita increase of 38.8 and 64.8 per cent respectively over the period. The differential growth of livestock and poultry largely reflects the scarcity of grazing land and the scavenging

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	NUMBER OF LIVESTOCK POPULATION: 1983/84 TO 2005										
Тур	e of Animals	C	ensus/Surv	ey	Changes in						
		1983/84	1996	2005	1996 over	2005 over	2005 over				
					1983/84	1996	1983/84				
(a)	Cattle/Buffaloes										
	1. Total Number (Million)	22.06	22.29	24.63	0.23	2.34	2.57				
					(1.05)	(10.49)	(11.65)				
	2. Per Holding (Nos.)	1.60	1.25	1.00	- 0.35	- 0.25	-0.60				
					(-21.90)	(-20.00)	(-37.50)				
	3. Per Capita (Nos.)	0.26	0.18	0.18	-0.08	0.00	-0.08				
					(-30.80)	(0.00)	(-30.80)				
(b)	Goats/Sheep										
	1. Total Number (Million)	14.22	14.61	17.09	0.39	2.48	2.87				
					(2.69)	(16.97)	(20.18)				
	2. Per Holding (Nos.)	1.03	0.82	0.70	-0.21	-0.12	-0.33				
					(-20.40)	(-14.63)	(-32.04)				
	3. Per Capita (Nos.)	0.17	0.12	0.14	-0.05	0.02	-0.03				
					(-29.50)	(16.67)	(-17.65)				
(c)	Poultry (Chicken/Ducks)										
	1. Total Number (Million)	73.71	126.67	181.79	52.96	55.12	108.08				
					(71.86)	(43.51)	(146.63)				
	2. Per Holding (Nos.)	5.33	7.10	7.40	1.77	0.30	2.07				
					(33.21)	(4.23)	(38.83)				
	3. Per Capita (Nos.)	0.91	1.04	1.50	0.13	0.46	0.59				
					(14.28)	(44.23)	(64.84)				

relative to cattle/buffaloes. TABLE 2.3

nature of chickens/ducks as well as recent growth spurt of commercial poultry

Source: Bangladesh Bureau of Statistics (December, 2005), *Agricultural Sample Survey-*2005, *National Volume 1*.

Notes: (a) While the figures for 1983/84 refer to Bangladesh as a whole, those for 1996 and 2005 are for rural Bangladesh only. (b) Figures in parentheses indicate percentage changes over the corresponding periods.

A disaggregated picture of growth of livestock in recent period has been provided in Table 2.4. During the current decade (2000/01-2008/09 period), poultry population registered a satisfactory growth (over 5 per cent), followed by goats/sheep (around 4 per cent). The growth of cattle/buffaloes, especially cattle, however, is most disappointing, registering a growth of only 0.5 per cent over this period. This has led to a per capita decline in the number of bovine animals, especially cattle, in the country.

										,
Type of Animals	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	Growth Rate (%)
1. Cattle	22.39	22.46	22.53	22.60	22.67	22.80	22.87	22.90	22.98	0.335
2. Buffaloes	0.92	0.97	1.01	1.06	1.11	1.16	1.21	1.26	1.34	4.567
(a) Total	23.31	23.63	23.54	23.66	23.78	23.96	24.08	24.16	24.32	0.490
3. Goats	16.27	16.96	17.69	18.41	19.16	19.94	20.75	21.56	22.40	3.996
4. Sheep	2.11	2.20	2.29	2.38	2.47	2.57	2.68	2.78	2.88	3.896
(b) Total	18.38	19.16	19.98	20.79	21.63	22.51	23.43	24.34	25.28	3.985
5. Chicken	142.68	152.24	162.44	172.63	183.45	194.82	206.89	212.47	221.39	5.603
6. Duck	33.83	34.67	35.54	36.40	37.28	38.17	39.08	39.84	41.23	2.409
(c) Total	176.51	186.91	197.98	209.03	220.73	232.99	245.97	252.31	262.62	5.053

 TABLE 2.4

 NUMBER OF LIVESTOCK AND POULTRY IN BANGLADESH: 2000/01-2008/09

 (Number in million)

Source: Ministry of Finance, GoB, Bangladesh Economic Review (2007 and 2009).

Note: Growth rates have been computed by fitting semi-log function to the data for the corresponding period.

2.2.3 Imports and Exports of Livestock

The information on livestock imports and exports for the 2000/01-2006/07 period is presented in Table 2.5. The following observations can be made based on this information:

- (a) Value of exports of animal and animal products exceeded that of imports throughout the period, thereby resulting in a positive export-import gap and thus contributing to net foreign exchange earnings by this sub-sector.²
- (b) While the gap has been positive, this was characterised by fluctuations (attributable to fluctuations in both exports and imports) instead of displaying any distinct trend during the period.

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² However, the country is still a net-importer of animal and animal products when hides and skins are excluded.

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			(1k. million)
Year	Export	Import	Export-Import Gap
2000/01	13748.52	6003.45	7745.07
2001/02	11885.60	5687.46	6198.13
2002/03	10295.99	5736.54	4559.45
2003/04	11903.06	5961.88	5941.18
2004/05	14086.69	9394.93	4691.76
2005/06	16459.35	8757.58	7701.77
2006/07	19293.95	10569.41	8724.54

TABLE 2.5 TRENDS OF EXPORT AND IMPORT OF ANIMAL/ANIMAL PRODUCTS (*Tk. million*)

Source: BBS, Foreign Trade Statistics, various years.

Note: Animal/Animal products include HS 2-digit codes 01 (Live Animals), 02 (Meat and Edible Meat Offal), 04 (Dairy Produce, Eggs), 05 (Products of Animal Origin), 41 (Raw Hides, Skins and Leather), and 42 (Articles of Leather/Animal Gut) respectively.

2.2.4 Production and Consumption Trends of Livestock Products

Milk, meat, and eggs are three important products of livestock. Production trends in livestock products are presented in Table 2.6.³ Production of eggs and meat registered an impressive growth: 13.5 and 10.4 per cent respectively during the 1991-2005 period. The growth of milk production, however, was relatively low (4.6 per cent) over the 15-year period. The pace of growth in three sub-periods exhibits similar pattern for all livestock products. While rates of growth were rather low during the first half of the 1990s; they accelerated significantly in subsequent sub-periods, especially during the first half of the current decade (2000-2005).

 TABLE 2.6

 PRODUCTION OF LIVESTOCK PRODUCTS IN BANGLADESH

	1991	1995	1999/00	2004/05	Annual Average Growth (%)			6)
					1991-	1991-	1995-	2000-
					2005	1995	2000	2005
Milk (million metric ton)	1.34	1.41	1.60	2.14	4.59	1.31	3.37	6.75
Meat (million metric ton)	0.45	0.51	0.62	1.06	10.43	3.33	5.39	14.19
Eggs (number in millions)	2040	2530	3500	5623	13.51	6.00	9.58	12.13

Source: Mujeri and Shahabuddin (2001), Bangladesh Economic Review, 2009 and authors' calculations.

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³Jabbar (2010) raised questions about reliability of published statistics of production of livestock products, especially milk, by comparing availability (including import of powdered milk) with those of actual consumption of milk as reported in the HIES 2005. This, if correct, may distort the true picture about current status and future prospects of livestock products in Bangladesh.

Trends in the consumption of livestock products as captured in the last three rounds of *Household Income and Expenditure Survey* (1995/96, 2000 and 2005) are presented in Table 2.7. The national consumption of milk/milk products declined slightly in 2000 as compared to that in 1995/96 but was restored even exceeded somewhat in 2005. The national consumption of meat, however, displayed an upward trend throughout the 10-year period as the per capita consumption of meat increased from 11.6 gm/day in 1995/96 to 13.7 gm/day in 2000 and further to 16.3 gm/day in 2005. The disparity in meat consumption between rural and urban areas has been quite large (24.1 gm/day in urban areas in 1995/96 as compared to only 9.1 gm/day in rural areas), although the difference has narrowed down over the period. The national per capita consumption of eggs increased from 3.2 gm/day in 1995/96 to 5.3 gm/day in 2000 but stagnated at that level in 2005. The difference in consumption between rural and urban areas was observed in the case of eggs as well.

TABLE 2.7 CONSUMPTION OF LIVESTOCK PRODUCTS IN BANGLADESH (am/person/day)

								(Smaper	son aay)
Products	1995/96			2000			2005		
	Rural	Urban	National	Rural	Urban	National	Rural	Urban	National
1. Milk and Milk Products	30.3	42.1	32.3	30.0	33.7	30.7	32.3	38.0	33.7
2. Total Meat	9.1	24.1	11.6	11.0	23.0	13.7	13.7	24.0	16.3
Mutton	0.8	1.6	1.0	0.3	0.7	0.7	0.7	0.7	0.7
Beef	4.9	15.0	6.6	7.3	14.3	8.7	7.0	12.7	8.3
Chicken/Duck	3.4	7.5	4.0	3.3	8.0	4.3	6.0	10.7	7.3
3. Eggs	2.6	5.9	3.2	4.7	8.0	5.3	4.7	7.7	5.3

Source: BBS, Household Income and Expenditure Survey (1995/96, 2000, 2005).

2.2.5 Resource Base

It may be worthwhile to examine the pattern of growth of livestock population, disaggregated by farm size. It is readily observed from Table 2.8 that livestock population (of all three main categories) declined for both the medium (2.50 - <7.50 acres) and the large farms (7.50 acres) and above) between 1996 and 2005. The dynamics is, however, quite different for marginal and small farms (<2.50 acres). The stock not only increased, but also displayed an impressive growth (40.4 per cent for cattle and buffaloes, 30.0 per cent for goats and sheep, and 48.9 per cent for poultry between the two periods). Moreover, for all three categories of livestock population, small and marginal farms continued to be the dominant (farm size)



group in 2005.⁴ While formulating any poverty reduction strategy in the livestock sub-sector, these facts should be taken explicitly into consideration.

			(Farm size in acre)
Type of Animals	Census/S	Changes in 2005 over	
	1996 (million)	2005 (million)	1996 (%)
Cattle and Buffaloes	22.29	24.93	11.8
<2.50	13.96	19.60	40.4
2.50 - <7.50	6.59	4.47	-32.2
7.50 and above	1.74	0.86	-50.6
Goats and Sheep	14.61	16.59	13.6
<2.50	11.07	14.39	30.0
2.50 - <7.50	2.90	1.92	-33.8
7.50 and above	0.64	0.28	-56.2
Poultry (Fowls/Ducks)	126.67	166.59	31.5
<2.50	97.36	144.97	48.9
2.50 - <7.50	24.23	18.77	-22.5
7.50 and above	5.08	2.85	-43.9

TABLE 2.8 CHANGES IN LIVESTOCK AND POULTRY POPULATION BY FARM SIZE: 1996 AND 2005

Source: BBS, Census of Agriculture 1996 and 2005, and authors' calculations.

It may be noted that the density of livestock population remains high – in fact, increased–especially for poultry, followed by cattle/buffaloes and goats/sheep (Table 2.9).⁵ However, their productivity is rather low. As a result, the country suffers from shortage of both draft animal power and livestock products. The low productivity can largely be attributed to poor quality of livestock, scarcity of feed, prevalent of disease and poor management. These problems need to be addressed on a priority basis to develop the livestock sub-sector in general and to enhance its productivity in particular (Mujeri and Shahabuddin 2001).

⁴ In fact, this dominance has become more pronounced in 2005 as compared to that obtained in 1996. The proportion of cattle and buffaloes owned by the smallholder farmers increased from 62.6 per cent to 78.6 per cent, that of goats and sheep from 75.8 per cent to 86.7 per cent and that of poultry from 76.9 per cent to 87.0 percent respectively over the period.

⁵ In fact, the density is much higher in Bangladesh as compared to that in other countries in Asia. The density of bovine population (cattle and buffaloes) per hectare is 1.12 for India, 0.70 in Pakistan and 0.37 in Indonesia (Alam 1995).

Type of Animals	Census	s/Survey
	1996	2005
	(No./Hectare)	(No./Hectare)
Cattle and Buffaloes	1.51	1.69
Goats and Sheep	0.99	1.12
Poultry (Fowls/Ducks)	8.52	11.20

TABLE 2.9						
DENSITY OF LIVESTOCK POPULATION: 1996 AND 2	005					

Source: Table II.8 and authors' calculations.

2.3 REVIEW OF PAST POLICIES AND PROGRAMMES FOR

LIVESTOCK DEVELOPMENT

Policy issues in livestock development have a historical perspective that evolved over the years. While the initial thrust was on government-directed development and control, the focus subsequently shifted to private-sector led development in the sub-sector. In the early years, the development of livestock was initiated by the government through policy emphasis on disease control, research and training which subsequently encouraged and motivated the private sector. In this context, a review of the past strategies, policies and programmes pertaining to livestock development, as incorporated in the successive Five Year Plans, is considered to be important.

2.3.1 Review of Policies and Programmes in Five Year Plans

During the First Five Year Plan (1973-78) and the Two-Year Plan periods (1978-80), emphasis for livestock development was on providing support services for conservation of animals and birds through provision of veterinary manpower, hospitals, dispensaries, vaccines and medicines. Limited facilities for genetic improvement of large animals and birds have also been provided through special programmes on artificial insemination (AI), cockerel exchange and hatching eggs. But due to underutilisation of the available resources, the programme could not make any significant impact. The small number of improved varieties of animals suffered serious setback mainly due to malnutrition. As the approach of providing only services for conservation and breeding, without improving production and supply of adequate feed and fodder, continued, later programmes could not bring about any appreciable improvement over the previous situation. Provision of balanced feed and improved practices along with improved breeding could have significantly contributed towards achieving the Plan objectives.

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management deficiencies in the public sector greatly hampered the development and optimum utilisation of resources in this sub-sector.

Milk, meat, and eggs are important sources of animal protein. While growth of meat and eggs production was reasonably satisfactory during the First and Second Five Year Plan (1980-85), those of milk production were rather poor, registering a growth which was well below the population growth rates. The reasons for low growth in milk production can generally be attributed to poor contribution of local breeds, non-availability of adequate feed and green fodder and high cost of fodder. The main policies and programmes pursued for livestock development during both First and Second Plan periods were reduction of mortality in animals and poultry, and institutional developments for improvement of breeds and drugs and vaccines. Sectoral programmes suffered due to lack of institutional capability as reflected in underutilisation of resources. Mortality of livestock could not be reduced due to shortage of drugs and vaccines, and lack of adequate research as well as technological support from the government.

The Third Five Year Plan (1985-90) aimed at increasing the supply of draft power and animal protein, particularly milk, along with increased employment for women and the landless. The strategies emphasised expansion of disease control, improvement in feed supply, genetic upgrading, and similar other measures. Production of milk, meat, and eggs increased at the annual rates of 1.8, 2.4 and 6.3 per cent respectively during the Third Plan period. The reasons for slow growth of milk production, as during the Second Plan period, were genetically poor constitution of local breed, non-availability of feeds and green fodder, deterioration in quality and quantity straw, etc. Import of powdered milk and high cost of feed also affected local production. Average growth of meat production was also low as mortality of animals and birds could not be reduced as envisaged in the Plan and also due to lack of adequate programmes including fattening programmes and absence of research results in quick yielding economically viable species. Production of eggs was also affected by high mortality and worm infestation and high cost of balanced feed and non-availability of breed stock.

Despite such shortcomings, considerable progress was achieved in employment and income generation activities, expansion of physical infrastructure facilities along with new concepts in service delivery and production methods of inputs. Moreover, during the Third Plan period, along with the predominant traditional modes of production, some distinct stratifications of the sub-sector emerged. This trend was most pronounced in poultry, where intensive and semi-intensive production forms were becoming popular with significant income and employment generations. With cattle, such stratification has been centred locally, with dairy enterprises being established in the vicinity of urban centres and in selected high

potential rural areas. Despite these successes, however, it should be recognised that the development needs of the livestock sub-sector has generally been underemphasised, inappropriately targeted and poorly conceived as well as implemented in the past.

The Fourth Five Year Plan (1990-95) emphasised two broad aspects of policies, namely ensuring supply of draft power of adequate quality and increased supply of livestock products. The strategies and policies in the livestock sub-sector during the Fourth Plan period largely focused on: (a) emphasis on the development of dairy cattle at farmer's level for increased supply of milk and dairy products, (b) generation of employment opportunities in the rural areas through dairy farming, cattle and poultry rearing, and further development of animal husbandry practices for distressed women and unemployed youth, (c) adequate policy supports by providing proper marketing facilities, price incentives, organisation and extension systems, education and training in relevant activities, appropriate technology transfer and information system, and realisation of export potentials, (d) proper review and necessary changes in the import policy for livestock products, and (e) strengthening of the organisational and institutional framework of the livestock subsector for undertaking effective research, training and development activities.

It was considered necessary to strengthen the organisational and institutional framework of the sub-sector so that well-conceived programmes, appropriate reorganisation, manpower training and effective research coordination could be undertaken during the Fourth Plan period. Proper investigation of the economics of livestock production at the village level small farms and field investigations of livestock population needs and problems were given priority. It was envisaged in the Fourth Plan that programmes and policies would be implemented for increasing research capabilities and infrastructure for livestock with focus on improving productivity within the broad framework of short-and long-term aspects of livestock development. In this respect, emphasis was given on animal disease prevention, parasite control, on-farm fodder supply improvement, calf mortality reduction, cattle fertility improvement, as well as development of breeds adaptable to the domestic climate with appropriate balance between local and improved breeds.

Major programmes during the Fourth Plan included, among others, (a) feed and fodder development including poultry and cattle feed, (b) animal health and disease control including disease diagnosis, treatment and prevention, and vaccine and medicine production and distribution, (c) animal breeding and breed multiplication including cattle, buffalo, goat and sheep, fowl and duck breeding, (d) marketing, (e) credit, (f) extension, training, research and education, and finally, (g) income and employment generation in the livestock sub-sector.

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The Fifth Five Year Plan (1997-2002) spelled out several objectives of livestock development in Bangladesh. Along with increased supply of livestock products, greater involvement of different stakeholders (i.e. private sector and NGOs) and creation of employment opportunities to enhance its poverty reduction role were emphasised. To this end, research, extension, feed and fodder supply, animal health and other support services have been identified as key areas of public intervention. The programme interventions highlighted collaborative efforts between public and private sector in several areas e.g. feed and fodder development, animal health and disease control, breeding and breeder multiplication, extension, training and education. While these are important areas of intervention for the development of livestock sub-sector, economy-wide policies also significantly affect the incentives regime and growth dynamics of the sub-sector (Mujeri and Shahabuddin 2001).

2.3.2 Sectoral Policy Issues

The livestock sub-sector has large potential, which, if properly exploited, can make greater contribution to growth and poverty reduction in the country. In this context, several sectoral concerns need to be addressed: improved disease control and feed supplies, improved genetic potential of stocks and balanced herd size, optimal utilisation of available resources, and effective support and marketing services. An important concern is to increase the quality and quantity of services to ensure that the incentive structures become favourable for the farmers to adopt improved technologies and practices leading to higher productivity and incomes. Although the government needs to adopt a broad view of the sub-sector, direct public interventions should concentrate on areas with high positive externalities. Three such areas can readily be identified: animal health, research, and extension.

The greater emphasis given on major disease control and eradication in the past led to inadequate focus on some major problems in animal health in the country. In most cases, poor nutrition and sanitation make the animals susceptible to diseases. This requires proper training for farmers in basic animal hygiene that can be provided in a cost-effective manner through contract farming, farmers' groups and the NGOs. The farmers should be motivated to take the responsibility of maintaining good health of their animals with the government's role limited to vaccination and prevention of endemic disease.

In Bangladesh, the gains in the past have come mostly from increased number of animals rather than from increased productivity (output per animal). Moreover, the research focus puts more emphasis on improving animal breeds and less to animal nutrition creating mismatch between technology and the environment. The core components of research should include adapting available technologies to local

conditions, ways of improving feed supplementation and nutrition, and promoting practical applications to yield high returns on investments. For poultry, the benefits of private sector participation in technology improvements are becoming more visible in recent years. For other species, research is largely dependent on public agencies including Bangladesh Livestock Research Institute (BLRI). For a more effective approach, joint collaboration of public and private sector should be developed, the gains of which will be directed towards applied and adaptive research consistent with local conditions and area-specific concerns.

The performance of government extension services and their ability to disseminate information to livestock farmers in assimilable form leaves much to be desired. A move towards wider involvement of private sector and NGOs is necessary. Veterinary services should be gradually privatised, particularly for larger livestock producers who rely more on commercial inputs. The government services need to focus on services to the poor farmers who are most in need. The formation of formal/informal producers' groups can be considered a viable option to assume greater responsibility for extension with a more commercial orientation.

The credit needs of the livestock producers may be categorised under three broad groups: (a) poor and subsistence farmers, (b) farmers seeking to expand beyond subsistence levels, and (c) commercial farmers. The poor and subsistence farmers dominate in number, but as livestock production expands, their share in livestock production is likely to decline. These farmers, however, are significant target groups for credit, particularly from poverty reduction point of view. Microcredit is a major effort to reach out to this group.⁶ Farmers seeking to expand beyond subsistence levels face formidable problems with regard to access to credit. These farmers require credit along with support services to venture into commercial production. The formal financial sector is yet to develop appropriate practices to cater to their needs.⁷ The first two groups can be served through the MFIs. In fact, the government can channel funds through PKSF's partner NGOs to cater to the needs of these groups. The commercial farmers, on the other hand, have somewhat better access to formal credit. Although these farmers derive benefit from subsidised credit programmes of the government, their interests can be served better through developing competitive and efficient financial institutions.

⁶ Microcredit for livestock and poultry rearing activities is a major source of support for the group, but finding commercial opportunities is a major factor constraining expansion in their scale of operation.

⁷ Jabbar *et al.* (2005) make a strong case to support these producers and suggest specific policy measures on the basis of analysis of the factors influencing efficiency in dairy and poultry production in Bangladesh.

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As part of a comprehensive community livestock development, a National Livestock Policy (NLP) was prepared by the Ministry of Fisheries and Livestock in 2007. This document provides a well thought-out account for the development of livestock sub-sector in the country. The general objectives of the National Livestock Development Policy are as follows:

To provide the enabling environment, opening up opportunities, and reducing risks and vulnerability for harnessing the full potential of livestock sub-sector to accelerate economic growth for reduction of rural poverty in which the private sector will remain the main actor, while the public sector will play facilitating and supportive role.

There are three specific objectives: (a) to promote sustainable improvements in productivity of milk, meat and egg production including processing and value addition; (b) to promote sustained improvements in income, nutrition, and employment for the landless, small and marginal farmers; and (c) to facilitate increased private sector participation and investments in livestock production, livestock services, market development and export of livestock products and by-products. The NLP document addresses ten critical areas, of which three are concerned directly with the livestock production issues while the rest are concerned with providing support services. The production-related thematic areas are: (1) dairy development and meat production, (2) poultry development, and (3) hides and skins. The thematic areas related to the provision of support services include: (1) feeds and fodder management, (2) veterinary services and animal health, (3) institutional development for research and extension, (4) breed development, (5) marketing of livestock products, (6) international trade management, and (7) livestock insurance and credit.

2.4 LIVESTOCK DEVELOPMENT: CONSTRAINTS AND POTENTIALS

2.4.1 Major Constraints to Livestock Development

The major problems constraining the development of livestock sub-sector in Bangladesh are lack of feed, incidence of disease, and poor genetic stock. These problems, however, are intertwined (Mujeri and Shahabuddin 2001). The lack of high-quality feed tends to keep both animals and birds in weak conditions, which, in turn, make them more susceptible to disease. Diseases increase mortality and make animal production less profitable than it would otherwise be. This, in turn, reduces requirements for feed production. Poor genetic potential reduces feed use efficiency which increases feed requirement.

2.4.1.1 Feed and Fodder

The shortage of quality feed and fodder has been identified to be the most important constraint to livestock development in the country. Bovine and ovine animals depend mostly on rice straw for nutrition, while poultry generally subsists on post-harvest grain residues under scavenging system. Low average daily intake results in low body weight, milk yields, and egg production. The problem is becoming more acute as a result of dwindling grazing land due to the expansion of crop cultivation in general, more intensive cereal production (with short-stemmed HYV rice plants replacing traditional longer stemmed varieties) in particular, and human habitat expansion.

Rice straw has been the principal component of feed for cattle and buffaloes, accounting for 80 per cent of total dry roughage. The nutrient value of rice straw is, however, low with only 42 per cent total digestible nutrients and 0.6 per cent protein. In contrast, maize fodder contains 59 per cent total digestible nutrients and 3.8 per cent protein. Maize is, therefore, the preferred feed choice in most of the world because of its high nutrient value relative to its price. The demand for maize as feed ingredient is growing fast in the country with the establishment of new poultry, dairy and fish farms. Poultry farms with an average capacity of 5,000 birds or less use imported maize of only one-fourth of their requirements. The feed mills, on the other hand, use imported maize amounting to two-thirds of their grain requirements. Poultry and dairy industries are, thus, dependent on imported maize despite high potentials of domestic production.⁸

The number of poultry farms has been growing over the last two decades. Most of these are layer farms. Poultry farms use mixed foodgrains, maize and wheat, along with manufactured feeds popularly known as ready feeds. Mixed feeds are prepared by farm owners themselves, following the prescriptions from the Department of Livestock Services (DLS) under the Ministry of Fisheries and Livestock and the feed mills. In making feeds, households or small farms seem to be at a disadvantage due to lack of proper technical knowledge and price information. Poultry farms are dependent on imports mostly for feed ingredients and occasionally for chicks. There are, however, no clear rules and regulations regarding their imports and quality control.

There is hardly any disagreement that the main reason behind current feed shortage is the growing scarcity of grazing land; in particular, very little area of land is devoted to fodder cultivation in the country. Even when it is cultivated,

⁸ For a comprehensive analysis of the potential of maize production and marketing in Bangladesh, see Quasem (1998).

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production per unit of land is low in certain periods due to unfavourable climate and natural hazards. Moreover, delayed maturity and poor rate of reproduction of livestock force farmers to increase the number of unproductive stock. This makes the problem of feed shortage all the more acute. With programmes to improve the productive capacity of the indigenous livestock, there will be an increase in demand for feed as the improved animals and birds will require better nutrition. Thus, the problem of feed shortage will become more acute unless the supply of feed and fodder resources is increased.

2.4.1.2 Animal Disease

Diseases, after shortage of feed, are the second most important constraint to livestock development in Bangladesh. Climatic conditions in Bangladesh make diseases more prevalent along with other factors such as high animal densities, poor animal nutrition, and lack of veterinary services. A shortage of vaccines further complicates the problems. Among different animal diseases, Foot-and-Mouth Disease (FMD) in cattle causes heavy losses to farmers in Bangladesh. It appears mostly in endemic proportions and sometimes in epidemic form. In the case of chicken, Newcastle disease causes heavy losses in the form of mortality. Gumboro has also been identified as a fatal disease of chicken. Highly pathogenic avian flu (H5N1 strain) has recently emerged as a major threat for poultry development in the country.⁹

There has not been any in-depth study on the loss of livestock due to frequent outbreak of diseases in the country. However, several estimates suggest that the annual economic loss due to diseases is very high in Bangladesh. Nakamura (1990) showed that the loss due to diseases and parasitic infestation was at least Tk. 20.7 billion annually at a 25 per cent mortality rate. The sheer amount of loss indicates that the negative impact of livestock diseases is quite severe on the national economy. The major factor hindering any headway in prevention and control of diseases is the unavailability of vaccine and sera in required quantities. In fact, during the mid-1990s the supply of vaccine and sera against different diseases was less than one-third of total requirement in the country. Since the cost of local production of major vaccines is less than their import prices, the private sector should be given incentives to undertake production of vaccines that are in short supply or not available in the country.

⁹ For details, see Yunus, Ahmed and Chowdhury (2008).
2.4.1.3 Genetic Breed

The genetic potential of indigenous livestock in Bangladesh is generally poor, characterised by low productivity. This is considered to be an important constraint to livestock development and could be overcome through genetic improvement of indigenous stock by appropriate breeding. More than 90 per cent of cattle and chicken are of indigenous varieties, while the remaining are cross-breeds between indigenous and improved breeds. Although indigenous breeds are less susceptible to diseases and able to survive on meagre rations of rice straw and crop residues, they are also low producers of meat, milk, and eggs.

Cattle dominate the livestock population in Bangladesh, accounting for about 60 per cent of the total stock in 2005. Virtually all cattle in Bangladesh are zebu, with three main types: large deshi (local), small deshi, and Red Chittagong. These animals are genetically small in size and slow growers. The national cattle breeding policy envisaged that cattle breeding operation will be carried out in urban, semiurban and milk potential areas. Whether the breeding policy has been successfully implemented is a matter of in-depth investigation. Some experiences have been gained however, on the basis of which future course of action can be initiated. These are (Alam 1995):

- Despite significant increase in use of power tillers, the use of cattle as the main source of draft power for agricultural operations, as well as for meeting the requirements of meat and milk in Bangladesh, will continue for years to come. In rural areas, there is a need to improve the working efficiency of bulls through improved breeding and feeding practices. At the same time, breeding for higher milk production has to be emphasised in urban, semi-urban and milk pockets for meeting the deficit in milk.¹⁰
- An important constraint to cross-breeding is the scarcity of breeding bulls. These bulls are not largely produced by individual farms because it is not remunerative to them for breeding purpose only.¹¹ It is, therefore, necessary for the government to set up more cattle breeding stations and farms in different areas of the country to develop improved herds of various breeds.
- The coverage of cross-breeding programme of milking cows is still very limited. However, it is expected that the coverage will expand as organised

¹⁰ This can be achieved through a systematic policy of cross breeding, selective breeding, and upgrading of indigenous cattle and buffaloes.

¹¹ This is because profit from the sale of bulls/oxen is smaller compared to the income derived from the sale of milk and other products.

marketing of milk spreads over more areas and the necessary inputs and services are made available to a large number of farmers for breeding and rearing of cross-breed cattle.

 As mentioned earlier, the low productivity of local breeds of animals and birds is a constraint to livestock development in Bangladesh. High yielding exotic breeds normally do not have adequate resistance against prevalent diseases or thrive well in local environment. It is necessary to develop suitable breeds of animals and birds in the country through selection, cross-breeding, and upgrading along with appropriate management.

Buffaloes are larger than the local breed cows, although the average fertility is about the same. Buffaloes subsist on the same types of feed as cattle but are better able to utilise low grade roughage. Moreover, buffaloes are more resistant to diseases than cattle. However, they thrive only on marshy and swampy lands. There are two varieties of indigenous goats in Bangladesh, the Black Bengal and the Jamunapuri. The Black Bengal accounts for bulk of the goat population. They are well adapted and productive under local conditions. In fact, goats are harder, faster breeders, and better feed converters than cattle. Besides, they rarely suffer from serious diseases.

More than 90 per cent of the chicken in Bangladesh are local variety, unimproved breeds or cross breeds of local varieties with imported birds.¹² The government and the private sector import improved varieties for parent stocks used in producing chicks. However, the size of the parent stock of imported birds is not large enough to meet the demand for chick. Consequently, the private sector produces about 80 per cent of the chicks from broody hens using local and cross-breed varieties.

2.4.1.4 Research and Management

Apart from the three major constraints discussed above, low investment in livestock research and its poor management are matters of major concern. The livestock and poultry sub-sector has not been a priority of the government or the farmers. The government has allocated its resources mostly for research and development on crop, especially food crop production. Moreover, priority was given to livestock for on-farm draft power rather than for meat or milk production.

¹² The imported birds are primarily Fayomi (from Egypt), Rhode Island Reds (from the US) and White Leghorns (from the US). The laying capacity of the imported breeds is 180-210 eggs per year compared to 40-50 eggs per year for the local birds.

This low priority given to livestock and poultry was reflected in the small allocation of budgets to this sub-sector.¹³ Not only the budget allocation is small but this has actually declined in recent years.¹⁴

Livestock management is also weak, with farmers lacking knowledge of feeding requirements, disease control, and breed selection. The present livestock management system, therefore, serve as a constraint to livestock development in the country. Small number of livestock is kept by the majority of rural households rather than intensive commercial production.¹⁵ Under the existing management practices, the animals neither receive adequate nutrition nor proper health care for efficient growth and production. Poor management is also reflected in inadequate effort given to fodder cultivation by farmers and the common practice of feeding cattle only with rice straw.¹⁶

2.4.2 Marketing Structure for Livestock

The marketing structure for livestock is geared around its production characteristics largely carried out by the private sector, with the exception of some milk production marketed by cooperatives and a number of commercial poultry farms that market their own product. Most of the livestock and poultry products are marketed by farmers directly to local traders. The products travel from there through a series of intermediaries to the major consumption centres. In fact, a complex marketing system is involved through which live animals and poultry birds as well as their products are transferred from the farmers to the consumers. Such a typical marketing channel for cattle (both meat and milk) is indicated below.

¹³ The livestock and poultry sub-sector contributes about 3 per cent of GDP but receives only 1 per cent of total public expenditure.

¹⁴ The ADP allocation to livestock sub-sector has declined from Tk.1,054 million in FY 2000 to Tk. 676 million in FY2008.

¹⁵ For example, the average number of bovine animals per household which owns bovines is 1.8 animals. For poultry, the average number of birds per household which owns poultry is 8 (Alam 1995).
¹⁶ Only 2.0 per cent of the farmers cultivate high yielding perennial fodder crops such as

¹⁰ Only 2.0 per cent of the farmers cultivate high yielding perennial fodder crops such as napier and para grass and those who cultivate such fodder are the medium sized and better managed farms (Alam 1995).



Figure 2.1: Supply Chain for Meat and Milk Products



Source: Adapted from Mujeri and Shahabuddin (2001) and Jabbar (2010).

There are several deficiencies in the existing marketing system. Markets for cattle and other live animals are few; farmers need to walk their animals for long distance to market without a good knowledge of current prices. Traders often make offers on the basis of sight and not on the basis of a fixed price per unit of weight. As a result, prices often vary across transactions even on the same day in the same market, and the farmers are not in a good bargaining position since they have already brought their animals for sale. Tolls, fees and commissions also vary across markets. Moreover, instances of making unofficial payments to unscrupulous organised groups are common which distort the marketing system. Finally, due to lack of cold storage, animals and birds are usually slaughtered and sold in the same day and milk cannot be transported to any great distance or stored. It may be emphasised here that fluctuations of product prices across seasons and over geographic locations also reveal inefficiency of the current marketing system.¹⁷

2.4.2.1 Marketing Structure of Commercial Poultry

Since supermarkets would continue to play a minor role in Bangladesh, most poultry products are sold to wholesalers who then transport the products to urban markets and sell to the retailers. Figure 2.2 shows a schematic supply chain of commercial poultry products, especially broilers and eggs in Bangladesh. It may be noted that commercial poultry industry has high backward and forward linkages.

There are several problems in the current marketing structure. From the institutional perspective the market for commercial poultry may be characterised as oligopolistic. Broiler and layer farms set the price of the products (live birds and eggs) at which wholesalers are obliged to purchase. Even though wholesalers of poultry products are competitive at both ends of their markets, retailers set price for the final consumers. Most of the farms have no designated area for loading or unloading; birds and eggs are transported in cases/crates on uncovered vans. Birds are slaughtered and de-feathered in unhygienic conditions. Liter/waste management is very poor both at farm and retail levels. Due to the lack of cold storage and infancy of the supermarkets, birds are slaughtered and sold the same day. 'Hand hygiene' is hardly practiced at any stage of the poultry marketing system.

¹⁷ Several studies (Huq and Huq 1985, Alam 1995) show that there are considerable seasonal and spatial differences in prices of live animals and livestock products.



Figure 2.2: Supply Chain for Commercial Poultry Products



Source: Yunus, Ahmed and Chowdhury (2008).

Costs and Returns of Commercial Poultry Traders

Egg wholesalers receive their supplies mostly from layer farms and sometimes from other sources. Based on data from 24 egg wholesalers, monthly turnovers of their business were found to be around 3 million taka per establishment (Table 2.10). About 98 per cent of the total costs are incurred in purchase of eggs. They earn about 21 per cent annual rate of return on their investments. Similarly, egg retailers receive their supplies mostly from egg wholesalers but sometimes directly from nearby farms. The monthly costs of a typical egg retailer were found to be about 340 thousand taka and sales proceeds were 350 thousand taka. These were calculated based on data from 22 retailers. The annual rate of return on their investment was calculated to be about 52 per cent, much higher than that earned by egg wholesalers (21 per cent) as noted above.

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				(per month)		
Items	Bro	iler	E	Egg		
	Wholesaler	Retailer	Wholesaler	Retailer		
Purchase of stock (%)	98.18	96.07	98.3	97.93		
Feed costs (%)	0.26	0.93	-	-		
Labour costs (%)	0.51	1.08	0.29	0.82		
Other costs (%)	0.41	1.06	0.23	0.75		
Transport costs (%)	0.64	0.87	1.18	0.51		
Total costs (Tk.)	1,693,832	288,637	2,988,739	338,589		
Total revenues (Tk.)	1,735,905	299,951	3,040,748	353,155		
Gross margin (Tk.)	42,073	11,315	52,010	14,567		
Annual rate of return (%)	29.81	47.04	20.88	51.63		

TABLE 2.10COSTS AND RETURNS OF COMMERCIAL POULTRY TRADERS

Source: Yunus, Ahmed and Chowdhury (2008).

Based on data from 20 broiler wholesalers, it was observed that an average wholesaler incurs about 98 per cent of the total costs in payment for broiler supplies from farms (Table 2.10). Total monthly costs of an average broiler wholesaler were 1.69 million taka and total sales proceeds stood at around 1.74 million taka. Thus, their monthly profits were around 42 thousand taka. The annual rate of return on their investment was calculated to be about 30 per cent. A survey on 44 retailers reveals that broiler retailers received their supplies mainly from broiler wholesalers and at times directly from farms. The total monthly costs of a broiler retailer were around 289 thousand taka (Table 2.10). They spent about 96 per cent of the total costs for payment of supplies from wholesalers. The monthly sales proceeds were found to be about 300 thousand taka. The annual rate of return on their investment was calculated to be 47 per cent, higher than that earned by broiler wholesalers (30 per cent) as noted above.

2.4.3 Economics of Commercial Livestock and Poultry Production

2.4.3.1 Economics of Commercial Livestock Farm (Dairy)

The density of livestock has increased per hectare of land, but the demand for livestock products is growing rapidly with growth of income and population. Thus, the growing demand has to be met with shrinking resource base. One possible solution could be livestock farming for cow fattening and milk production through stall grazing technique. However, the technique needs to be commercially viable for it to be self-sustaining. Reliable data are not available for assessing commercial viability of cattle fattening. However, anecdotal evidence shows high profitability of such operations. There are, nevertheless, quite a few studies about the profitability

of dairy farms. The following costs and returns analysis draws on a recent work by Jabbar *et al.* (2005).

Typically, two types of dairy farms are observed in Bangladesh: (a) farms with cross-breed cows (CBC),¹⁸ and (b) farms with local-breed cows (LBC). Based on survey of 120 CBC farms and 40 LBC farms, the authors found that the numbers of milking cows per CBC and LBC were found to be 3.46 and 3.63 respectively, although the total number of herd per farm was roughly double of the above numbers. The average lengths of lactation per cow were 243 and 247 days in the CBC and LBC farms respectively. The daily yields of milk per cow were 8.0 litres for CBC farms and 4.1 litres for LBC farms. While the daily yield of milk from CBC cows was roughly double of that of the LBC cows, there was hardly any difference in the price of milk per litre (Tk.16.48/litre for CBC farms and Tk. 16.50/litre for LBC farms).

The costs and returns of milk per dairy farm are presented in Table 2.11. An average CBC farm spends about Tk. 69 thousand per annum. About 61 per cent of the total costs were incurred in purchasing feed. Of this, 22 per cent were incurred for purchasing green grass and other dry roughages and the rest, 39 per cent, were incurred in purchasing concentrate feed including rice bran, wheat bran, pulse bran, oil cake, etc. The second most important item of costs was wages for both hired and family labour (33 per cent). An average farm was found to sell milk worth Tk. 109 thousand per annum. Thus, the gross margin was calculated to be Tk. 40 thousand per annum. Such impressive gross margin yields an annual rate of return on investment of 58 per cent.

TABLE 2	.11

		(per annum)
Items	Cross-Breed Cows (CBC)	Local-Breed Cows (LBC)
Feed costs (%)	61.22	57.14
Green Grass/Roughage (%)	22.04	30.61
Concentrate feed (%)	39.18	26.53
Drugs/Vaccines (%)	0.71	0.01
Labour (Family+Hired) (%)	33.06	37.75
Transportation (%)	2.04	2.04
Interest charges (%)	2.96	3.06
Total costs (Tk.)	69,011.22	49,039.19
Total revenue (Tk.)	109,234.14	59,221.99
Gross margin (Tk.)	40,222.92	10,182.80
Annual rate of return (%)	58.28	20.76

COSTS AND RETURNS OF COMMERCIAL DAIRY FARMS

Source: Jabbar et al. (2005) and authors' calculations.

¹⁸ Cross-breed cows include mainly Frisian cross and Jersey cross.

The total costs of an average LBC farm were Tk.49 thousand, about 20 thousand taka less than that of an average CBC farm. Similar to the CBC farms, the major costs were incurred on feed (57 per cent) and labour (38 per cent). The annual sales proceeds were calculated to be Tk. 59 thousand, thereby yielding a gross margin of Tk. 10 thousand per annum. This amount of gross margin gives an annual rate of return on investment of 21 per cent.

Since growing demand for milk and milk products needs to be met with shrinking resource base, dairy farming with stall grazing facilities provides a feasible option. The profitability of CBC farms appears to be about three times higher than that of the LBC farms. Public investment should, therefore, be geared more towards supporting the former type of farms.

2.4.3.2 Economics of Commercial Poultry Farming¹⁹

Poultry hatcheries are capital intensive operations. Based on data from survey of 6 hatcheries, it was observed that the total costs of a hatchery farm were 11.45 million taka per month (Table 2.12). About 57 per cent of these costs were incurred for feed, while the cost of parent stock was around 10 per cent. More than 10 per cent of the costs were incurred for wage payments. Total revenues from sale of day-old-chicks (DOCs) were 12.32 million taka per farm. The owners, therefore, earn 0.87 million taka per month, with an annual rate of return of 91.8 per cent on their investments.

The total costs of an average broiler farm were found to be about 180 thousand taka per month based on survey of 60 farms across the country (Table 2.12). As in the case of hatcheries, the major costs in broiler farms were for feed (62 per cent). Purchase of DOCs was the second most important item (23 per cent). In addition, broiler farms incurred about 6 per cent of the total costs for drugs and vaccines. An average broiler farm sold grown up broilers worth about 203 thousand taka per month and thus earned profits of about 23 thousand taka, yielding an annual rate of return of 152.4 per cent on their investments.

The total costs of an average layer farm were around 2 million taka per month based on data from 30 farms across the country (Table 2.12). More than 77 per cent of these costs were incurred on feeds. Unlike broiler farms, the second most important costs incurred by layer farms were labour costs of about 5 per cent. Layer farms made substantial profits (187 thousand taka) with an annual rate of return of about 107 per cent on their investments.

¹⁹ The section draws heavily from Yunus, Ahmed and Chowdhury (2008).

			(per monin)
Items	Hatchery Farm	Broiler Farm	Layer Farm
Purchase of stock (%)	9.89	23.31	4.12
Rental costs (%)	1.6	1.89	2.38
Feed costs (%)	57.36	62.02	77.28
Labour costs (%)	10.65	3.24	4.84
Medicine/Vaccine (%)	3.86	6.03	4.8
Other costs (%)	0.82	1.25	4.5
Transport costs (%)	10.62	1.36	1.24
Utility costs (%)	5.2	0.9	0.85
Total costs (Tk.)	11,448,647	180,617	2,097,912
Total revenues (Tk.)	12,324,087	203,556	2,284,849
Gross margin (Tk.)	875,440	22,939	186,938
Annual rate of return (%)	91.76	152.41	106.93

TABLE 2.12 COSTS AND RETURNS OF COMMERCIAL POULTRY FARMS

Source: Yunus, Ahmed and Chowdhury (2008).

It is often claimed that poultry farming constitute an important element of poverty alleviation strategy because poor households with credit from different microfinance institutions would be able to establish small scale commercial poultry farms. This may be true of broiler farms but not of hatcheries or layer farms. In view of sizeable investments that layer farms and hatcheries have to make, income generating activities of these farms are not pro-poor.

2.4.4 Potentials for Livestock Development

A useful way of identifying and realising potentials for accelerated growth of livestock lies in addressing properly the constraints identified earlier. This remains true irrespective of whether the sub-sector develops along traditional lines or it becomes more commercially oriented.

As mentioned earlier, lack of adequate feed and fodder has been constraining the development of livestock in the country. There is ample scope for ensuring improved feed supply in Bangladesh. Research carried out at the BLRI and Savar Dairy Farm on fodder production shows that high yielding fodder and legumes can not only compete with rice, but some high yielding fodder crops can be grown in seasonal rotation with food and fibre crops, while others can be grown as perennials

with year-round production.²⁰ Also, there are bright prospects for including certain feed crops such as maize into farmers' cropping pattern by selective inter-cropping with other food or cash crops. Moreover, high yielding perennial fodder crops such as napier grass and para grass could be grown on embankments, road sides, and other underutilised areas. Ipil-ipil plants which are fast growing leguminous plants with high protein content could also be grown for animal feed. A shortage of seeds has slowed down this development and lack of farmers' knowledge has limited the expansion of these high yielding fodder crops. Also, opportunity exists for Bangladesh to produce significant quantities of fish meal which could be used for animal and poultry feed.²¹

As mentioned earlier, the incidence of animal and poultry diseases are quite pervasive, and cause significant losses to the country. There is a scarcity of qualified veterinarians to treat the existing stock of 25 million cattle and buffaloes, 260 million poultry, and 25 million goats and sheep. A comprehensive programme is needed for combating diseases-in particular, to train veterinary technicians to identify and treat common diseases, and also to administer vaccines to prevent diseases. This was done on a limited scale for the poultry in the past. This type of programmes needs to be expanded to cover the entire livestock. Moreover, adequate supplies of vaccine need to be made available to immunise the livestock population of Bangladesh.

There is a need for a dual purpose animal which can provide draft power for crop production and milk as well as meat for consumption. This could be achieved through cross-breeding of imported and domestic animals to upgrade the indigenous cattle and buffaloes. Since imported breeds normally do not have adequate resistance to disease and do not thrive in the local environment, it is necessary to develop suitable breeds of animals through selection, cross-breeding, and appropriate management. Artificial Insurrection (AI) is one way to improve the local breed. Unfortunately, however, AI has not had much of an impact on local cattle and buffaloes. Moreover, despite a government programme to provide AI services at subsidised rates, farmers have been slow to adopt this as an alternative option for insemination. This needs to be seriously looked into and appropriate policy measures need to be undertaken on a priority basis.

²⁰ High yielding seasonal fodder crops such as jowar and oat produce 50-75 tons of green fodder per hectare, while perennials such as para and napier grasses yield between 38 and 52 tons per hectare (Alam 1995).
²¹ The Bangladesh Fishing Industry discards volumes of "trash fish" that are no longer

²¹ The Bangladesh Fishing Industry discards volumes of "trash fish" that are no longer suitable for human consumption into water bodies. The disposal of volumes of trash fish not only pollutes water bodies but also wastes a valuable source of poultry feed.

It is necessary to improve livestock management practices so that farmers take better care of their animals and can better understand basic nutrition and health of farm animals. This would not only improve the health of animals but would make disease control more effective as farmers will be able to recognise common diseases and health problems. This can be entrusted with government extension agents and specialists from the DLS.

Increased use of power tillers has the potential to replace cattle as the primary source of draft power. This replacement is desirable as it would alleviate the shortage of animal power for cultivation to some extent and an increasing proportion of cattle population would then be reared for meat and milk production. Given the shortage of animals for draft power and severe malnutrition problem in the country, it is desirable to encourage mechanical tilling which would allow limited pastures to be used for grazing animals for milk and meat production while still providing supplementary draft power for cultivation. The local Black Bengal goats that are disease resistant, prolific breeder, and able to live off scavenged food, represent perhaps the most productive component of the livestock sub-sector. The skins of these goats are also of high quality and a major source of export earnings. Efforts should be made to improve the breed to increase meat (and milk) production while retaining its disease resistance and skin quality. Mortality rate of kids (buckling and doeling) of these goats is, however, high and efforts should be made to reduce it by greater veterinary care, training for goat rearing, and improved feeding.

The livestock sub-sector, still dominated by smallholder producers, has considerable potential to improve its productivity and benefits to the rural poor can be increased by appropriate policies of livestock asset control. The smallholder farms own poultry, goats and sheep rather than large animals. The pro-poor policies need to assess why poor households tend to own smaller animals, whether to support such ownership or to relieve constraints to increasing their ownership of large animals. A number of factors determine the livestock ownership pattern of the poor e.g. small animals require less capital to buy and maintain, simplify distress sales, and reduce risks of loss due to death or theft, grow and breed faster, and can thrive on harsher conditions. These issues suggest two major policies to enhance the poverty-reducing role of livestock (Mujeri and Shahabuddin 2001). First, the focus of livestock research, extension, and public goods provision needs to be directed more towards improving management of small animals in small lots (e.g. better management of infectious diseases). Second, barriers that constrain the poor's ownership of large animals need to be removed. An important policy approach could be to create institutional arrangements (e.g. through cooperatives or entrusting

large animals owners) to perform management, finance, and sale functions of livestock products while ownership rests with small producers. Along with creating new employment opportunities, such policies would provide inputs and services to small herd owners, thereby removing critical constraints for them to emerge as profitable livestock farmers.

2.5 FUTURE OUTLOOK FOR LIVESTOCK DEVELOPMENT

2.5.1 Projected Supply-Demand Gap for Livestock Products for the Sixth Plan

2.5.1.1 Demand Projections

The projected demands for livestock and poultry products are presented in Table 2.13.²² The demand for meat is estimated to be 1.87 million tons in 2010, the base year of our projections. This demand is projected to reach 2.17 million tons, 2.19 million tons and 2.22 million tons in the year 2011 under low, medium, and high growth scenarios.²³ Much of this growth could be attributed to bovine and ovine meat because of high income elasticity of these products compared to poultry meat. The projected demand will reach 4.05 million tons, 4.37 million tons and 4.72 million tons in the year 2015 under low, medium, and high growth scenarios. The demand for eggs is projected to reach 7.11-7.20 billion in 2011 and would approach 9.71-10.36 billion by 2015 under alternative scenarios. Similarly, the demand for milk is projected to increase from 3.31 million litres in 2010 (base year) to 3.77-3.86 million litres in 2011 and to 6.42-7.28 million litres in 2015, the terminal year of the Sixth Plan.

2.5.1.2 Supply Projections

In order to examine how the supply of these animal products would compare with rising demand, the supply of livestock and poultry products for the Sixth Plan period (2011–2015) was projected as well. For supply projection, the trend approach was adopted. It was observed that livestock and poultry products grew at 5.56, 5.00, and 4.81 per cent for milk, meat and eggs respectively, based on data for the 1999-2008 period. Projection was made using these trend growth rates. Supply of meat is projected to increase from 1.11 million tons in 2010 (base year) to 1.16 million tons in 2011, and further to 1.41 million tons in 2015. Similarly, supply of

 $^{^{22}}$ The methodology of demand projections including sources of data and underlying assumptions is provided in Annex 1.

²³ The low, medium and high growth scenarios correspond to 6.0, 6.5 and 7.0 per cent growth of income respectively. See Annex 1 for detailed discussion.

eggs and milk are projected to increase from 6.09 billion numbers and 2.98 million litres in 2010 (base year) to 6.38 billion numbers and 3.15 million litres in 2011 respectively and further to 7.70 billion numbers and 3.91 million litres respectively in 2015, the terminal year of the Plan.

2.5.1.3 Projected Supply-Demand Gap

A comparison of estimated demand and supply shows that there would be a deficit of 0.33 million litres of milk, 0.76 million tons of meat and 485 million of eggs in 2010, the base year of projections for the Sixth Plan period. The deficit would increase to 0.62-0.71 million litres of milk, 1.01-1.06 million tons of meat and 727-819 million of eggs in 2011, which would further increase to 2.51-3.37 million litres of milk, 2.64-3.31 million tons of meat and 2.01-2.66 billion of eggs in the terminal year of the Plan (2015).

Developing an accurate scenario of the dynamics of demand for livestock and poultry products is rather difficult, as future demand pattern depends on tastes, prices, and income. Demand has been projected from 2011 to 2015 by taking into account only growth in income. This has introduced an upward bias in our projections since the dampening effect of future price escalation on demand has not been incorporated in our exercise. Moreover, since the elasticity of expenditure with respect to income is less than unity, the use of expenditure elasticities which are lower than income elasticities has also introduced an upward bias in demand projections of different livestock/poultry products.

2.5.2 Targets and Resource Requirements for the Sixth Plan

As observed in the supply-demand projections, considerable supply-demand gaps of livestock products are expected to emerge during the Sixth Plan period (Table 2.13). The gap can be minimised or fully met through increasing allocation in the annual development programme (ADP). It is assumed that investments from the ADP through the DLS provide public goods to the livestock and poultry subsector. There is a declining trend in ADP allocations to the DLS. Over a 10-year period (1999-2008), the highest amount of ADP funds allocated to the DLS was Tk. 1.09 billion (Tk. 925 million at 1995-96 prices) in 1999-2000. It declined to Tk. 676 million (Tk. 400 million at 1995-96 prices) in 2007-08. The annual rate of decline (at the constant prices) was calculated to be 11.02 per cent. Thus, ADP allocations for the development of the livestock and poultry sub-sector have been inadequate and were much less than one would expect in order to sustain, let alone accelerate the growth of livestock and poultry products in the country.

Products	Growth	Benchmark	2011	2012	2013	2014	2015	Total
		(base year)	Projected Demand					
Meat	Low	1.87	2.17	2.51	2.93	3.43	4.05	16.96
(million tons)	Medium	1.87	2.19	2.58	3.06	3 64	4 37	17 71
	High	1.87	2.22	2.65	3.19	3.86	4.72	18.51
Eggs	Low	6.575	7.110	7.687	8.311	8,984	9.711	48378
(million numbers)	Medium	- 9	., .	.,	-)-	- ,		
` /		6,575	7,156	7,788	8,474	9,220	10,030	49243
	High	6,575	7,202	7,888	8,639	9,460	10,357	50121
Milk	Low	3.31	3.77	4.29	4.90	5.61	6.42	28.3
(million litres)	Medium	3.31	3.81	4.40	5.09	5.90	6.84	29.35
	High	3.31	3.86	4.51	5.28	6.20	7.28	30.44
					Projected	Supply		
Meat								
(million tons)		1.11	1.16	1.22	1.28	1.34	1.41	7.52
Eggs								
(million numbers)		6,090	6,383	6,689	7,011	7,348	7,702	41223
Milk								
(million litres)		2.98	3.15	3.32	3.50	3.70	3.91	20.56
				Pro	jected Supply	y-Demand G	ap	
Meat	Low	-0.76	-1.01	-1.29	-1.65	-2.09	-2.64	-9.44
(million tons)	Medium	-0.76	-1.03	-1.36	-1.78	-2.3	-2.96	-10.19
	High	-0.76	-1.06	-1.43	-1.91	-2.52	-3.31	-10.99
Eggs	Low	105	707	009	1 200	1.626	2 000	7155
(million numbers)	Madium	-405	-727	-998	-1,500	-1,050	-2,009	-/133
	Linh	-405	-//3	-1,099	-1,405	-1,0/2	-2,526	-8020
Mille	Low	-485	-019	-1,199	-1,028	-2,112	-2,033	-0098
(million litrae)	Madium	-0.55	-0.62	-0.97	-1.4	-1.91	-2.31	-/./4
(minion litres)	Tich	-0.55	-0.00	-1.08	-1.39	-2.2	-2.95	-0./9
	High	-0.33	-0./1	-1.19	-1./8	-2.5	-5.5/	-9.88

TABLE 2.13PROJECTION OF DEMAND FOR AND SUPPLY OF LIVESTOCK ANDPOULTRY PRODUCTS DURING SIXTH FIVE YEAR PLAN PERIOD

Source: Authors' calculations.

Meat and milk, and meat and eggs may be considered as joint products. So, whatever expenditure is incurred for one of the joint products, say meat, will have spill over effects on the output of the other products (milk and eggs). This issue needs to be addressed in estimating the resource requirements for the entire subsector. One way to address this problem is to assume that the minimum of the resource requirements for achieving meat and milk production projected separately will achieve both the targets. Similar arguments can be invoked for estimating future resource requirements for poultry meat and eggs as well.

For the purpose of estimating resource requirement, ADP allocations (at 1995-96 prices) to the DLS over the last five years (FY2004-FY2008) as well as actual production of meat, milk, and eggs were averaged. From these averages, the amount of ADP (as if the whole amount is devoted to a particular sub-activity) per unit of activities was calculated. In the second stage, these ratios were applied to the projected demand under different income growth scenarios to arrive at the resource requirements in the terminal year of the Plan. In the third stage, total ADP allocation was arrived at after summing the minimum requirements of meat and milk, and meat and eggs respectively. The results are presented in Table 2.14. It is observed that the required ADP allocations to the DLS are estimated to reach 2.13-2.36

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billion taka in the terminal year of the Plan in order to achieve the target of filling the projected supply-demand gap in 2015.

However, in order to fill the supply-demand gap in 2015, it would require an annual growth in meat production by 52.97-65.05 per cent (starting from the base year production of 1.11 million tons in 2010), milk production by 23.09-28.86 per cent (starting from the base year production of 2.98 million litres in 2010) and egg production by 11.89-14.01 per cent (starting from the base year production of 6,090 millions in 2010).²⁴ While achievement of egg production target may be feasible in view of recent growth performance of the commercial poultry, it will be a formidable task to achieve the meat and milk production targets. The increase in the stock and productivity of the bovine and ovine animals takes longer time to materialise than it does for poultry. Hence, it may be reasonably assumed that the targets of meat and milk production would be achieved by 50 per cent while that of eggs would be fully achieved. In that case, the resource requirements in the terminal year would range between 1.48 billion and 1.62 billion taka, with an average of 1.55 billion taka.

						(ai 95/	90 prices
Livestock Products	Growth	2011	2012	2013	2014	2015	Total
	Rates/Years		AI	DP Allocation	(Tk. in millio	ns)	
	Low	962	1113	1299	1521	1795	6690
For Meat Only	Medium	971	1144	1357	1614	1937	7022
	High	984	1175	1414	1711	2092	7377
	Low	608	658	711	768	831	3576
For Eggs Only	Medium	612	666	725	789	858	3650
	High	616	675	739	809	886	3725
	Low	764	870	993	1137	1301	5065
For Milk Only	Medium	772	892	1032	1196	1386	5278
	High	782	914	1070	1257	1476	5499
Total	Low	1,372	1527	1,704	1,906	2,132	8,641
Resource	Medium	1,384	1558	1,756	1,984	2,244	8,928
Requirement 1	High	1,398	1589	1,809	2,066	2,361	9,224
-1	Low	990	1092	1,207	1,337	1,481	6,108
Feasible	Medium	998	1112	1,241	1,387	1,551	6,289
Target ²	High	1,007	1132	1,274	1,437	1,624	6,474
Source: Authors' calcul	lation.						

TABLE 2.14 RESOURCE REQUIREMENTS DURING THE SIXTH FIVE YEAR PLAN

Notes: 1. Figures for total ADP were computed by summing the minimum of ADP expenditures on meat and milk, and meat and eggs respectively.
 2. Feasible targets were computed by assuming 50 per cent fulfilment of meat and milk demand and complete fulfilment of

Feasible targets were computed by assuming 50 per cent fulfilment of meat and milk demand and complete fulfilment of demand for eggs.

²⁴ Such high average growth rates, however, conceal the fact that in order to meet the projected demand a big jump in production implying much higher growth is required for all livestock/poultry products in 2011 (starting from their base year production); thereafter the required growth rates decline considerably to 16-22 per cent in the case of meat, 14-17 per cent in the case of milk and 8-9 per cent in the case of eggs in subsequent years during the Plan period.

2.6 MAJOR ISSUES, STRATEGIC INTERVENTIONS AND POLICY RECOMMENDATIONS

2.6.1 Major Issues for Livestock Development²⁵

The exploitation of potential for livestock development in general and the growth of livestock products in particular should take into consideration the existing characteristics of livestock production in the country (Mujeri and Shahabuddin 2001). These are: (a) the growth of livestock population has been rapid for chicken and goats compared to large animals e.g. cattle and buffaloes. This reflects the scarcity of land for pasture and scavenging potential of chicken and goats; (b) the bulk of livestock products is supplied by smallholder farmers. Since farmers raise cattle and buffaloes primarily for draft power, productivity is low. Goats and sheep, on the other hand, are raised primarily for meat under the scavenging system; these animals are well adapted to local conditions. Productivity is, however, low due to lack of proper care and management; (c) chicken and ducks, raised in small flocks by rural households under scavenging system, are the major suppliers of meat and eggs. Although smallholder farmers produce more than 80 per cent of meat and eggs, productivity per bird is low compared to semi-intensive and commercial systems. In view of the above factors, the scope for developing the livestock subsector and for expanding the productivity of livestock animals and birds needs to concentrate on two elements: increasing the productivity of smallholder farmers and expanding commercial production. This requires attention to localised nature of livestock production.

2.6.1.1 Localised Nature of Livestock Production

Over the last two decades, several spatial pockets have emerged where commercial poultry production has rapidly developed along with poultry hatcheries, feed mills, and associated marketing network. These are: Chittagong, Cox's Bazar, Dhaka, Gazipur, and Manikganj. On the other hand, Barisal, Khulna and Rajshahai Divisions in general are lagging behind. Specific factors that have resulted in slow expansion of commercial production in these areas need to be identified and necessary support to encourage the private sector initiative needs to be provided. Similarly, certain areas e.g. Faridpur, Gazipur, Manikganj, Pabna, Rangpur, and

²⁵ The effects of taxes and tariffs have not been analysed in this study for two reasons. First, an analysis of urban retail price, producer price and global price of dairy milk based on taxes and tariff data for FY2007-FY2009 by Jabber (2010) indicates that there is hardly any rational functional relationship among these prices for the benefits of consumers and producers. Second, exemptions of tariffs on feed/drugs for commercial poultry have been in place for the last few years and it is expected to continue in the near future.

Sirajganj have pioneered in establishing dairy farms and increasing milk production. One of the important factors that contributed to such spatial development is the marketing network of milk which ensures fair price to the farmers. Thus, it is important to analyse the factors that contributed to relative progress in certain areas and address the relevant constraints in other areas to promote balanced livestock development in the country.²⁶

2.6.1.2 Increasing Milk Production

In order to increase milk production, the focus should be on four critical areas, namely (a) selection and expansion of suitable breeds, (b) feed availability with adequate nutrition, (c) ensuring fair price of milk, and (d) availability of veterinary and animal health services. The thrust should be on increasing milk production along two lines: first, increasing productivity of local varieties and encouraging adoption of suitable cross-bred varieties at the household level, and second, establishing small commercial farms with 5-7 cross-breed cows. Necessary support services (e.g. availability of feed, health services, transport network, marketing channels to ensure fair prices, credit and insurance facilities) are necessary to ensure success in this endeavour.

2.6.1.3 Developing Poultry and Duck Farms

Private sector initiatives in establishing broiler and layer farms, hatcheries and feed mills have played a significant role in recent years. Special efforts are needed to expand the current activities of the commercial farms. These include, among others, credit facilities, rural electrification, insurance programmes, marketing network, quality feed and medicine, supply of DOCs and other services for ensuring efficiency and profitability of poultry farms. For duck farms, several areas e.g. Kishoreganj, Sunamganj, Sylhet, and several coastal districts have natural advantages. Like poultry farms, integrated duck farming needs promotion in potential locations through similar efforts. Both poultry and duck farms can have significant poverty reduction role through generating employment opportunities, creating production and consumption linkages, and dissemination of improved technologies to poor farmers.

2.6.1.4 Increasing Meat Production

Due to lack of significant programmes, production of meat has not increased much in the past. The cattle-fattening, supported by NGOs and other MFIs, mainly

²⁶ In this respect, it is important to explore how several cooperative ventures (e.g. Milk Vita, Aarong of BRAC, Aftab Multipurpose Farm) and private initiatives (e.g. Tulip) have succeeded in increasing milk production and creating marketing channels.

caters to the demand of special festivals. A significant factor which dampens incentives in establishing commercial cattle farms is the large illegal imports of cattle heads across the borders resulting in depressed prices. For increasing the supply of beef, upgradation of indigenous animals should be a priority. To achieve this objective, it is necessary to develop suitable breeds of animals through selection, cross-breeding, and appropriate management such that these have adequate resistance to diseases and can thrive well in local environment. Similarly, commercial farms for goats and sheep and intensive programmes in suitable locations are needed.

2.6.1.5 Balanced Nutrition

Food accounts for bulk of the household expenditure of the poor. According to the Household Income and Expenditure Survey (2005), the poorest 40 per cent of the population spend 70 per cent of their income on food. Despite this, a large segment of the population consumes less than 1805 Kcal per capita per day, which is much below the norm of the minimum energy intake of 2110 Kcal for living a healthy and productive life. Recently, Hossain and Deb (2009) has analysed this by comparing the level of consumption of different food items as recorded in several rounds of HIES with the normative food requirements as prescribed by National Nutrition Council (NNC). It has been observed that for rural areas the consumption of rice, the dominant staple food, reached a level much higher than the minimum requirement, while there has been marginal deficit for vegetables and fish, and substantial deficit for pulses, oils and livestock products that are major sources of protein and micronutrients. The picture is almost the same for urban areas, except that the consumption of cereals is lower compared to rural areas while the consumption of most other food items is higher. It appears from the composition of diet that the quality of the food basket is superior for urban people compared to those living in rural areas.

A look at the consumption for the lower 40 per cent of the population reveals that only rice intake has continuously increased. This contrasts with declining rice consumption for overall expenditure groups. Thus, it appears that while the richer sections of the society are being able to gradually reduce their cereal intake and diversify their diet, the poor are still spending their incremental income on rice. The consumption of all income groups either stagnated or declined, for all other items. From nutritional point of view, this implies that the intake of an unbalanced diet has accentuated over the years, especially for the poorer sections of the population. This has serious implications for balanced nutrition of the food-insecure people.

2.6.1.6 Institutional Development

In the livestock sub-sector, the stakeholders are varied and institutional weaknesses seriously undermine development performance. Moreover, lack of coordination among different stakeholders creates significant inefficiencies. In addition to livestock farmers, government, private sector, NGOs, livestock research institutes and universities specialised in agricultural science, credit and financial institutions, cooperative and donor agencies have specific roles and responsibilities in improving livestock operations in the country. It is important, therefore, to ensure a facilitating environment in which each organisation has an institutional space in order to play a coordinated role for development of livestock in Bangladesh (Mujeri and Shahabuddin 2001).

The government's approach to delivery of livestock services is centred around the DLS under the Ministry of Fisheries and Livestock. The major activities of the DLS include: creation of self-employment and income generating opportunities through development of high-yielding animals and birds, generation of appropriate technologies for increasing production of milk, meat, egg, and other animal products, improving draft power supply for crop production and rural transport, production, procurement, and supply of livestock inputs e.g. vaccines, DOCs, fodder, improved feed, provision of animal health services, and training and extension services to farmers. The field-level activities of the DLS are performed by staff located at district and upazila levels. Unlike the agricultural extension services, the chain does not extend to union or village levels. The DLS staffs seldom visit farmers at field level. Instead, services are provided mostly through the Thana Veterinary Dispensary or the Thana Livestock Development Centre (TLDC). As a result, the subsidised government facilities and services are both inadequate and of poor quality, and remain beyond the reach of poor farmers.

With increasing emphasis on private sector-led development and rapidly changing needs of the livestock sub-sector, it becomes necessary to re-define the role of the DLS. While the long-term goal should be to play the role of a facilitator, it needs to play more of a pro-active role till alternative institutional arrangements (e.g. private sector and NGOs) are well prepared to perform several activities currently performed by the DLS. The goal, however, should be to encourage alternative institutions to assume greater responsibilities in the future. With expanded space and emergence of NGOs and other stakeholders, the present "core" activities of the DLS should be built around developing its professional skills and capacity in two major areas with demonstrated public goods characteristics e.g. veterinary medicine and animal health. The organisational restructuring around these core functions needs to focus on several important areas such as regular monitoring on animal diseases, maintaining disease control laboratories, check-up and disease control at the borders, enforcing quarantine arrangements and training to create a pool of private well-trained para-veterinary workers.

Institutional developments in livestock sector should also focus on removing the institutional weaknesses of Bangladesh Livestock Research Institute (BLRI), which was created in 1984, so that it can carry out its mandates which includes, among others, (a) to identify the basic problems affecting livestock and poultry both at the

national and farm level, (b) to solve these problems through multi- and interdisciplinary and inter-institutional research, and (c) to develop techniques and knowledge for livestock and poultry production to help food and nutrition security in the country.

In recent years, a significant change in the organisational environment of the livestock sub-sector has already taken place with increasing participation of NGOs through delivering livestock services to the poor farmers (mainly women) including microcredit, technical and marketing support. The involvement of NGOs provides a much desired opportunity to target the poor in livestock development who remained outside the purview of the DLS activities. These positive developments should be carried forward through devising an integrated approach to bring the DLS, NGOs and private sector closer to provide complementary services at the grassroots level.

2.6.2 Strategic Interventions and Policy Recommendations for the Sixth Plan

The future livestock development strategy needs to adopt a comprehensive approach in utilising available resources to exploit the potential supported by improved services, market links and institutions for transforming the livestock subsector to meet both domestic requirements and tap new opportunities in the global market. For sustained livestock growth, two key elements need emphasis: exploitation of economies of scale in livestock production consistent with resource availability and comparative advantage, and adoption of improved technologies to enhance productivity. In particular, the strategy should consider several aspects of changes in the market and demand for livestock products e.g. population growth, urbanisation, increase in per capita income and change in relative prices. The new strategies and policies need to address the constraints more effectively in order to accelerate livestock growth to meet rising demand and contribute to raising income of the poor farmers.

Since there exists important linkages and interactions, the perspective of developing the livestock sub-sector has to combine several important objectives e.g. improving livestock production and productivity, increasing the supply of livestock products, expanding employment and income earning opportunities for the poor, ensuring sustainable use of available resources, and strengthening institutions including public, private, NGOs, CBOs and farmers' groups. This requires interventions in related areas: animal management, training and technology transfer, animal health services and feed development, processing and marketing facilities, infrastructure development, quality control, and creating an enabling environment for the farmers and other stakeholders to participate in livestock development activities.

In Bangladesh, with the dominance of small mixed farming system, incentives and policies that recognise the supervisory and supportive role of the government and the production role of the livestock farmers and the private sector are important. For this purpose, government needs to provide incentives to attract private

entrepreneurs to develop agro-processing and agri-business through the provision of livestock support services. As mentioned earlier, public extension services are of poor quality and seldom reach the poor livestock farmers. Services provided by NGOs are often of greater use to smallholder farmers in improving the quality of livestock, introducing disease control measures and improved feeds. The main supportive areas for the government are research and animal health but even for these essential activities, collaboration with the private sector would contribute to better outcomes.

Several strategic areas need urgent attention in creating a dynamic livestock sub-sector for the future (Mujeri and Shahabuddin 2001). First, development of the commercial component of the sub-sector requires a facilitating policy environment and a level-playing field so that private entrepreneurs are able to exploit potentials in both domestic and external markets. Along with ensuring supply to meet domestic requirements, export opportunities (e.g. poultry) need to be availed. In the post-WTO era, the Agreement on Sanitary and Phytosanitary (SPS) measures has implications for Bangladesh's exports of livestock products. Bangladesh needs to harmonise SPS and Technical Barriers to Trade (TBT) measures with international standards. The application of good veterinary practices (GVPs), good hygiene and manufacturing practices and adoption of quality assurance systems including the Hazard Analysis and Critical Control Points (HACCP), will contribute to opening new opportunities by ensuring consistency of safety and compositional quality of livestock products. Second, for the smallholder livestock production system, in addition to cross-cutting sectoral issues, four critical areas need priority: feed supply, animal health and disease, genetic stock, and marketing network. The issues are intertwined and require special attention. Third, trans-boundary diseases, particularly the avian influenza, have emerged as a potential threat to the development of poultry during the past few years. There are, however, divided opinions about whether the disease plagues the poultry population through migratory birds or it transcends national boundary. It is probably difficult to protect local birds if it spreads through migratory birds. But, if it comes from across the border, then interventions, such as random checks at strategic transit points, might help prevent the spread of the disease within the country.

The economic reforms and liberalisation policies of the successive governments have so far generated some mixed production response in the livestock sub-sector. The policy of encouraging livestock activities has attracted private investments in commercial poultry and dairy production. The concern, however, is how sustainable these investments are. On the other hand, the smallholder farmers, who are the majority in terms of ownership of livestock resources, have not benefited much in increasing productivity largely due to lack of supportive policies and infrastructure. The limitation of the public sector in smallholder livestock development is also recognised and the emphasis is on collaborative effort of public and private sectors, NGOs, and other stakeholders.

In recognition of limitations of the role of public sector, encouraging links with the private sector and the NGOs have been established in smallholder livestock development. However, several laws and regulations still inhibit the performance of livestock sub-sector and commercial decision making. Restrictive provisions and statutory controls of these laws e.g. Animal Slaughter and Meat Control Act, 1957, Animal Disease Act, 1983, Dhaka Municipal Corporation Ordinance, 1983, and the Veterinary Drug Policy need re-examination in the light of current imperatives and expressed government policies. In addition, the registration of animal health remedies is governed by human medicine provisions of the Drug Administration Authority and it controls imports of animal medicines and fixes maximum retail prices. The system is cumbersome, has anti-competitive elements and tends to constrain the development of an innovative and cost-effective disease control programme. The DLS's policy of distributing free or subsidised drugs and animal health remedies requires re-thinking and, if necessary, may be focused only to smallholder livestock farmers to create a competitive environment for the private sector. The DLS's operations of vaccine production laboratory, poultry farms, breeding farms, and similar other facilities, initiated to introduce improved breeds, have achieved initial targets and these should now be progressively handed over to the private sector. Similarly, AI services should be privatised. These policy changes will help develop competitive commercial markets if supported by removal of restrictions on private sector involvement and external trade.

Despite recent improvements in policy environment, there is a need to pursue competitive exchange rate policy, remove tariff anomalies and end-user discrimination, and complement supply-focused livestock policy with a supportive macroeconomic and trade environment. The role of the government needs to be focused to devise and administer institutions (e.g. legal system, regulations and policies). The aim is to ensure efficient livestock production and ensure availability of "public goods" in the livestock sector (particularly research to supply better breeds, marketing and credit facilities) and bring equity, cost-effectiveness and quality of livestock services. Local government institutions, NGOs and other community organisations can serve as the base for delivery of such services. Several options e.g. contracting out delivery services of public agencies to NGOs and private sector, increasing partnership with NGOs and private sector, and similar other measures can be adopted where beneficiary participation is a key component.

The major objective of public sector programmes should be to help the livestock sub-sector grow faster by creating conditions that remove supply-side constraints and encourage demand linkages. Public actions, as identified above, need to address specific concerns in two areas where private initiatives are lacking: first, supply-side factors channelled through input markets (e.g. research,

technology, markets, infrastructure and institutions) that support access and availability of resources and inputs to farmers; and second, structure of incentives that provide price signals to livestock farmers.

While accelerating growth of livestock sub-sector is a priority, it is also important to ensure as to how its poverty reduction role can be enhanced. It needs to be recognised, however, that reducing poverty is not simply a question of increasing livestock production or generating higher livestock income. Poverty reduction requires addressing the underlying institutional, structural and socioeconomic factors that determine the access of the poor to resources and regulate competing claims of various groups in the society. At the present stage of development of livestock sub-sector in Bangladesh, the priority is to ensure productivity growth in the livestock sector to generate cash income for the poor livestock farmers, improve their nutritional status, and support seasonal stress management. It is true that household income of smallholder livestock farmers will not increase much through improvements in technology due to small size of their herds. The resulting increased income and access to livestock assets with potentially higher returns, however, will help them to diversify sources of income and enhance chances of getting more remunerative jobs by improving education and skill levels. A policy of geographical targeting of livestock development efforts to agriculturally depressed areas (with potential of livestock development) can contribute significantly to overall poverty reduction in the country. These should be considered while devising comprehensive livestock development programmes in Bangladesh.

2.7 DEVELOPMENT OF FISHERIES: REVIEW OF PERFORMANCE

Fisheries fall broadly into three main categories: inland capture, inland culture and marine fisheries. Inland capture fishery plays the dominant role in this subsector.

2.7.1 Inland Capture Fisheries

Bangladesh has a large number of big and small rivers. All these rivers have extensive floodplains along both banks. All the floodplains remain inundated with flood water of varying depths during the monsoon. Within floodplains, there exist some deep depressions, locally called as beels or haors, some of which retain water throughout the year. All these rivers, floodplains, beels and haors constitute the source of country's inland (open water) capture fisheries.

2.7.2 Inland Culture Fisheries

Inland culture fisheries include pond culture, ox-bow lakes (baors) and shrimp farms. The country has thousands of man made ponds and reservoirs, 52 per cent of which are currently being used for fish culture, 32 per cent are reported as culturable and the remainder are considered derelict (DOF 2009a). Ox-bow lakes (baors) are a different set of water bodies which are bends of meandering rivers and cut off from the main river system. These are isolated water bodies most of which

have no connection with the open water system. The country has 25,000 sq. km. of land along the coast which is tidally inundated and suitable for brakishwater aquaculture. A number of shrimp farms are located in these areas. Total water area under each of the sources of inland fisheries (both capture and culture fisheries) is presented in Annex Table 2.2A.

2.7.3 Marine Fisheries

Marine fisheries of the country are made up of marine industrial (trawl) and marine artisanal fisheries. Bangladesh meets the *Bay of Bengal* along its southern border. The coast line of the country is approximately 480 km. in length and area of the sea as Exclusive Economic Zone (EEZ) is about 70,000 sq. km.

2.7.4 Fish Species

There are as many as 260 species of freshwater fish belonging to 55 families in the freshwater of Bangladesh. In the marine fishery, 475 species of fin fish have been recorded so far, of which about 65 species only are commercially exploited. Also, about 56 species of prawn exist in both fresh and marine waters. People of Bangladesh have stronger preference for freshwater fish and prawn. Only exception is *Hilsa*, which is caught in the rivers during its spawning migration upstream and also perceived as a freshwater fish.

To increase fish production, Bangladesh has introduced some faster growing exotic species through cultural operation. A total of 14 exotic species are currently cultured in the country. On the contrary, a total of 25 indigenous freshwater species have been depleted so far from the inland capture fisheries, most of which were caught and consumed by vast majority of the poor people of Bangladesh. Moreover, the introduction of exotic species has retarded the growth of local carp due to competition for the same feed in the common fishery.

2.7.5 Production, Productivity and Growth

Total production and productivity of fish by sources are presented in Table 2.15. Inland capture fisheries still dominate the whole sector and constitutes more than 40 per cent of the total fish production with an average annual rate of growth of 5.6 per cent over the 1998/99-2007/08 period (Annex Table 2.2A). Within capture fisheries, production in the floodplains dominates followed by those in rivers and estuaries. However, production in the rivers and estuaries declined by 1.11 per cent annually during the 1998/99-2007/08 period (Annex Table 2.2A).

Inland culture fisheries contribute about 39 per cent of total production with an average annual growth of 6 per cent over the same period (Annex Table 2.2A). Growth of inland culture is the highest among all categories of fisheries and it is now growing faster than before. Within inland culture, pond culture alone contributes 34 per cent of total fish production. Productivity (catch/area) also is by far the highest for pond culture among all categories. Together with capture and culture, inland fisheries constitutes over four-fifth of total fish production,



registering a growth of 5.8 per cent per annum over the period 1998/99-2007/08. The floodplains require no supplementary feed to achieve high yields, while culture fishery needs additional feeding.

Types of			Water Areas	Total C	Total Catch		
Fisheries			(Hectare)	Production (M Ton)	Share (%)	Catch Area (Kg/Hectare)	
Inland		Rivers and Estuaries	853,863	136,812	5.34	160	
Fisheries	re	Sundarban	177,700	18,151	0.71	102	
	aptu	Beels	114,161	77,524	3.02	679	
	ü	Kaptai Lake	68,800	8,248	0.32	120	
		Flood Lands	28,32,792	819,446	31.97	289	
	Captı	ire Total	40,47,316	10,60,181	41.36		
	e	Pond & Ditch	305,025	866,049	33.79	2,839	
	ultu	Baor	5,488	4,778	0.19	871	
	Ū	Shirmp/ Prawn Farm	217,877	134,715	5.26	618	
	Cultu	re Total	528,390	10,05,542	39.23		
	In	land Total	45,75,706	20,65,723	80.59		
Marine Fisheries	Ind	ustrial Fisheries (Trawl)		34,159	1.33		
	Art	isanal Fisheries		463,414	18.08		
	Marine Total			497,573	19.41		
	Co	untry Total		25,63,296	100		

TABLE 2.15 ANNUAL PRODUCTION, WATER AREA AND PRODUCTIVITY BY TYPES OF FISHERIES: JULY 2007-JUNE 2008 PERIOD

Source: Fisheries Statistical Yearbook of Bangladesh, 2007-2008, DoF (2009a).

Note: Average catch has been calculated by dividing the total catch by respective water areas.

Marine fisheries constitutes about 19 per cent of total fish production (with a growth of 5.4 per cent per annum), of which marine artisanal alone contributes 18 per cent. Marine industrial contributes only 1 per cent of total fish production.

2.7.6 Production by Species

According to group-wise species production for both inland and marine fisheries, *Hilsa*, as a single category,²⁷ contributes the highest share (11.3 per cent) followed by *Shrimp* (8.7 per cent) in total production (Table 2.16). As a group,

²⁷ Hilsa, shrimp and few others are reported as independent species in the fishery statistics, whereas all other species are reported as groups.

Other Inland Fish constitute about 25 per cent of total catch, followed by *Major Carp* which contributes 21 per cent of the total.

TABLE 2.16
PRODUCTION OF INLAND AND MARINE FISH BY GROUPS OF SPECIES,
2007-08

Group of Species	Inland Fisheries (Metric ton)	Marine Fisheries (Metric ton)	Total Catch	
			Metric ton	(%)
Major Carp	547,652	-	547,652	21.37
Other Carp	9,339	-	9,339	0.36
Exotic Carp	333,452	-	333,452	13.01
Cat Fish	85,869	-	85,869	3.35
Snake Head	110,460	-	110,460	4.31
Live Fish	75,286	-	75,286	2.94
Other Inland Fish	643,876	-	643,876	25.12
Hilsa/Illish	89,900	200,100	290,000	11.31
Bombay Duck	-	36,980	36,980	1.44
Indian Salmon	-	1,040	1,040	0.04
Pomfret	-	16,728	16,728	0.65
Jew Fish	-	33,803	33,803	1.32
Sea Cat Fish	-	20,534	20,534	0.80
Sharks, Skates & Rays	-	4,767	4,767	0.19
Other Marine Fish	-	130,415	130,415	5.09
Shirmp	169,889	53,206	223,095	8.70
Total	20,65,723	497,573	25,63,296	100
	(80.59%)	(19.41%)	100%	-

Source: Fisheries Statistical Yearbook of Bangladesh, 2007-2008, DoF (2009a).

Within marine species, *Hilsa* and *Shrimp* (both of which are available in inland fisheries as well) together contribute about 50 per cent of total marine catch (Table 2.16). The contribution of *distinct* marine species is, therefore, only 10 per cent of total fish production in the country. The growth of production of most of these species is also lower compared to freshwater species. These figures thus confirm the dominance of inland fish species in the domestic market compared to their marine counterparts.

2.7.7 Use Pattern of the Resources

The main use of fishery resources is domestic consumption. Fish is much preferred by the people of Bangladesh as an important food item. In fact, fish is generally treated as a staple food next to rice. Fish is an important source of animal protein for the majority of the people of Bangladesh and it is the only source for many of them. With the growth of population and income, demand for fish for domestic consumption is expected to rise in the future.

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Another important use of fishery resources, particularly shrimp, is export. The prospect of exporting shrimp in the international market is quite promising. Another use of fishery resources is industrial use. The major industrial use is the production of "fish meal" for poultry and shrimp. In particular, the trash fish which are not used for human consumption can be used for poultry feed, which Thailand has been doing for years.

2.8 REVIEW OF PAST POLICIES AND PROGRAMMES FOR FISHERIES DEVELOPMENT

A review of past policies and programmes incorporated in the successive Five Year Plans is attempted here. This will assist in identifying and prioritising the policies and programmes in the Sixth Five Year Plan.

During the First Five Year Plan, important strategies for fisheries development included: expansion of fishing in the Bay of Bengal by increased number of mechanised crafts and gears; augmentation of production in the inland fisheries by intensifying fish culture; launching an extensive training programme for marine fishing; establishing a well organised and scientific system for collection, preservation and marketing of fish to reduce wastage; conducting a systematic survey of various aspects of inland fisheries to obtain reliable data for future planning; and ensuring proper extension of scientific fish culture methods to the fish farmers, etc.

However, the overall performance of the fisheries sector during the First Five Year Plan was far from satisfactory because of inadequate preparation and processing of the projects, adequate fund allocation, inadequate availability of technical manpower and delays in recruitment, non-deliveries of water areas from the land administrative agencies, and lack of spare parts and servicing facilities for trawlers. Moreover, absence of proper coordination also compounded the above factors.

During the Second Five Year Plan, strategic emphasis was given on the promotional activities for setting up more hatcheries for production of fry/fingerlings through private sector, conservation and development of indigenous fish species like magur, shingi, koi, etc., intensification of training of field staff, expanding facilities for landing, processing, marketing and distribution, and setting up demonstration farms and propagating modern techniques of fish culture.

During the Second Five Year Plan, although there was a positive trend in fish production, target remained unfulfilled to a large extent. The reasons for this shortfall included lack of technical know-how of proper aquaculture, inadequate fisheries extension services, construction of flood control and irrigation structures and withdrawal of water for irrigation, and silting of river beds. It was only towards

the end of the plan period that fisheries came to be recognised as an integral part of water sector development projects.

The Third Five Year Plan emphasised both aquaculture and open water fisheries conservation and management. Strategies were adopted so that the resources are conserved and exploited judiciously, as well as to identify and protect the breeding and nursery grounds of major commercial species. Other important policies during the TFYP included the following: regulation on the use of pesticides during mid-May to mid-August period in selected zones; facilitating aquatic inlets in the road-side canals, seasonal water bodies and deep water paddy fields; regulation on hilsa catch during certain months in certain harvesting grounds; reclamation of new ponds, baors, etc. for aquaculture; incorporation of fisheries development as essential component in the flood control and drainage projects of water development board; large-scale structural improvements in the existing brackish water shrimp farms; strengthening of artificial production of fish and shrimp seed; improvement of preservation, processing and marketing facilities; and improvement of training as well as extension and research capacity.

During the Third Five Year Plan period, export earnings from fisheries subsector experienced a sharp increase in value terms due to favourable export prices. However, quantity targets were not achieved. Also, in addition to sub-sectoral problems, limited financial power of project directors and lack of delegation of financial authority to appropriate levels were major factors in delays in project implementation and lower utilisation of funds.

In order to achieve the objectives of increased fish production for domestic consumption and improved socio-economic conditions of the fishermen, the Fourth Five Year Plan emphasised the following strategies and policies: development of skilled manpower, appropriate research and technologies, and expanded institutional/organisational capabilities; biological management of Jalmahals by providing fishing rights to the genuine fishermen; large-scale re-stocking of inland open waters including flood lands; community-based fisheries management; and formulation and implementation of a well-defined land/water use policy.

Like the previous Plans, there were shortfalls in production compared to its target during the period of the Fourth Five Year Plan as well. There were various impediments to fisheries development during this period, some of which were particular to the sources of fisheries. In the case of capture fishery, inadequate knowledge, over fishing, killing of juveniles and destruction of spawning grounds, obstruction of migration routes, degradation of water quality, breakout of fish diseases, defective fish conservation laws and inadequacies of processing,

marketing and other facilities were some of the major factors affecting the desired rate of development of this sub-sector.

The Fifth Five Year Plan emphasised semi-intensive poly culture of fish, stocking of fish fry in the flood plains, establishing sanctuaries, creating provisions for credit facilities for the fish farmers, and strengthening capacity of the management of the sub-sector.

Key areas of current fisheries policy (1998) include the following:

- Policy for conservation, management and exploitation of fisheries resources of the inland open water bodies (inland capture fisheries);
- Policy for fish culture and management in inland closed water bodies (aquaculture);
- Policy for coastal shrimp and fish culture;
- Policy for exploitation, conservation and management of marine fisheries resources (marine); and
- Other related fisheries policies (quality control, planning monitoring and evaluation, extension, and human resource development).

The National Fisheries Strategy (2006) reflects a shift from the way the subsector is currently managed. The sector was controlled by the Government through its agents, mostly the Department of Fisheries. Their activities largely included the management and control with direct involvement in supplying some of the inputs such as fingerling. The strategy stipulates that their activities move to one of fostering participation with local communities, the private sector and NGOs; the provision of advice, and establishing a regulatory framework in which the subsector can function properly. This strategy emphasises collaboration linkages and partnerships throughout. The strategy also reflects current government concern for poverty alleviation through more targeted activities by all. Some of the strategies as outlined in the National Fisheries Strategy (2006) are pointed out below:

- Developing long term objective planning;
- Ensuring people's participation;
- Coordination, collaboration and support from relevant other ministries/ departments for the fisheries sector;
- Developing a regulatory framework for the sub-sector;
- Having pro-poor management strategy;
- Ensuring gender equality;
- Providing alternative income generating activities; and
- Managing the environment properly.

2.9 FISHERIES DEVELOPMENT: CONSTRAINTS AND POTENTIALS 2.9.1 Constraints

Major causes of resource degradation in this sub-sector can be identified as: (i) construction of flood control embankments and roads, (ii) siltation, (iii) over fishing and fishing of under-sized, (iv) incidence of fish diseases, (v) discharge of chemical fertilisers and industrial effluents in the water, and (vi) conflict between paddy cultivation and fish production.

The major environmental threat to inland capture fisheries is considered to be the water control, especially flood control structures and road embankments. The general arguments for such project interventions are twofold. First, they increase rice production by converting floodplains into irrigated paddy land. Second, they prevent death and damage to property from flooding. There are inadequate institutional arrangements and commitments to integrate fisheries into the planning, designing and operation of these projects. The sustainability of fisheries in the floodplains is very much linked with extensive system of interconnected areas of fish habitat for their migration, breeding, feeding and growth. However, findings of Flood Action Plan 17 (FAP 17) indicate that the negative impact of flood control and water development projects could be mitigated and the floodplain fish production could be increased by the introduction of better water management practices to ensure access of fish from rivers into the floodplains and vice versa. In addition to such intervention, natural siltations of the waterways also reduce the open water aquatic habitats.

With population growth and growing unemployment, pressure on open water fisheries is also increasing, leading to over exploitation of the resources. Effective enforcement of fish laws, providing alternative employment opportunities for poor fishermen during lean period and ensuring redistribution of economic benefits through implementation of equitable and effective management policies can address this problems of over-exploitation of the resources.

Incidence of fish diseases is another problem for fisheries development. Degradation of natural balance of the environment and intensification of freshwater aquaculture are the main causes for fish disease. Maintaining natural balance and practising good husbandry is the best way to prevent most diseases. The increased use of chemical fertilisers for crop production and discharge of industrial effluents in the water are other problems for resource degradation. These pollute the open water aquatic habitats and cause problems for breeding and feeding of fishery resources. There are also resource conflicts between paddy cultivation and fish production that occur as a result of converting floodplain areas to paddy fields,

increased use of water for irrigation in the dry season, and the use of pesticides and chemical fertilisers, which have impeded inland fisheries development.

The productivity of freshwater aquaculture under traditional and low input management is too low compared to its potential. The productivity of brackish water shrimp culture is also very low compared to those attained in major shrimp farming countries such as Thailand, China and Vietnam. Incidence of disease has caused some damage to the shrimp industry. But no appreciable preventive or curative measures appear to have been taken to address this problem.

2.9.2 Marketing Structure and Problems: Capture and Marine Fisheries

Fish marketing in Bangladesh is mostly in the hands of private sector. BFDC's (Bangladesh Fisheries Development Corporation, the Government Agency dealing with fish processing and marketing) share in the market is rather small and hence it cannot influence the market prices. Role of fish traders and middlemen is very important in fish marketing and there is evidence that they exploit the fishermen in many respects. Lack of appropriate storage and transportation, credit support, and other related infrastructural and support facilities lead to high marketing costs, deterioration of fish quality and heavy losses from wastage and spoilage. Figure 2.3 presents the marketing structure of the open water capture fisheries in Bangladesh.

2.9.3 Marketing Structure and Problems: Culture Fisheries

The market chain from fish farmers to consumers encompasses primary, secondary and retail markets, involving local fish traders, sales agents, wholesalersdistributors and retailers. Depending on the transaction volume, fish farmers usually sell their fish to local traders who then sell to wholesalers with or without the help of commission-based sales agents. Farmers and local traders also sell their fish to the consumers at the village markets. Auction sales at village and other markets are also common. At the urban fish markets, wholesalers sell to other wholesalers as well as the retailers. Retail sales are made at retail stalls in the fish markets, roadside stands, and door-to-door to household customers.

The intermediaries perform post harvest tasks that include handling, cleaning, sorting, grading, icing, and transportation. In general, facilities at fish markets are minimal with poor hygiene and sanitation. There are no standard practices for these intermediate activities. Although the physical condition of fish markets is poor, they operate relatively efficiently. Fish farmers price at farm gate are no less than 50 per cent of the consumer retail price, reflecting a short chain of intermediaries between primary suppliers and consumers.







Source: Adapted from Ali, Shahabuddin, Rahman and Ahmed (2010).

2.9.4 Growth Potentials: Capture Fisheries

Inland capture fisheries, as mentioned earlier, dominate the fisheries sub-sector in Bangladesh and its production prospect is also bright despite the fact that this sub-sector has been facing several constraints including construction of flood

control embankments and roads, use of pesticides in agriculture, water pollution, over exploitation of fishery resources, and lack of appropriate regulations and enforcement of laws related to fisheries. Average yield in the open water capture fisheries is around 200kg/ha, which can be doubled through proper management and enforcing fisheries legislation. There are some examples of good practices of open water fisheries management where yield has reached significantly higher than the average yield of the capture fisheries. Institutionalising community-based fisheries management, maintaining sanctuaries and no-fishing period, encouraging beel nursery and artificial re-stocking in the fishery, and providing training and extension services can help achieve higher growth in the open water capture fisheries in the future.

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2.9.5 Growth Potentials: Culture Fisheries

Given the vast areas of ponds, baors, and coastal shrimp farms, fish farming in the more manageable inland closed water bodies provides greater promise. Of the total 1.47 Mha of pond area, 52 per cent is accounted for by cultured ponds, which are stocked with fingerlings, provided with inputs and feeding, and managed on scientific basis. Another 32 per cent of total pond area is also cultivable with high potential for culture without improvement, and the remaining 16 per cent are derelict ponds not suitable for fish culture without improvement. The average annual yield of the cultured ponds is around 2 tons/ha, which is lower than some highly productive private farms and projects run by NGOs. Some fish farmers are achieving yield of 4-5 tons/ha, or even more. The average yield of culturable and derelict ponds is even lower–928 and 508 kg/ha respectively. Fish feed being costly is perhaps the most important constraint towards the expansion of semi-intensive or intensive aquaculture (Alam and Thompson 2001). However, as observed earlier, inland culture fishery is increasing steadily and it has considerable potential for future development. Introduction of exotic species helped achieving faster and sustained growth in this case as well.

2.9.6 Growth Potentials: Marine Fisheries

The factors constraining the production of marine fisheries include: high levels of capital required to exploit the resources of the deep sea; congestion by artisanal fishermen in inshore water areas; inadequate knowledge and information on fish stocks; lack of modern fishing know-how and equipment; inadequate harbour and landing facilities; and risks regarding fishing equipment and lives. Low preferences for the marine species (domestic demand) are also an additional factor, which has perhaps failed to attract adequate attention. It is also claimed that marine fisheries are over exploited and has reached its maximum sustainable level and thus offer

limited scope for further expansion (Alam and Thompson 2001). Nevertheless, given the limited size of domestic market, higher production of marine species will create considerable marketing problems unless these can exported.

2.10 FUTURE OUTLOOK FOR FISHERIES DEVELOPMENT

2.10.1 Projected Supply-Demand Gap for Fish for the Sixth Plan

2.10.1.1 Demand Projection

The projected demand for and supply of fish products as well as supply-demand gap are presented in Table 2.17. Projection of demand has been made taking into consideration the income elasticity of demand for fish and population growth of the country under different income growth scenarios. Figure for 2010 is considered as the estimated base year figure. Projected demand for fish is expected to reach 3.45, 3.47 and 3.49 million metric tons in 2011, and 4.53, 4.65 and 4.79 million metric tons in 2015 under low, medium and high growth scenarios respectively. Projected demand for 2015 is about one and half times higher than that of the base-year demand.²⁸

2.10.1.2 Supply Projection

In order to compare the supply of fish to its projected demand during the Sixth Five Year Plan, projections of supply of fish have also been made for the entire Plan period. Supply projection has been made based on the trend growth of fish during 1997/98-2007/08 period by types of fisheries (i.e., capture fisheries, etc.). Inland capture and culture fisheries grew at 5.6 and 6.0 percent respectively per annum over the same period. Marine fisheries grew at 5.4 percent annually, which provides the annual rate of growth of total fish production at 5.7 percent during the same period. Projected supply shows that total fish production will reach 3.03 million metric tons in 2011 and 3.79 million metric tons in 2015, from the base year figure of 2.87 million metric tons in 2010. Production in 2015 is projected to be 32 per cent higher than the base-year production in 2010. However, the projected production falls short of the projected demand in both 2011 and 2015, in fact, throughout the Plan period.

2.10.1.3 Projected Supply-Demand Gap

A comparison of projected supply and demand for fish for 2011 through 2015 shows that there will be a shortfall of about 1 million metric ton of fish in 2015

²⁸ Like the poultry and livestock, developing an accurate scenario for future demand for fish is also difficult since future demand patterns depends not only on income, but also on prices, taste and other variables.

under high growth scenario. There will also be shortfalls, though somewhat smaller, under low and medium growth scenarios in 2015. Thus, in order to meet the projected demand for fish during the Sixth Five-Year Plan, the government would need to invest more resources in this sub-sector in order to achieve higher growth of fish production during the Plan period.

2.10.2 Targets and Resources Requirement for Sixth Plan

As observed earlier in the supply-demand projections, considerable supplydemand gap is likely to emerge in 2015. If we like to minimise this gap, more investments on part of the government are required. It is assumed that allocations from ADP through the Department of Fisheries provide public goods to the fishery sub-sector. There are fluctuations in ADP allocations to the Department of Fisheries over the past several years. The ADP allocations for the development of fisheries sub-sector have been considered inadequate to accelerate the growth of fisheries in the country.

All	Alternative	2010		Projected Demand					
Fisheries/	Growth	(base	2011	2012	2013	2014	2015		
Sub-sectors	Scenarios	year)							
All	Low (6%)	3.23	3.45	3.69	3.95	4.23	4.53		
Fisheries	Medium	3.23	3.47	3.74	4.02	4.33	4.65		
	(6.5%)								
	High (7%)	3.23	3.49	3.78	4.09	4.42	4.79		
		2010		F	Projected Sup	ply			
		(base	2011	2012	2013	2014	2015		
		year)							
Capture Fisheries		1.18	1.25	1.32	1.39	1.47	1.55		
Culture Fisheries		1.13	1.20	1.27	1.35	1.43	1.52		
Marine Fishe	ries	0.55	0.58	0.61	0.65	0.68	0.72		
All Fisheries		2.87	3.03	3.20	3.39	3.58	3.79		
	Alternative	2010	Projected Supply-Demand Gap						
	Growth	(base	2011	2012	2013	2014	2015		
	Scenarios	year)							
All	Low (6%)	-0.36	-0.42	-0.49	-0.56	-0.65	-0.74		
Fisheries	Medium								
	(6.5%)	-0.36	-0.44	-0.54	-0.63	-0.75	-0.86		
	High (7%)	-0.36	-0.46	-0.58	-0.7	-0.84	-1.00		

TABLE 2.17 **PROJECTION OF DEMAND FOR AND SUPPLY OF FISH** (million m. tons)

Source: Authors' calculation.

For estimating the resource requirement for meeting the projected demand, ADP allocations for the last five years as well as the actual production of fish were
averaged to obtain the amount of ADP allocations required to produce per unit of fish. This ratio is then applied to the projected demand under different growth scenarios to arrive at the resource requirement for the Sixth Five Year Plan period (Table 2.18). It is observed that the required ADP allocation for the Department of Fisheries is estimated to reach 1.57 billion Taka, on an average, in the terminal year of the Sixth Plan in order to meet the projected gap between the demand for and supply of fish. This required ADP allocation for 2015 is about 2.6 times higher than that of 2005 (at 1995-96 prices). However, in order to meet the supply-demand gap in 2015, the annual growth of fish production would need to increase from current 5.7 per cent to 8.9 per cent which may be feasible, provided the required resources and other support services are made available. Total resource requirement along with a breakdown for each year of the Plan period is also provided in Table 2.18.

TABLE 2.18 RESOURCE REQUIREMENTS DURING THE SIXTH PLAN PERIOD (Taka in million at 1995-96 prices)

Alternative Growth	Required ADP Allocation by Year					
Scenarios	2011	2012	2013	2014	2015	Total
Low (6%)	1,166	1,247	1,334	1,429	1,530	6,706
Medium (6.5%)	1,172	1,263	1,358	1,463	1,571	6,828
High (7%)	1,179	1,277	1,382	1,493	1,618	6,949
Average	1,172	1,262	1,358	1,462	1,573	6,828

Source: Authors' calculation.

2.11 STRATEGIC INTERVENTIONS AND POLICY RECOMMENDATIONS FOR THE SIXTH FIVE YEAR PLAN

The overall strategy of fisheries sub-sector development should focus more on open water capture fisheries, ensuring biodiversity and preserving natural breeding grounds, product diversification, value addition, capacity building and development of appropriate marketing infrastructure. The strategy should be to promote a dynamic capture fisheries and aquaculture, involving the key actors among NGOs, private sector entrepreneurs and community based fishing groups. Priority areas of interventions in the fisheries sub-sector may, therefore, include the following in order to achieve the desired objectives.

Productivity Enhancement in the Open Water Capture Fisheries: Emphasis should be given on the management of open water capture fisheries since the potential for pond culture has nearly been exhausted. Productivity in the open water capture fisheries in Bangladesh is fairly low. It is only about 200kg/ha. There is a

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good potential for doubling the productivity in the open water capture fisheries through effective management. There already exist some good practices of better management of open water fisheries which need to be disseminated among the concerned fishermen and fish farmers.

Conservation of Indigenous Fish Species: There are 260 fish species available in the inland open water fisheries in the country, of which 143 are small indigenous species that were abundantly available in the past. The availability of these indigenous species has declined drastically in the inland open water for many reasons. While the inland fisheries contributed about 90 per cent of the total fish production during the early 1970s, it is now only about 40 per cent. The decline in the share of inland fish production can largely be attributed to the decline of the production of indigenous fish species. Due to habitat destruction/reduction and over-exploitation, most of these species are hardly available in the market now-a-days. Moreover, 21 other fish species have already become extinct.

It is, therefore, imperative to look into the matter not only to increase total fish production in the country, but also to maintain biodiversity in the fish habitat. Such stock depletion trend must, therefore, be reversed by effective conservation measures. Since 1994, Bangladesh Fisheries Research Institute (BFRI) has been conducting research on the conservation of fish biodiversity in the country. It successfully developed a number of technology packages for artificial breeding for some of the important but threatened freshwater fish species using in vitro fertilization which should be promoted across the country.

Use of Genetics and Biotechnology to Enhance Aquaculture Productivity: In view of the opportunities and potentials, Bangladesh can make a major breakthrough in fisheries and aquaculture production through the use of biotechnology. Both classical and modern biotechnology have wider implications for increasing overall productivity of this sub-sector through improvement of breeds and nutrition, protection of health, conservation and management of genetic resources of fish. Like other developing countries, Bangladesh needs to build up its biotechnological capability following the "National Guidelines for Fish and Animal Biotechnology" in compliance with the National Biotechnological Policy and National Bio-safety Guidelines.

Improving Productivity of Brackish Water Shrimp: Since many of the farms produce several crops of shrimp each year, productivity is very low compared to other shrimp farming countries. The industry should also use disease-free seed from brood stock produced in a land based captive breeding programme and prevent the capture of mother shrimp so that wild stock may be protected. This would also constitute a major step towards effective disease management in shrimp farming.

Research efforts need to be enhanced for immediate prevention of outbreak of diseases.

Marine Fisheries: For the marine fisheries, it is vitally important to assess the resources in the artisanal and deep sea levels. Allocation of fishing rights should be contingent upon this assessment so that optimal fishing is carried out at both artisanal and deep sea levels. Introducing modern techniques of fishing in the coast as well as in the sea and providing modern fishing equipment are also required to augment production from the marine fishery.

Community-based Fisheries Management: Community-based fisheries management should be encouraged. There are already some examples of successful community based management of open water fisheries that can be disseminated and replicated in other places. This ensures broad-based participation of community people in the fisheries management as well as higher production.

However, in most cases, community-based management works better during the project period only and the situation deteriorates soon after the completion of the projects. Hence, to make the community-based management more effective and sustainable, community people should be made more aware about the fishing practices and fisheries management. They should also be given "ownership" of the resources so that they invest and adequately take care of the resources. Introducing long-term leasing system can serve the ownership problem in this respect.

Introducing Better Practices of Open Water Fisheries Management: Better practices of open water fisheries management should be re-introduced in other places. Restocking in the open water fisheries, not to catch fish for some time of the year, enhancing seasonal culture, pen culture and beel nursery can significantly contribute to augmenting fish production from the capture fishery.

Development and Maintenance of Sanctuaries: It is also important to emphasise on the creation of more sanctuaries and proper enforcement of laws in order to ensure the breeding and growth of fish in the open water capture fisheries.

Training and Extension: Providing adequate training to the fish farmers and extending extension services to them are important for the development of fisheries sub-sector in future. Sixth Five Year Plan should emphasise on this so that the capacities are built at the fishermen and farmers levels.

Capacity Building: The Department of Fisheries (DoF) is suffering from lack of manpower, particularly at the field levels. It cannot provide adequate extension services to the fish farmers at the local levels. In order to take the modern technology of fish farming to the local levels, be it capture or culture, it needs to

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strengthen the capacity of the department. Capacities of the Fisheries Research Institutes should also be strengthened.

Regulatory Framework: It is important to regulate the private hatcheries, many of which are producing sub-standard fingerlings. Fish farmers are using these fingerlings without knowing their quality and hence the fish production is also being adversely affected. Policies/strategies should, therefore, be adopted in the area of hatchery management. Policies/strategies should also be undertaken in the areas of sanctuary management and fish-feed production.

It is now well known that chemicals like formalin, which are harmful to human health, are used for preservation of fish. While this helps preserve the fish for a longer period, it degrades the quality of fish and endangers human health for those who consume it. This practice should be prohibited. Appropriate regulatory framework (such as fisheries legislation prohibiting exploitation of under-sized fish and *Jatka hilsa*) should be put in place and be enforced properly to discourage the use of formalin for preservation of fish for marketing. This would also significantly contribute towards food safety in the country.

Proper Coordination: Lack of proper coordination among relevant government ministries/departments is still a problem in the development of the sub-sector. Ministries of Land and Fisheries should also work together in deciding leasing of the jalmahals. Ministries of Agriculture and Industries should also cooperate with the Ministries of Fisheries in regulating the use of pesticides in agricultural field and controlling the pollution of water in the water bodies. Responsible officials of the Department of Fisheries at the Upazila levels should also be given limited magistracy in order to enforce the fishery law to protect the sanctuaries and control the use of fishing gears.

Processing and Marketing: Fish preservation, processing and marketing structure, particularly for the capture fisheries, are also weak. It needs to develop proper preservation facilities, processing plant and appropriate marketing structures to reduce market imperfections and the role of the middlemen so that the fishermen get the major share of the price paid by the consumers. Role of Bangladesh Fisheries Development Corporation (BFDC) should also be strengthened so that it can intervene in preserving and processing of fish during harvesting period and marketing during the lean period.

Credit Provisions: There should be adequate provisions of credit access for the fishermen and fish farmers. Fishermen in most of the cases work as contract labour of large traders and arotdars. They should, therefore, be provided with credit so that they can purchase fishing equipment themselves and meet regular expenses during

lean seasons. Fish farmers, particularly the small farmers, should also be provided with credit so that they can invest in the fishery.

Alternative Income Generating Activities: There is a growing realisation that the fisheries sector cannot continue to support the numbers of people currently engaged in this activity, especially if they have limited access to resources and also during lean/off-fishing period. There is thus a need to work with other agencies (government and non-government) that can provide support in the identification of other opportunities and supply training and resources to enable these people to seek alternative income earning opportunities.

Poor and Gender: Finally, in each of the strategies and programmes, focus on the poorest and on female participants should be maintained.

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Annex 1

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The Linear Approximation of the Almost Ideal Demand System (LA/AIDS) model by Deaton and Muellbauer (1980a, b) was used for estimating the income (and price) elasticity of demand for livestock and poultry products. Data for the estimation of the parameters were taken from the HIES 2005 conducted by the BBS. The equations of the model were estimated using SUR method with cross-equation restrictions to conform equality of crosssubstitution effect imposed by the standard neo-classical demand theory. The estimates of income elasticity are presented in Annex Table 1 for rural and urban areas. It may be noted that estimates of income (expenditure) elasticity are positive for all livestock and poultry products considered both in the rural and urban areas. The estimates are above unity implying that livestock and poultry products can be treated as luxury goods to consumers.

Demand for livestock and poultry products until 2015 is projected in terms of population growth, urbanisation (with rural and urban disaggregation) and growth in real income since the exercise was carried out at constant prices. Also, demand is disaggregated by income-groups to allow differential impact across different income class in both rural and urban areas.

The projections assume a population of 139.57 million in 2005 (Ahmed 2001), which grows at a rate of 1.5 per cent throughout the projection period. The out-migration rate from rural to urban areas is assumed to be equal to 1 per cent of the rural population. As a result, the percentage of total population living in the urban areas would increase from about 28 per cent in 2005 to about 32 per cent in the year 2010 and 35 per cent in 2015. Total population would increase from 139.57 million in 2005 to 150.36 million in 2010 and further to 161.98 million in 2015.

Three alternative growth rates for income are assumed. The low growth rate of 6 per cent roughly corresponds to the trend observed in recent years. Two accelerated growth rates of 6.5 and 7 per cent are also assumed for the purpose of projection. It is also assumed, albeit restrictive, that income in each of the four quartiles would grow at the same rate. Further, growth of income in the rural and urban areas would be the same. The last assumption is somewhat less tenable in the light of the weight of evidence on the growth of income in the urban areas.

ANNEX TABLE 2.1A
ESTIMATES OF INCOME ELASTICITY OF LIVESTOCK AND POULTRY
PRODUCTS

Products/Quartiles	Ι	II	III	IV	All			
	Rural							
Meat (Cow/Buffalo)	5.2126	5.2255	2.4412	1.6962	2.4367			
Meat (Goat/Sheep)	9.9878	10.0150	3.9843	1.8524	3.1497			
Meat (Poultry)	2.9497	2.9557	1.9729	1.6331	2.0078			
Eggs	1.5438	1.5454	1.3848	1.3365	1.4169			
Milk	4.0764	4.0858	2.0971	1.7012	2.2143			
		Urban						
Meat (Cow/Buffalo)	3.7857	2.3156	2.0337	1.5811	2.0508			
Meat (Goat/Sheep)	5.5977	3.0021	2.3179	1.9057	2.5508			
Meat (Poultry)	2.6267	2.0886	1.7805	1.4986	1.8299			
Eggs	1.3444	1.3187	1.2497	1.2177	1.2733			
Milk	2.9331	2.2201	1.7970	1.6039	1.9419			

Source: Authors' Calculation.

Note: It may be mentioned here that estimates of elasticity from AIDS model provide estimates of expenditure elasticities. In order to derive estimates of income elasticity, estimates of expenditure elasticity were multiplied by estimated income elasticity of aggregate consumption expenditure (0.75).

Castana of	1			Vaar miaa	Draduation ()	(strie Terr)	
Sectors of			1000.00	Y ear-wise	Production (N	Aetric Ton)	2002.02
Fisheries			1998-99	1999-00	2000-01	2001-02	2002-03
		Rivers and Estuaries(except Sundarban)	151309	154335	150129	143592	137848
	oture	Sundarban	11134	11648	12035	12345	13884
	Cap	Beels	69850	72825	74527	76101	75460
Inland		Kaptai Lake	6689	6852	7051	7247	7025
FISHEITES		Flood Lands	410436	424805	445178	449150	475116
	0	Capture Total	649418	670465	688920	688435	709333
	Culture Cul	Ponds	499590	561050	615825	685107	752054
		Ox-bow Lake	3536	3622	3801	3892	4098
		Shirmp Farms	90076	92448	93014	97605	100804
		Culture Total	593202	657120	712640	786604	856956
	Inland To	tal	1242620	1327585	1401560	1475039	1566289
Marine	Industrial F	isheries (Trawl)	15818	16304	23901	25165	27954
Fisheries	Artisanal F	isheries	293979	317495	355596	390255	403954
Marine Total		309797	333799	379497	415420	431908	
Country Total		1552417	1661384	1781057	1890459	1998197	
Yearly Growth Rate of Production		6.07	7.02	7.20	6.14	5.70	

ANNEX TABLE 2.2A YEAR-WISE FISH PRODUCTION OF BANGLADESH 1998-1999 TO 2007-2008

(Cont. Table 2.2A)

Shahabuddin, Yunus & Ali: Developing Non-Crop Agriculture in Bangladesh

Sectors of				Year-wise Production in Metric Ton					
Fisheries			2003-04	2004-05	2005-06	2006-07	2007-08	age Grow th Rate	
Inland Fisheries		Rivers and Estuaries(except Sundarban)	137337	139798	137859	136958	136812	-1.11	
	oture	Sundarban	15242	15724	16423	17751	18151	5.58	
	Cap	Beels	74328	74925	76365	75137	77524	1.16	
		Kaptai Lake	7238	7379	7548	8085	8248	2.36	
		Flood Lands	497922	621443	718491	768830	819446	7.99	
	Capture Total		732067	859269	956686	1006761	106018 1	5.60	
	Culture	Ponds	795810	756993	759628	811954	866049	6.30	
		Ox-bow Lake	4282	4388	4498	4698	4778	3.40	
		Shirmp Farms	114660	120710	127923	129160	134715	4.57	
		Culture Total	914752	882091	892049	945812	100554 2	6.04	
	Inlan	d Total	1646819	1741360	1848735	1952573	206572 3	5.81	
Marine	Indus	trial Fisheries (Trawl)	32606	34114	34084	35391	34159	8.93	
Fisheries	A	Artisanal Fisheries	422601	440483	445726	452047	463414	5.19	
	Marin	ne Total	455207	474597	479810	487438	497573	5.41	
	Count	ry Total	2102026	2215957	2328545	2440011	256329 6	5.73	
Yearly	y Growth I	Rate of Production	5.20	5.42	5.08	4.79	5.05		

Source: FIQC, DoF (2007-2008).

ANNEX TABLE 2.3A ESTIMATES OF INCOME ELASTICITY OF FISH BY QUARTILES

Region	Quartiles					
	Ι	II	III	IV		
Rural	1.2254	1.2261	1.1557	1.1416		
Urban	1.1987	1.1582	1.1360	1.1199		

Chapter 3

A Study on Public-Private Partnership Development in Bangladesh and Issues in the Privatisation of SOEs

Abdul Hye Mondal Narayan Chandra Nath

3.I INTRODUCTION

In developing countries like Bangladesh, it is now common that the International Monetary Fund (IMF) and the World Bank make privatisation of economic enterprises a precondition for balance of payments support and for development aid. The rationale behind this IMF demand is threefold: Firstly, it is said that the administration of parastatal companies is more bureaucratic and inefficient, because they operate like government bureaucracies, and are protected by government from having to adapt to competition and the market forces. Secondly, they are more likely to be internally corrupt, for example, by having inflated payrolls to provide employment to relatives and placement of government officials. Thirdly, their revenues and assets are likely to be diverted by corrupt government officials who gain external control over company decision making. All three of these factors lead to parastatals that provide services and commodities at uncompetitive prices, and also lead to low productivity and loss making, and to the ultimate collapse of the enterprise if exposed to competition in a free market.

In the face of such a rationale, there are some obvious counter arguments. For example, even if the charges of inefficiency and corruption are true, are public companies and multi-nationals any different or better? And would it not be better to eliminate corruption rather than sell off the company? And if government officials are corruptly interfering with a parastatal company and siphoning off the profits, is it not better to deal with the underlying issues of good governance, and eliminate corruption amongst government officials? But it is not sufficient merely to counter argue on IMF terms. The IMF argues purely in terms of productivity and efficiency. But the main reason for setting up parastatal companies in the first place was to provide a service to the general public, and to provide the public with control over company policy. The purpose of this public control was to ensure that the

company's economic activities were in the general public interest, rather than in the interest of a small elite, or a small number of shareholders, or foreign investors.

Although the World Bank (1995, 1997) tried to establish definitively positive impact of privatisation in Bangladesh, several other studies (Sobhan & Sen 1998, Akram 2005, 1999) show that the relationship between privatisation and efficiency improvement of enterprises is not straightforward any way. Both privatised and public enterprises have success and failure cases and the impact of privatisation is very often mixed in Bangladesh. While some enterprises have done well, others have not (Mahmood 2000).

The policy of privatisation of SOEs continues unabated in Bangladesh to pursue the market oriented policies in the donors' driven framework of development. Although continuous fiscal burden of the loss making public enterprises is a reality, the way to address it was never seriously discussed or consulted with the concerned stakeholders. Naturally, in pursuance of predetermined dogma of the benefits of privatisation, 75 industrial enterprises have been disinvested during 1993-2007 and a list of 24 industrial units has been prepared for further disinvestment and to get them disposed off under the World Bank's "Bank Modernisation and Enterprise Growth" project. Donors' pressure and aid conditionality and government fiscal burden out of loss making public enterprises are perceived to contribute to the privatisation move continuing though the results of privatisation are not definitively known or what is known is far from being encouraging. It is notable that even the move could have beneficial effects, externally determined policy and programme have little incentives for performance and have every chance of counterproductive consequences. Some argue that homegrown and well-consulted policy is the preferred option to effectively address the issue.

The present government has called for reviewing the situation of public enterprise reform process in conformity with its election manifesto for expansion of employment opportunities and poverty reduction in the country. The Industry Minister voiced concern about the quality and outcome of privatisation and called for postponement of further privatisation until a review regarding the past privatisation experiences is done. Reportedly, many privatised factories remain either operative or non-functional under new ownership. The government could sense the problems of misuse of public resources and worsening of the livelihood of working people contemporaneous with enrichment of a privileged few and the already rich as a result of such reform agenda. The government has to think of alternative reform process if needed and even of substitution of privatisation if possible to support inclusive development of the country. It is, therefore, timely to refresh our understanding that it is not the superiority of one ownership pattern over

the other in all industries and in all circumstances for all time but something else which matters. The question whether an enterprise should remain in the public or in the private sector should be resolved by judging whether it achieves better the objectives of economic growth, distribution and poverty alleviation. It is the question whether reform process helps productivity enhancement, employment expansion and inclusive development. It is important that a dividing line is made between public and private sectors as a part of public policy.

3.1.1 Objective of the Study

The present exercise is a background study on the assessment of Public-Private Partnership (PPP) development and issues involved in the privatisation of stateowned enterprises (SOEs) in Bangladesh for the preparation of the Sixth Five-Year Plan (SFYP) covering the period 2010-11/2014-15. This paper is intended to improve our understanding of the present status and problems of PPP development and to examine the outcome of privatisation in Bangladesh in the light of the experiences of the existing policies towards PPP development and public enterprises and to suggest alternative policy measures to improve the situation.

3.1.2 Methodology of the Study

The paper is based on a combination of primary and secondary data. Primary data were generated through a one-shot field survey of 31 industrial units privatised during 1993-2007. The field survey elicited information on the performance of the enterprises in the pre-privatisation and post-privatisation periods as well as on the experiences of privatised units, and their perceptions regarding the issues of privatisation and possible approaches and policies towards public enterprises.

The paper also draws heavily upon secondary information available in the published and unpublished government statistics, research reports and government policy documents. Secondary information was obtained primarily from the public sector corporations, Privatisation Commission, Board of Investment (BoI), Ministry of Industries and Ministry of Finance (MoF).

3.2 THE CHALLENGE OF PRIVATISATION OF SOES AND ISSUES IN PUBLIC-PRIVATE PARTNERSHIP DEVELOPMENT

3.2.1 The Challenge of Privatisation of SoEs

Public enterprises were created to achieve social goals (such as improved income distribution, job opportunities, development of depressed regions, etc.) to overcome market failures. Bangladesh public enterprises are categorised as

"abandoned" (P.O 16), "nationalised" (P.O 27), and "vested" (P.O 29) enterprises promoted by the then East Pakistan Industrial Development Corporation (EPIDC) and enterprises set up after the liberation in 1971. These were created at least to break even or to make profit. It was envisaged that they would operate along commercial lines with due weight given to other objectives. The beginning of privatisation was informal in Bangladesh. The policy of divestiture was formally announced in 1975. Later, it was revised twice, in 1982 and 1986 (Dowlah 1997). As the public enterprises failed to fulfill the objectives behind their setting up, and as they could not play the proper role in economic development or ensure distributive justice, the government had no other option than to allow the private sector to participate more significantly in the national economic development.

A programme of privatisation of SOEs has been continuing for more than three decades and a Privatisation Board was set up in 1993 (subsequently converted into Privatisation Commission in 2000), which could not gain momentum due to lack of a transparent, consistent and effective policy. Thus, heavy losses in the SOEs continue unabated and economic growth is being hampered. The largest number of SOEs was in the manufacturing sector. Energy and power, oil, gas, minerals and petroleum are controlled by the government. Due to resource constraints the government had to reduce its investment in the industrial sector (Dowlah 1998). Undertaking self-financed investments in the public sector is not advisable unless the enterprises are able to meet their debt servicing obligations on cash reserves and investments are viable without price control and subsidies. Budgetary support is not provided to public sector projects. Instead, foreign and domestic sector investment is encouraged.

The government is in a dilemma because of the threat of global economic meltdown and its election commitment for reducing unemployment. It is striving hard to stay capable of facing any possible impact of the global economic crisis. Instead of total privatisation or no privatisation it may encourage public-private joint ventures. In choosing such a strategy it may go for agreement with foreign partners. Due to less developed capital market, which plays a crucial role in fostering transfer of public enterprises, and low domestic saving, a better option appears to be direct sale of public enterprises to overseas companies instead of gradual sale through domestic outlets. In the case of strategic industries, it is considered better to avoid foreign investment because such industries should not be controlled from abroad.

Bangladesh cannot be expected to fulfill its vision 2021 unless there is substantial increase in investment. It needs rapid development of infrastructure.

Obsolete technology is to be replaced by modern technology to reduce cost and increase productivity and competitiveness of the industries. Partnership between government and foreign investors appears to be a good strategy under the prevailing circumstances. At the same time, the option of selling SOEs directly to overseas companies to accelerate privatisation deserves serious consideration. Available evidence suggests that the experience of privatisation in Bangladesh is not so successful as expected. Very few private enterprises have shown dynamism in the transfer from public to private (Annex 1). Thus, a thorough analysis of the existing privatisation policy is needed to bring about a balance between growth and people's interest which remains a great challenge.

3.2.1.1 Problems Faced by the Enterprises in the Privatisation Process

The survey enterprises reported a host of diverse problems faced by them in the privatisation process (Table 3.1). One of the irritating problems they faced relates to repeated tender which increased transaction cost and was painstaking due to the need for repeated preparation and documentation of the tenders and at once suffering from uncertainty. Retender might have been due to distorted valuation not reflecting the market price, or an attempt to increase the sale price of the enterprise. There has been high incidence of huge liabilities of the SOEs. In some cases, the privatised units were unduly called to pay off short-term liabilities like electricity bill, gas bill and municipality tax and so on which by law government had to settle before transfer. There has been ambiguity and non-transparency in defining the terms and conditions in the transfer process and definition of property rights of the buyer. Related to this, there existed problem of litigation with government for liabilities and property rights and complaint regarding delay in transfer of the factory even after the down payment was made. There was complaint by the workers' union regarding overvaluation of the assets of the enterprises transferred to them and non-compliance of conditions of agreement to make arrangement for bank loan for balancing, modernisation, replacement and expansion (BMRE) of the factory. There was a problem with land ownership; registration was delayed even after full payment, there existed dispute over possession right of the land or there was defect in the land record. The privatised enterprises faced the problem of bureaucratic delay and complexities at different stages.

TABLE 3.1
PROBLEMS FACED BY THE SURVEY ENTERPRISES IN THE
PRIVATISATION PROCESS

	No. of Responses	Percentage
Several times of tender	4	9.30
Imposition of tiabilities of government enterprise	3	6.98
Litigation on liabilities with the government	3	6.98
Delay in transfer after down payment	2	4.65
Resistance from labour leaders	2	4.65
Overvaluation of assets and non compliance with agreement to help bank loan for BMRE in case of transfer to workers' union	2	4.65
Problem with land ownership	1	2.33
Bureaucratic delay and complexity in all stages	1	2.33
Lack of transparency and non-compliance of rules	1	2.33
Conditionality of paying previous gas and electricity bill	1	2.33
New term after down payment	1	2.33
Cancellation of previous order	1	2.33
Resistance from bureaucrats of corporation	1	2.33
Lack of buyers for paying due compensation	1	2.33
None	19	44.19
Total responses	43	100.00

Source: Field Survey.

3.2.1.2 Perceived Snags in Privatisation Process

Privatisation process in Bangladesh is reportedly subject to several snags or drawbacks which can be analysed from the data presented in Table 3.2 and field level interviews with the concerned enterprises.

TABLE 3.2
SNAGS IN THE PRIVATISATION PROCESS

		_
Nature of Drawbacks Reported	No. of Responses	Percentage
Bureaucracy in sale of enterprises and harassment of the buyers in different	14	27.0
ways at various stages		
Undervaluation of land and other assets and low sale price	7	13.2
Lack of screening and wrong choice of rent seeking buyers	4	7.6
Lack of transparency and corruption	4	7.6
Quick decision under international pressure	4	7.6
Resistance from bureaucrats and union leaders	4	7.6
Several times of tender and re-tender	3	5.7
Transfer decision without analysing the real problem	3	5.7
Political intervention	3	5.7
No binding on continuing the proposed manufacturing	1	1.9
Deprivation of workers in several ways	1	1.9
Imposition of government liabilities unduly	1	1.9
Problem with change of government	1	1.9
Indecision in transfer	1	1.9
Pressure for onetime payment of quoted price	1	1.9
Overvaluation of assets in transfer to workers' union	1	1.9
Total Responses	53	100.0

The snags involved in the process of privatisation of SOEs may be discussed as follows:

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(i) Delay and Complicated Procedure in the Privatisation Process

Main snag in the privatisation of SOEs is bureaucratic delay and complicated procedure involved in the process. Besides, there is complaint of harassment of the buyers of the enterprise in different ways at several stages. Delay in the privatisation process is caused by several factors: Firstly, individual privatisation transaction involves several stages making the process unduly lengthy. Secondly, tenders are often repeated in an attempt to seek higher sale price resulting in delay in selecting the buyer. Thirdly, conflicting interests of the Ministries controlling the SOEs interfere with the privatisation process. Fourthly, Privatisation Commission does not make proper analysis of an enterprise to prepare it for sale and valuation report frequently does not reflect the true value at the market price confusing the tender committee regarding true value of the enterprise. Fifthly, Privatisation Commission does most of its functions on an *ad hoc* basis without any standard format for sale of the enterprise. Sixthly, several SOEs have liabilities that exceed their asset value and cannot be sold without being written off or being restructured.

(ii) Distortion and Lack of Transparency in Valuation: There is evidence of undervaluation of assets, especially land. Distortion in the valuation was not only in terms of undervaluation as usual but also in terms of overvaluation in case of transfer to workers' union where there was reportedly heavy overvaluation of assets during transfer compared to recorded value of assets in the books of account.

(iii) Wrong Choice of Buyers: One of the perceived snags of privatisation was wrong choice of buyers, especially the people with rent-seeking pursuits. It was found that transfer took place sometimes to a person who has no business experience and no capability to run an enterprise with high entrepreneurial acumen. There are two types of buyers: one who follows the prefixed rules and is a genuine entrepreneur having previous business experience and capability of bidding in a transparent way, and the other who enters into the process through undue political influence and underhand dealings. The buyers of the second category became usually the defaulters and proved to be failures in the post-privatisation phase adversely affecting the entire business environment.

(iv) Lack of Transparency and Occurrence of Corruption: There were reports of problem of non-transparent process and corruption. Corrupt practices have acted to deprive the government of the due revenue from the sale of SOEs and to prevent the real entrepreneur from purchasing the enterprise.

(v) Transfer Decision without Assessment of the Real Problem: There was complaint of transfer decision without analysing the real problem of the enterprise. There were cases where it was not the problem of ownership rather the problem of governance or problem of technology which could be better resolved within the existing ownership framework of the SOEs.

(vi) Problem of Repeated Tender: Large incidence of re-tender increases transaction cost and causes delay in the transfer and problem of uncertainty for the buyer. Re-tender is made in an attempt to increase the sale price of the enterprise. But it is required in order to prevent overvaluation of assets and to reflect the true market price of the assets. In some cases, buyers may not be found to be interested in such enterprises or the location of the factory is not suitable. Inadequate advertisement of the tender notice may also be a factor for such a situation.

(vii) Political Intervention: Much talked about drawback relates to political intervention and mounting problems with change of the government. It is suspected that political lining mattered more than the entrepreneurship in choosing the new owners of the SOEs.

(viii) Deprivations of Workers and Non-worker Employees: Among the less talked about but no less important snag of privatisation process lies in the deprivation of workers and other employees. There have taken place abrupt retrenchments of thousands of workers without ensuring their reemployment. Debilitating situation of the workforce manifests in increasing casualisation of jobs, deprivation of the retrenched employees of fringe benefits and loss of scope for participation in the workers' welfare fund with 5 per cent entitlement of profit sharing.

(ix) Indecision of Sale: Snag relating to indecision in the sale of SOEs is frequent. Indecision has sometimes caused enormous increase in accumulated loss and decrease in sales value of the enterprise.

(x) Wide Gap between Approval Time and Handover Time: It was observed that there is high incidence of wide gap between time of approval and time of handover of the factory to the buyer. Nearly 55 per cent of sample enterprises waited for more than one year for handover of the enterprise after the transfer approval. One enterprise had to wait for four years, another for eight years and still others for fifteen years to get the enterprise handed over. This is quite unnatural and involves colossal wastage of time and energy. There is a big gap between listing of enterprises for privatisation and the actual time of privatisation. Long time of nonuse of machines contributes to their debilitation and decrease in productivity. It also contributes to increased unemployment in the country.

(xi) Lack of Post-Transfer Support: Privatised units do not get post-transfer governmental support which they very often badly need in commencing operation of the enterprise. Corporations and Privatisation Commission wash off their hands after the transfer takes place and do not bother about what has been happening to the enterprise after the transfer.

(xii) Arrear Bills of the Government Affecting Public Utility Services to **Privatised Units:** Arrear bills of electricity and gas were found to have caused suspension of electricity and gas supply leading to a halt of operation of the privatised units. This problem has figured very prominently in some enterprises leading to their closure for a long period or litigation with the government.

(xiii) Delay in the Registration of Land and Assets: There is high incidence of delay in obtaining registration of land even after all the payments are settled and made. Until registration of land and assets is completed, the ownership of SOEs does not take place and consequently privatised units cannot approach financial institutions for credit.

(xiv) Lack of One Sale Price: The buyers of SOEs need to pay two prices: one for the quoted price and the other for liabilities. The problem is more with liabilities including bank loan. After down payment, rest of the quoted price and liabilities are to be paid in 6-monthly installments within three years with 9 per cent interest. Non-payment of liabilities to bank deters taking loan from bank unless the arrears to bank are settled and paid in full.

(xv) Non-availability of Proper Information: Non-availability of financial statement makes privatised units susceptible to various unscrupulous claims. Non-availability of proper data is a big challenge both for the buyers and the Privatisation Commission to go through transparent process of ownership transfer.

(xvi) Land Dispute: Land dispute is associated with the privatised units because of ambiguity in the transfer process. This problem arises from improper documents pertaining to the ownership of land and other assets and lack of hard documents resulting in land dispute and hence litigation. Again, land is transferred without demarcating its boundary with the adjoining lands leading to subsequent dispute over boundary. Dispute also arises because of unauthorised possession of government land by others claiming possession rights leading to land litigation.

(xvii) Harsh Condition of Sale and Threat of Restitution: Condition of sale that transfer deed would be executed only after entire payment is made with interest and the buyer is not allowed to change any machinery nor even can install new machinery without approval of the Corporation or the Ministry remains a great

stumbling block. Moreover, there is a threat of restitution of the enterprise with 15days notice in the case of failure of payment of any installment.

(xviii) Sale Proceeds not for Settlement of Liabilities: Sale proceeds received go to the government exchequer and cannot be touched by the Corporation or the Ministry for settlement of liabilities. This might be one of the reasons why the liabilities of government even with the disinvestment of so many SOEs are enormous.

(xix) Ambiguity in Definition of Property Rights and Liabilities: There is serious ambiguity in the definition of property rights and transfer of ownership. Even after down payment is made, terms of agreement sometimes undergo changes. Even in case of full payment, transfer deed is not made. Since short liabilities are to be paid by the government, unclear definition and demarcation of long-term liabilities lend scope for misinterpretation of terms and conditions and leave opportunities for rent seeking and corruption.

By and large, privatisation of SOEs in Bangladesh has been a mixed bag. Success stories of privatised SOEs appear to be more statistical than real. The results are difficult to evaluate substantively. There seems to be more failures than successes. Failure on this count is obviously because of many structural rigidities, institutional incongruities and deformities, all pervasive malpractices and many other built-in distortions. In many cases, SOEs after disinvestment could not make themselves viable for many reasons. To all intents and purposes, privatisation of SOEs is still in transition. It would not be just to say that we have succeeded or failed to implement the privatisation policy. Many of the drawbacks are inherent in the policy itself.

3.2.2 Issues in Developing Investment-Friendly Environment for PPP Development in the Desired Sectors

The development of an enabling environment for successful PPP calls for attention to a large variety of issues. PPP projects require careful design, effective support structures and a good understanding between partners. Primarily eight key PPP issues deserve careful scrutiny. These are: (i) objectives of grant financing and its best use, (ii) selection of the most suitable PPP type, (iii) success and constraint factors, (iv) ensuring open market access and competition, (v) timing—including when the government should be involved, (vi) defining the right level of grant contribution, (vii) protecting the public interest, and (viii) assessing future requirements.

As PPP is a developing concept, the first stage must be to create a supporting institutional structure able to develop, guide and manage PPPs on behalf of the

public sector. This will entail the development of supporting national and local legislation and regulations enabling PPPs, the development of institutional capabilities and, more importantly, the creation of effective management and oversight structures. Practical issues associated with PPP development include: (i) selection of the most suitable PPP structure for the local setting and project characteristics; (ii) developing systems and structures which reduce complexity and wherever standardise the approach; (iii) ensuring that the structures are manageable both in terms of size and complexity: (iv) ensuring that a full understanding of the timing is achieved; (v) realistic approach of the public sector about the skills and experience it has to develop and implement PPP---integrate private sector expertise if required; (vi) demonstration of additional value for money (VFM) over and above traditional procurement systems designed to maximise benefits to all parties according to their objectives; (vii) recognition and understanding of both parties of their objectives-the private sector not delivering "free gifts" through the PPP process; (viii) effective institutional and regulatory structures to manage and monitor PPPs—some control to be given to the private sector; (ix) integration of the paying public into the monitoring/oversight function; and (x) establishing trust between both parties if a partnership is to be created.

3.2.2.1 Concept and Rationale

PPP, as broadly defined, is a cooperation between public and private sectors by way of sharing resources, risks, responsibilities and rewards for delivering projects, mainly in the infrastructure sector. PPP has now become an acceptable and tested method for medium to large-scale infrastructure projects. PPP projects yield benefits by way of alleviating public sector financial burden to fund large-scale infrastructure costs, improving governance and management of projects, and increasing VFM and better risk allocation among different stakeholders. PPP model with enhanced role of the private sector in government initiative relaxes government's resource constraint, ensures greater efficiency and better management, resulting in improved service delivery while maintaining public accountability of service provision.

PPP arrangements are driven not only by limitations in public funds to cover investment needs but also by efforts to increase the quality and efficiency of public services. A purely public finance approach to implement infrastructure projects has many limitations, such as slow decision-making, inefficient project management, poor operating performance, etc. On the other hand, a purely private finance approach may also cause problems, such as overpricing, unequal service distribution amongst the poor and rich, lack of social and environmental considerations, etc. Instead, by blending strengths of both public and private sectors, PPP modes of

implementing infrastructure projects avoid many of these deficiencies. Projects implemented under PPP can increase the VFM spent for infrastructure services by providing efficient, lower-cost, and reliable services. It is argued that PPP is one of the best alternative modes of development because it draws upon the strengths of both the public and the private sectors and at once contributes to the elimination of weaknesses of both the sectors. Viewed thus, in fairly recent years, PPP approach is being tried out in Bangladesh following the showcase examples in other countries. The European Commission (EC) has identified four principal roles for the private sector in PPP schemes: (i) to provide additional capital; (ii) to provide alternative management and implementation skills; (iii) to provide value added to the consumer and the public at large; and (iv) to provide better identification of needs and optimal use of resources (Barnier 2003).

In developing investment-friendly environment for PPP development in Bangladesh, the government can play a supportive role by providing fiscal incentives to the private investors in the form of tax holidays, (say, for 15 to 30 years). It can also provide support to strengthen the access of the private sector to long-term credit. More importantly, it can induce PPP ideas, set the initiatives in motion and encourage mass motivational campaigns.

3.2.2.2 PPP Variants

In the simple form of PPP, government provides capital for investment, while operations are run jointly with private sector or under contract. It could be the other way round as well. Private party assumes financial, technical, and operational responsibilities and risk in venture. The government pays contracted price for infrastructure services that is financed, built, managed, and maintained by private sector enterprise. Social enterprises unite public sector's commitment to social goods with private sector's expertise in product development and marketing.

Different approaches to PPP are based on activity and country characteristics. Alternative modes of operation include: (i) cost of using service borne by users (e.g. toll for roads); (ii) capital investment by private partners, cost of providing service borne (wholly or partly) by government; (iii) public contribution in kind (transfer of existing assets); (iv) government provision of subsidy (one-time grant) for creating public good (infrastructure); and (v) government provision of revenue subsidies (tax breaks or guaranteed annual revenue for a fixed period).

Any public construction work or supplies are usually purchased or obtained from contractors or suppliers following tender and competitive bidding process. These types of purchases are onetime and the contractors or suppliers are not responsible after the construction time or supplies are over. Under the PPP initiative the public sector pays contracted prices or fees to the private sector for purchasing

services of the infrastructure that is financed, built, managed, and maintained by the private sector with the approval and support from the government. Some of the characteristics of PPP are that the private sector (a) arranges resources to build infrastructure, (b) bears the cost of building the infrastructure, (c) bears both the fiduciary and safety related risks related to the construction, and (d) cannot raise the prices, fees or charges unilaterally. Public sector avails the service by paying appropriate prices or fees. PPP initiatives are usually long-term (15-30 years) in nature.

3.2.2.3 Different PPP Implementation Models

One PPP implementation option is to form a consortium, called "Special Purpose Vehicle" (SPV) to plan, construct, maintain, and operate. Government holds an equity share in SPV which signs contract with government and with subcontractors to build and maintain facility. For infrastructure, complex arrangements and contracts are needed to guarantee and secure cash flows. Different countries are implementing different PPP implementation models. The type of the model depends on the relevant sector (education, health, transportation) and on the type of the project itself. Some of the widely used models are as follows (GoB 2009):

BOO—The private sector manages the infrastructure belonging to this model on build-own-operate basis. Government usually does not manage the infrastructure developed under this model. At present Independent Power Producers (IPP) are operating under BOO model in Bangladesh.

BOT—The private sector manages the infrastructure belonging to this model on build-operate-transfer basis, i.e. the private sector manages it until a specified time, after which the government is responsible for management.

BOOT—This is an extended version of the BOT model. Under this model the ownership and management belong to the private sector until a specified time. After expiry of the term, ownership and management are transferred to the government.

There are more models in addition to the ones noted above. The main idea behind these models is to outsource the management to the private sector.

3.2.2.4 Challenges of the PPP Approach

The challenges of the PPP approach are to strengthen capacity and expertise in assessing infrastructure proposals using methodologies that would ensure fairer sharing of risks and returns for partnerships with the private sector. The building of capacity to manage financial risks is very critical to contain the potential spillover effects infrastructure projects may have on fiscal expenditures and financial stability. Besides, PPP projects are usually very capital intensive. Therefore,

ensuring competitive bidding process is very vital. A match between asset and liability and cash flow is crucial. Reviewing the private partner's financial and technical capacity will be a big job for the government.

Inordinate Delay in Framing PPP Rules

The government is yet to finalise its guidelines on the PPP initiatives. In the absence of proper PPP guidelines, potential infrastructure development projects cannot be taken up for finalisation and implementation. The process of engaging a private developer for setting up of a hi-tech park through tender is being delayed as the authority is still awaiting the approval of the PPP guidelines. This has caused some disappointment among the would-be willing investors. Facilitation of the operation of the would-be PPP projects under diverse conditions prevailing in the country, sooner than later, remains a big challenge before the government. Much here will depend on the effective staffing and institutional support for the most recently proposed independent PPP Office to be headed by a Chief Executive Officer accountable to the Prime Minister. PPP Office is expected to play a catalytic role in coordinating the activities of the government ministries, donor agencies, foreign and local financial institutions and the project sponsors.

The spirit of PPP is all about a shift towards leveraging government finances with private sector resources. Hence, the PPP Office needs to work out an effective strategy by which infrastructure projects can draw financing from all fronts. Country's burgeoning capital market is a potential sector wherefrom substantial fund can be generated. There is also a need to attract global infrastructure funds to participate in the country's PPP projects. However, PPP Office is not likely to succeed if there is no high-level political support. Public support is also necessary for successful implementation of PPP projects.

The private sector in Bangladesh is still fragile to attract large capital, both at home and abroad. It is also physically constrained to implement large projects. In such a situation, PPP initiatives are unlikely to bear fruits, unless the government selects projects that are sound, viable and easy to implement. There is also a need to ensure competitive bidding to meet transparency, accountability and creditworthiness of PPP projects. Large infrastructure projects need a relatively longer period of time for implementation. The required time to implement the projects may go beyond the tenure of a government. If there is a change of government, uncertainty may arise over the implementation of PPP projects if the next government is not favourably disposed towards their continuation. This has happened to a number of projects in Bangladesh. Some large projects were abruptly abandoned after spending a large amount of State fund.

Risks Associated with PPP Implementation

There is no apparent fiduciary risk if infrastructure is developed under PPP because government does not invest or invests very little in such schemes. However, there might be some other risks as: (a) loss of ownership of public properties, (b) approval of inflated costs, (c) overlooking public interest when pricing the services, and (d) dysfunctional infrastructure once ownership is handed over to the government. It is possible to reduce risk by formulating appropriate rules and regulations, establishing required institutional framework, including relevant conditions in the contracts by experts, and monitoring and supervising on a regular basis. There is no integrated policy for execution of PPP projects in Bangladesh, which still remains indecisive about size, institutional framework, organisational structure, and implementation modalities. This points to the need for revisiting past operations and other experiences to identify what works and what does not (Mujeri 2009).

Current government has initiated a new budgetary modality by introducing the PPP budget in addition to the traditional revenue budget and the annual development programme (ADP). To reflect the aspirations of the people, the election manifesto of the present government promised to raise the growth rate of gross domestic product (GDP) to 8 per cent by 2013 and to 10 per cent by 2017 which will then be maintained till 2021. To achieve this GDP growth rate, the share of investment in GDP needs to be raised to 35-40 per cent from the present average investment-GDP ratio of 24-25 per cent which is lower than the national savings ratio. One estimate suggests that to sustain GDP growth rate of 8 per cent in 2013 and beyond requires additional US\$ 28 billion or BDT 1.96 trillion from 2009 to 2014. A lot of resources are required to raise the rate of investment to 35-40 per cent of GDP. It is challenging for the government to arrange such huge resources. Resource mobilisation is not the only challenge for the government. It is also imperative to ascertain whether the government has skilled humanpower and required institutional framework to implement mega infrastructure projects. Government is not in a position to mobilise these additional resources internally. Moreover, the ongoing global economic downturn may diminish the possibility of receiving additional foreign financial assistance. In such a state of affairs, participation of the private sector through PPP may reduce the investment deficit.

3.2.2.5 Resource Gap

In order to attain higher GDP growth, investment in infrastructure, especially in power and energy, port, transport and communication, drinking water supply, waste management, education, and health, has been prioritised. Preliminary assessment of the required investment till 2014 to boost growth rate has been made. The estimate

assumes that desired investment will be achieved during 2009-2014 with participation of the private sector and target growth rate has been set in line with the government's Election Manifesto. According to the estimate, from FY10 to FY14, there will be US\$ 28 billion investment deficit (Table 3.3). The government is determined to raise GDP growth to 8 per cent by augmenting investment by mobilising private sector's resources, expertise and experience through the PPP initiative.

TABLE 3.3

REQUIRED INVESTMENT FOR ATTAINING TARGETED GROWTH RATE AND INVESTMENT DEFICIT (OPTIMISTIC SCENARIO)

	2009-10	2010-11	2011-12	2012-13	2013-14
GDP Growth (per cent)	6.00	6.80	7.50	8.00	8.00
Required Investment (Billion	24.59	30.63	37.18	43.82	49.69
US\$)					
Investment (% of GDP)	24.00	27.02	29.25	30.40	30.40
Required Investment-MTMF*	23.55	27.10	31.36	35.54	40.29
(Billion US\$)					
Investment Deficit (Billion US\$)	1.04	3.53	5.82	8.27	9.40

Source: Preliminary Estimates of the Finance Division.

Note: *Medium-Term Macroeconomic Framework.

According to the preliminary estimate, there is US\$ 1.04 billion investment deficit in FY2009-10. In order to attract the said amount of investment through the PPP initiative, the government has decided to give a big push to provide incentives to the private sector. As such the government has seriously considered allocating significant amount of money for the PPP initiative in the next budget.

3.3 REVIEW OF PAST ACHIEVEMENTS AND REMAINING CHALLENGES IN THE PRIVATISATION OF SOES AND PPP INITIATIVES

3.3.1 Past Achievements and Remaining Challenges in the Privatisation of SOEs

As in most developing countries, privatisation is a much debated subject in Bangladesh. However, while many developing countries have moved fast, despite such debates, to privatise SOEs, Bangladesh has been relatively slow in privatisation. This is ironical because Bangladesh is one of the pioneers in this area embarking on the path in the mid-1970s, with significant momentum of privatisation in the early 1980s. Notwithstanding slow speed, a large number of enterprises, across several industries and of varied sizes, have indeed been privatised (Bhuiyan 1992, Chowdhury 2008). The findings are mixed: while some enterprises have done well, others have not. One could debate the quality of the studies, the rigour of the analytical methods used and the appropriateness of the conclusions drawn. We could argue on what constitutes appropriate indicators of

performance and how to evaluate performance changes when there are improvements in some dimensions and deterioration in others. Measuring performance is not easy; interpreting the measures is even more difficult.

It is thus no surprise that different people have read different things in these findings. Some see the spectre of de-nationalisation in the fact that some enterprises have actually closed down after privatisation. But others pointing out that the closure of intrinsically inefficient enterprises actually benefits society by stopping the wastage of valuable resources, see this as a success of privatisation. Some look at the poor loan repayment performance of some privatised enterprises and conclude that privatisation was pre-mature; while others, noting that the banks whose loans are defaulted are largely state-owned, argue for more privatisation, encompassing both the real and the financial sectors. Some look at the poor tax payment record of some privatised enterprises and question the rationale for privatisation; still others see a weak tax administration as the root problem and argue for greater privatisation, so that the government can concentrate on the really core tasks, such as improving tax administration. Many privatised enterprises in Bangladesh have improved performance, often through bringing about changes, while others have not. Why do some enterprises change and others do not? To answer this question, it is useful to distinguish between three broad sets of determinants of enterprise restructuring: signals, managerial skills and attitudes, and the enabling environment. For effective restructuring, all the three sets of factors are important; the absence of one may considerably dilute the effects of the others (Mahmood 2009).

Strong and consistent signals are necessary but not sufficient. Even when the signals are strong and clear, lack of managerial skills may prevent an enterprise from doing better. Realising the need to expand markets is one thing, effectively searching for new markets, assessing demand and aggressively marketing products are a different ball game. Many managers lack these as well as other skills, such as the ability to develop business plans, adopt and adapt modern technology, control quality and put in place modern methods of accounting and monitoring.

Empirical studies indicate that improvements in managerial skills and attitudes do have a significant impact on post-privatisation performance, and managers attach top priority to training in marketing and sales. Managerial skills are thus important, as are strong and clear signals. However, we see numerous cases where, despite strong signals and skilled managers, improvements in enterprise performance are insignificant. This is usually due to various hurdles in the business environment in which enterprises operate. Hurdles may be created by residual government controls, such as restrictions on exports, requirements to maintain the existing line of business and restrictions on sales of assets, entry of new businesses, and the hiring

and firing of workers. Even where outright restrictions are not in place, government policies effectively restrict managerial discretion (Basu *et al.* 1997).

Unpredictable and poorly administered government policies also create problems in Bangladesh. More than high taxes, frequently changing tax rates, arbitrary interpretations of tax rules and other harassment by tax authorities usually raise the cost of doing business and discourage restructuring. Lack of legal and economic information, including market studies and company diagnostics, is also a problem. Since privatised enterprises have inadequate knowledge of existing laws and their interpretation, they become vulnerable to the whims of government officials and are prevented from implementing appropriate restructuring decisions. Inadequate economic information, whether enterprise specific, such as enterprise diagnostics, or more general, such as market studies, also constrains restructuring. These problems are compounded by the fact that, in Bangladesh, support institutions, such as the consulting, accounting and auditing industries, are underdeveloped. Where they exist, they mostly serve larger clients who can pay, bypassing small and medium enterprises (SMEs).

Finally, lack of financing often prevents managers of privatised enterprises from carrying out restructuring even if they had the incentives and skills to do so. Lacking risk-management skills, banks often resort to excessive risk-averse behaviour, leading to inadequate supply of credit even to creditworthy enterprises. Only a few well-known clients get loans, and credit decisions are based on the quality of collateral, not that of the project.

The above discussion suggests one thing. It is important that, in Bangladesh, we move away from constantly debating whether privatised enterprises have done well or not, to diagnosing the reasons for less than satisfactory performance in some privatised enterprises. If these are not doing well, is it because the business environment is not competitive enough, or government continues to bail out poor performers, or there is lack of managerial skills, or there are bottlenecks created by government policy and its implementation, or there are other factors? Once this diagnosis is done, we would be in a much better position to identify policy and other responses required to address the constraints. The fact that some privatised enterprises have not done well is not enough evidence against the logic of privatisation. It is more a signal that further reforms might be required and that, in most circumstances, privatisation, especially partial privatisation, is not sufficient.

3.3.2 Past Achievements and Remaining Challenges for PPP Initiatives

3.3.2.1 Early PPP Initiatives

PPP initiatives in Bangladesh commenced with the adoption of Independent Power Producers (IPP) Policy in 1996 to promote private sector participation. In

1997, under administrative control of the Economic Relations Division, Infrastructure Development Company Ltd (IDCOL) was established in order to promote private sector investment in infrastructure development. In the same vein, Infrastructure Investment Facilitation Center (IIFC) was established by the government to assist relevant ministries, divisions or agencies with formulation of project proposal and screening as well as to provide technical assistance. Later in 2004, under PPP initiative, Private Sector Infrastructure Guidelines (PSIG), which forms the basis of the current PPP, were issued in order to boost private investment in the development and maintenance of infrastructure. Since the issuance of PSIG-2004, investment did not occur at the expected level. Under these circumstances, it became imperative to revisit and give a fresh look to the institutional framework and terms of reference for project identification, scrutiny, approval, tender and project implementation procedures as envisaged in the PSIG, 2004 (GoB 2008).

In 2007, a 5-year term Investment Promotion and Financing Facility (IPFF) endowed with BDT 4.18 billion was set up in Bangladesh Bank to finance government approved PPP based infrastructure development projects to be implemented by the private sector. Later in 2008, policy to promote private sector participation in power sector was formulated. Although these initiatives have been successful in financing and implementing a few small-scale infrastructure development projects, they are not sufficient to cater to the requirements and potential of the country. Therefore, to reduce the plight of the public sector and to boost economic development, an initiative is being undertaken to revisit the current PPP framework and facilities.

Meanwhile, around 50 initiatives in telecommunication, land port and other physical infrastructure projects have been successful. There has been remarkable progress in PPP sector in FY1998-99 when initiatives were taken to build two mega power plants at Haripur and Meghnaghat with private sector involvement for the first time. The two projects were implemented successfully and contributed to mitigating power crisis. Bangladesh Sthala Bandar Kartripaksha (BSBK) also tendered ten land ports to the private sector on BOT basis in two rounds. These were Banglabandha, Bibirbazar, Birol, Hili and Sonamasjid in the first round and Akhaura, Bhomra, Burimari, Haluaghat, and Tamabil in the second round. Offers for the first round had been received, evaluated and the government approval processes had been completed. Banglabandha, Bibirbazar, Hili and Sonamasjid land ports had been awarded to private sector and the concession agreements had been signed.

Jatrabari-Gulistan Flyover is under implementation on BOOT basis with the Dhaka City Corporation (DCC) as the executing agency. The objective of this project is to minimise traffic congestion in Gulistan, Motijheel and Jatrabari areas

and ease movement of vehicles linking Dhaka with Chittagong and southeast region of the country. The length of the flyover is around seven kilometre. The estimated cost of the project is US\$ 106 million, with a private sector investment of US\$ 103 million and government investment of US\$ 3.0 million. The project has been awarded to a private sector investor, Belhasa-Accom JV Ltd. It is planned to be operated through collecting tolls from users for 24 years. The tolls would be regulated by the DCC.

PPP Projects under the Existing Framework

Three government organisations are involved in the project implementation by the private sector under the PPP initiative. So far the direct assistance of these organisations have enabled implementation of 27 projects, of which 18 projects are in the power and energy sector, 6 projects in telecommunication sector, 2 projects in the port infrastructure sector and 1 project in the information technology sector. The contribution of the three organisations involved in PPP project implementation may be summarised as follows: (a) To date, BDT 13 billion has been financed by IDCOL in 22 projects implemented under PPP (Table 3.4). (b) IPFF financed 5 power sector projects under the PPP initiative, generating 178 MW power. Three projects have started power generation on a commercial basis and have added 99 MW of power to the national grid. The remaining two projects are at the final implementation stage. As shown in Table 3.5, the total expenditure in the 5 aforementioned projects was BDT 8.67 billion, of which IPFF financed BDT 4.41 billion (51 per cent), private investors financed BDT 2.51 billion (32 per cent) and participating banks financed BDT 1.46 billion (17 per cent). Till now, IIFC has been under contract to design 30, provide technical support to 8 and consultancy support to 16 PPP projects. Almost all the projects implemented under PPP have taken IIFC support (Table 3.6).

Under the current framework, through different types of PPP initiatives, a small number of projects have been implemented under the ADP which are mainly private sector initiatives. These initiatives were generally confined to education, research and health sectors. Although BIRDEM Hospital was established under the ADP in the 1970s and 1980s, it was under the responsibility of the Diabetic Association. During the same period, educational institutes were established under joint initiative and if specific level of individual contribution (e.g. 80 per cent) were met then the institution was named after the donor. In a similar manner, establishments like entertainment centres, libraries, sports facility, etc. were set up for public benefit in various locations. Currently, many projects are implemented similarly, such as Bishwa Shahitya Kendra's building complex, health care infrastructure, etc. Public partnership in many cases has taken place in the form of land acquisition, land lease, construction cost sharing or providing seed money for the projects.

Sector	S1.	Project Name	PPP Model	Investment
	No			(Million
				BDT)
Power and	1	1. Meghnaghat 45 MW Power Plant	BOO	21000.0
Energy	2	2. Summit Power 33 MW Power Plant	BOO	1250.0
	3	3. Summit Uttaranchal Power Company 44 MW Power Plant	BOO	1970.0
	4	4. Summit Purbanchal Power Company 66 MW Power Plant	BOO	3000.0
	5	5. VERL 34 MW Power Plant at Bhola	BOO	1200.0
	6	6. BEDL 51 MW Power Plant at Sylhet	BOO	1830.0
	7	7. 34 MW Malancha Holdings Power Plant at Dhaka EPZ	BOO	1650.0
	8	8. Shah Cement 11.6 MW Power Plants	Captive Power Plant	590.0
	9	9. Thermax Trade Limited CNG Refueling Station	Under License from Petrobangla	55.0
Renewable Energy	10	10. IDCOL Solar Energy Programme	Implemented by NGO and Private Sector	20060.0
	11	11 National Domestic Biogas and Manure Programme		2150.0
	12	12. 250 KW Bimas Gasification Based Power Plant	Under a License from BERC	25.0
	13	13. 50 KW Biogas Based Power Plant	from from	5.0
Port and	14	14 Panama Hilli Land Port	BOT	180.0
Communic-	15	15. Panama Sonamasiid Land Port	BOT	200.0
ation	16	16. Grameen Phone Network Expansion Project	BOT	45340.0
	17	17. Pacific Telecom Network Expansion Project	BOT	21560.0
	18	18. Ranks Tel PSTN Project	BOT	2300.0
Telecommu- nication Technology	19	19. DNS Satcomm Satellite Earth Station Project	Under a License from BTRC	160.0
	20	20. BanglaTrac International Communication Gateway Project		670.0
	21	21. M & H Telecom Interconnection Exchange Project		660.0
Information Technology	22	22. Shoanchalok ICT Programme	Implemented by some Banks and Financial	500.0
			Institutions	

TABLE 3.4LIST OF PPP PROJECTS FINANCED BY IDCOL

Source: GoB (2009).

Sector	Sl.	Project Name	PPP Model	Investment
	NO.			(Million BDT)
Power and Energy	1	1. Three 22 MW Doreen Power Generations & System Ltd (2 in Tangail and 1 in Feni)	BOO	3430.0
	2	2. 11 MW Doreen Power House and Technologies Limited at Mahipal, Feni	BOO	564.3
	3	3. 22 MW Regent Power Limited	BOO	1108.2
	4	4. Malancha Holdings Ltd.(44 MW Captive Power Plant at CEPZ)	BOO	1919.0
	5	5. Malancha Holdings Ltd.(35 MW Captive Power Plant at CEPZ	BOO	1649.0

 TABLE 3.5

 LIST OF IMPLEMENTED AND UNDER-IMPLEMENTATION PPP PROJECTS BY IPFF

Source: GoB (2009).

TABLE 3.6

LIST OF PPP PROJECTS WITH TECHNICAL ASSISTANCE OF IIFC				
Sector	Project Name	PPP Model	Investment (Million BDT)	
Power and Energy	1. Meghnaghat 45 MW Power Plant	BOO	21000.0	
	2. Summit Power 33 MW Power Plant	BOO	1250.0	
	3. Summit Uttaranchal Power Company 44 MW Power Plant	BOO	1970.0	
	4. Summit Purbanchal Power Company 66 MW Power Plant	BOO	3000.0	
	5. VERL 34 MW Power Plant at Bhola	BOO	1200.0	
	6. BEDL 51 MW Power Plant at Sylhet	BOO	1830.0	
	7. 34 MW Malancha Holdings Power Plant at Dhaka EPZ	BOO	1650.0	
	8. Shah Cement 11.6 MW Power Plants	Captive ower Plant	590.0	
	9. Thermax Trade Limited CNG Refuelling Station	Under icense from Petrobangla	55.0	
	10. Haripur 360 MW Power Plant	BOO	16280.0	
	11. Khulna 110 MW Power Plant	BOO	5000.0	
	12. Haripur 115 MW Barge Mounted Power Plant	BOO	5350.0	

(Cont. Table 3.6)

	13 Westmont Baghabari Barge Mounted Power	BOO	5950.0
	Plant	Dee	5750.0
	14. Three 22 MW Doreen Power Generations &	BOO	3430.0
	System Ltd(2 in Tangail and 1 in Feni)		
	15. 11 MW Doreen Power House and	BOO	564.3
	Technologies Limited at Mahipal, Feni		
	16. 22 MW Regent Power Limited	BOO	1108.2
	17. Malancha Holdings Ltd.(44 MW Captive Power Plant at CEPZ)	BOO	1919.0
	18. Malancha Holdings Ltd.(35 MW Captive Power Plant at CEPZ	BOO	1649.0
	19. Ashulia 45 MW Power Plant	BOO	2090.0
	20. Narsingdi 35 MW Power Plant	BOO	1420.0
	21. Chandina 25 MW Power Plant, Comilla	BOO	1120.0
	22. Jangalia 33 MW Power Plant, Comilla	BOO	1400.0
	23. Rupganj 33 MW Power Plant, Narayanganj	BOO	1260.0
	24. Maona 33 MW Power Plant, Gazipur	BOO	1400.0
Renewable Energy	25. IDCOL Solar Energy Program	Implemented	20060.0
65	26. National Domestic Biogas and Manure	by NGO and	2150.0
	Programme	Private Sector	
	27. 250 KW Biomas Gasification Based Power Plant	Under a License from BERC	25.0
	28. 50 KW Biogas Based Power Plant	Under a License from	5.0
		Government	
Port and	29. Panama Hilli Land Port	BOL	180.0
Communication		DOT	200.0
	30. Panama Shonamasjid Land Port	BOT	200.0
	31. Grameen Phone Network Expansion Project	Under a License from BTRC	45340.0
	32. Pacific Telecom Network Expansion Project	Dine	21560.0
Telecommunication	33. Ranks Tel PSTN Project		2300.0
	34. DNS Satcomm Satellite Earth Station		160.0
	35. BanglaTrac International Communication Gateway Project	Under a License from BTRC	670.0
	36. M & H Telecom Interconnection Exchange Project		660.0
Information Technology	37. Shoanchalok ICT Programme	Implemented by some banks and Finacial Intitutions	500.0

Source: GoB (2009).

3.3.2.2 Policy Strategy for Improving the Environment for PPP

To gain the confidence of private investors regarding government's eagerness and strong position in the new PPP initiative, significant budgetary allocation was made in FY2009-10. Government considers it as a modest beginning to create conducive atmosphere for PPP. The current year's allocation may be increased or decreased based on different ministries', divisions' or agencies' list of projects to be implemented under the PPP initiative. Similarly, subsequent financial year's allocation will continue to be based on actual requirement. PPP allocation for loan or equity is divided into three categories: (i) allocation for loan or equity, (ii) allocation for PPP Viability Gap Funding (VGF) as subsidy, and (iii) allocation for PPP Technical Assistance (PPPTA).

To attract private investment, mainly three types of tax incentives are under consideration. One of them is on investment that is at the financing stage and the other two are at infrastructure construction and management or operating stage. Policy strategy consists in the following: (i) tax exemption will be given or minimum tax rate will be imposed on the amount invested by various individuals, financial institutions and joint ventures for PPP project implementation; and (ii) import tax benefit (lowest rate) will be granted to capital items under PPP initiative and profit from operation/management will be taxed at the lowest rate for a specific time period. However, no effective institutional arrangement has been developed to publicise the PPP initiative in the country. In this regard, policy strategy includes: (a) wide, extensive and continuous publicity campaign for the new PPP initiative; and (b) list of projects to be implemented under PPP. For extensive promotion a website- www.pppinbd.com will be put in place. In the dedicated website arrangement will be made for sectoral advertisement (by setting up links). Arrangement will be made for advertisement in well-known foreign and local newspapers, magazines and journals. Similarly, arrangement will be made for road show, conference with foreign and local investors, infrastructure sector fund administrator and development partners.

Some projects that can be implemented under PPP have been identified by relevant ministries, divisions and agencies. In addition, by urgently adopting a technical study potential sectors and projects will be identified, which will be implemented on a priority basis: The technical study will focus on identification of projects that can be implemented under PPP initiative and create framework for new fund, and legal processes, and formulate a road map for implementation in a short period of time. The study will incorporate a time-bound implementation schedule

and costing of projects identified in the study. IIFC will lead or manage the technical study. The expenditure for the technical study will be borne under PPPTA allocation made by the Finance Division. The multifarious promotion measures will be undertaken by the PPP Office.

It may, however, be noted that PSIG are not backed by law. To begin with, Public Procurement Regulation (PPR), 2008 (Rule 129), and Public Procurement Act (PPA), 2006 (Section 66), may provide legal basis for PPP initiative. It is necessary to adopt project implementation within a flexible framework covering BOO, BOT and BOOT as necessary. Initially, PPPs may be negotiated as one-off deals with aim to install a systematic programme in phases. It is crucially important to (i) finalise detailed action plan on how to proceed in a timebound manner; streamline processes, regulations, requirements, legal/policy hurdles; (ii) enact new legislation to develop comprehensive legal and institutional framework for administration, monitoring, professionalism and accountability; (iii) create legal framework for pooling of funds from various sources (banks, insurance companies, pension funds, etc.) as government can only provide equity or loans to infrastructure related funds at present through IDCOL; (iv) establish a PPP Office to move forward; (v) prepare guidelines for TA and VGFs; (vi) remove weaknesses and limitations of Private Infrastructure Committee (PICOM) under PSIG 2004 in terms of its size, scope, and other institutional and organisational framework and structure; (vii) set up a dedicated unit for PPP budget formulation and implementation; (viii) adopt measures to build trust and confidence of investors, simplify legal and regulatory frameworks, streamline decision making process, remove implementation constraints, and ensure procedures of accountability; (ix) create broader political consensus on needs and imperatives especially for large PPP projects with longer implementation periods (Mujeri 2009).

Meanwhile, the government has prioritised some large-scale infrastructure projects to be implemented under the PPP. It will take about 5 to 7 years to implement these large-scale projects. Apart from these projects, initiative will be taken to implement relatively small-scale projects that require less resource and can be implemented quickly, e.g. small bridges, flyovers, underpass, tunnels, etc.; intracity communication can be strengthened by implementing such projects in large cities like Dhaka and Chittagong. A preliminary list of projects to be implemented under PPP is presented in Tables 3.7, 3.8 and 3.9.

Sector	Name of the Project	Estimated Cost (US\$ billion)	PPP Model
Transportation	1.Dhaka-Chittagong access control highway	3.02	BOOT
	2. Sky-train encompassing the Dhaka metropolis	2.80	BOOT
	3. Dhaka city subway	3.10	BOOT/BOT
	4. Dhaka city elevated expressway	1.23	BOOT/BOT
	5. Dhaka-Narayanganj-Gazipur-Dhaka elevated expressway	1.90	BOOT/BOT
Power and Energy	1. Four coal, diesel or gas fired power plants capable of producing 450 megawatts electricity in different parts of the country	1.80	BOOT/BOT
Water-transport	1. Deep seaport in Chittagong		BOOT/BOT
Total	(excluding Chittagong deep seaport)	13.85	

			TABLE 3	.7			
LIST	OF IMPORTANT	MEGA I	PROJECTS	го ве	IMPLEMENTEI	D UNDER	PPP

Source: GoB (2009).

TABLE 3.8 LIST OF OTHER PROJECTS TO BE IMPLEMENTED UNDER PPP

Sector	Name of the Project	Estimated Cost	PPP Model
		(million BDT)	
Transportation	1. Bus Rapid Transit (BRT)	150	BOO
	2. Articulated Bus Service	50	BOO
	3. Bus Route Franchise (BRF)	50	BOO

Source: GoB (2009).

TABLE 3.9 LIST OF PROJECTS IN EDUCATION AND HEALTH SECTORS TO BE IMPLEMENTED UNDER PPP

Sector	Name of the Project
Health	1. Health care provider for a specific area (a few districts)
	2. Setting up cancer and/or other hospitals
Education	1. Setting up quality secondary schools
	2. Setting up dormitories, health centres, auditoriums, gymnasiums in public universities
	3. Development, expansion or improvement of present Degree colleges
	4. Setting up research institutions or research foundations dedicated to the
	institution

Source: GoB (2009).
3.3.2.3 Experience of Other Countries

There is a body of experience that has developed in a number of countries to date providing a strong basis for the elaboration of suitable PPPs. Many countries, particularly ASEAN and SAARC countries, have successfully implemented PPP projects. In so doing, these countries have managed to increase production capacity without putting any pressure on government revenue and could achieve double-digit growth rates.

A large number of countries have prepared guidelines and/or enacted laws in attracting private investment for implementing projects through PPP approach. The comparative position of India and Bangladesh can be described as follows: As regards Regulatory Framework, PSIG-2004 is being followed in Bangladesh, while Guidelines for formulation, appraisal and approval of PPP projects, 2006 is being followed in India. In respect of Institutional Framework, in Bangladesh an 11member PICOM has been constituted and the BOI provides secretarial services to PICOM, whereas in India (a) a 5-member PPP Appraisal Committee (PPPAC) has been constituted which is housed in the Department of Economic Affairs (DEA) under the MOF; two more small committees are in place for appraisal of projects up to certain level of project cost ceiling; (b) a dedicated PPP unit has been constituted in the DEA for providing technical services to PPPAC on PPP project pre-appraisal and recommendation; and (c) a separate PPP Appraisal Unit has been set up in the Planning Commission. It is observed that (i) 11-member PICOM in Bangladesh is a big committee; it usually takes long time to arrange meetings of such a big committee and to maintain contacts with the members; and (ii) single point technical services are hindered in the absence of dedicated PPP unit.

With regard to the Terms of Reference, while in Bangladesh PICOM's role is limited to coordination, communication and encouragement for PPP related activities and placement of proposal to the Cabinet Committee on Economic Affairs (CCEA) through Cabinet Division, in India PPPAC examines the PPP projects and place them to the appropriate authority with its own recommendations for consideration and approval: (a) project cost beyond Rs.2,500 million and project included in the National Highway Development Plan (NHDP) having cost beyond Rs.5,000 million are placed to PPPAC for recommendation; (b) a 4-member Standing Finance Committee (SFC) examines project having cost above Rs.1,000 million and less than Rs.2,500 million and NHDP listed project having cost less than Rs.5,000 million and above Rs.2,500 million and places them to a Committee under MOF for recommendation to the appropriate authority for approval; and (c) SFC or a 4-member Expenditure Finance Committee (EFC) considers and recommends a project costing less than Rs.1,000 million to the appropriate authority for approval. Since PICOM's role in Bangladesh is limited to coordination and

communication, it is understandable that in most cases PICOM cannot examine and evaluate PPP projects properly. As to Project Approval, while in Bangladesh (i) CCEA approves project having cost more or equivalent to US\$ 5 million, and (ii) concerned ministry approves project having cost less then US\$ 5 million; in India (a) CCEA approves project having cost above Rs.2,500 million and NHDP listed project having cost beyond Rs.5,000 million with the recommendation of PPPAC; (b) appropriate authority approves project having cost less than Rs.2,500 million or above Rs.1,000 million and NHDP listed project having less than Rs.5,000 million and above Rs.2,500 million; and (c) an appropriate authority approves project costing less than Rs.1,000 million.

As regards Project Identification, in Bangladesh (a) project cost more than US\$ 5 million identified by line ministries or PICOM is placed to CCEA for approval of inclusion into the PPP project list, and (b) project cost less then US\$ 5 million identified by line ministries is sent to PICOM for inclusion into the PPP project list; while in India (i) PPPAC is empowered to give "approval in principle" of project for listing having cost above Rs.2,500 million and NHDP listed project having cost beyond Rs.5,000 million with an interministerial committee recommendation, (b) with SFC's recommendation a 2-member committee under MOF "approval in principle" for listing of project having cost above Rs.1,000 million or less than Rs.2,500 million and NHDP listed project having less than Rs.5,000 million and above Rs.2,500 million, and (c) SFC or EFC gives "approval in principle" of projects costing less than Rs.1,000 million on identification of projects by the relevant line ministry. It is observed that in Bangladesh (i) after identification, all large and small projects are needed to be placed before CCEA for listing that requires long processing and discourages private sector and concerned ministry, and (ii) absence of involvement of the Planning Commission poses the risk of sectoral imbalance and duplication of projects. Relating to the use of standard formats for approval, in Bangladesh, contract, etc. would include, according to guidelines, standard formats for tender; while in India different standard formats for different stages have been included in the guidelines. It is observed that concerned ministries and interested private investors in Bangladesh face dilemma because no standard formats have been included in the guidelines.

In respect of Classification of Project, in Bangladesh (a) a project having capital cost of US\$ 25 million or above is defined as big projects, (b) a project having capital cost of less than US\$ 25 million is defined as small projects. In contrast, in India (i) project costing Rs.2,500 million or more and NHDP listed project having cost of Rs.5,000 million or more, (ii) project costing Rs.1,000 million or more and NHDP listed project having cost beyond Rs.2,500 million or less than Rs.5,000 million, and (iii) project cost less than Rs.1,000 million are treated respectively as

large, medium and small projects . It is observed that approval of CCEA for listing of all projects (large and small) is not conducive to fast track decision making in Bangladesh. With regard to Executive Responsibility, in Bangladesh BOI provides secretarial services to PICOM, while in India DEA provides all technical as well as secretarial services to PPPAC through its PPP Unit and MOF acts as the nodal ministry in financial and other stimulus matters. It follows that in Bangladesh additional stages require additional time for PPP project processing that causes delay in PPP project approval.

As regards determination of terms and conditions for project related different contracts, in Bangladesh CCEA constitutes separate committee for each project as Major Terms and Condition Committee (MTCC) for determining terms and conditions for different contracts in a project, while in India PPPAC and other relevant committees determine terms and conditions on the basis of reports on technical, engineering and legal matters at feasibility study and pre-appraisal test stage. It is observed that in Bangladesh constituting a separate committee and determining terms and conditions by that committee require long time. MTCC is constituted on an *ad hoc* basis and in most cases desired professional opinion remains unavailable. With regard to Sick Project, while in Bangladesh, in addition to other causes, government shall not take responsibility of a project if it turns sick due to change in government policy, increase in taxes and reduction in fiscal incentives; in India nothing has been mentioned in the guidelines relating to this issue. Understandably, in Bangladesh the presence of sick project related clause in the guidelines is not favourable to private sector entrepreneur for investment in infrastructure development (GoB 2009).

In India, PPP mode of infrastructure delivery launched a decade ago is accepted as an efficient and effective methodology. In Indonesia, emphasis is put on financial and technical aspects. In Malaysia, political and social motivations figure prominently. Singapore gives VFM. In Thailand, PPP exists in infrastructure in many sectors notably in power, electricity, telecom, and transport services. All these countries in the region have accepted the concept of PPP as a viable option. From their involvement and experiences in PPPs over the last decades, some key lessons have emerged. First, they have learned that the importance of political leadership, not only in establishing the PPP programmes themselves but also in launching individual PPP projects, cannot be overemphasised. In India, for example, the progress achieved thus far by ongoing efforts to mainstream partnerships for infrastructure can be attributed in no small measure to political leadership at the central and state levels. Second, good governance is central, beginning with transparency. Governments and the private sector have begun to accept that transparent, competitive bidding processes are needed to ensure political

sustainability and the VFM. Third, lessons have been learned about the need to build capacity in governments for running a PPP programme. It is a long, complex process which requires patience and persistence. It is particularly needed in the preparation of PPP projects that will attract bidders and assure truly competitive outcome for the bidding process. There exists the asymmetry of capacity in some countries vis-à-vis the private sector. This leads one to believe, therefore, that the capacity building of the government in handling the PPP programmes is extremely critical. Inadequate project preparation results in failed bids, sometimes with no bidders, and other times with one who hopes to eventually obtain the contract on a negotiated basis. Quite often it gives the impression that it is a reflection of the inadequate capacity on the government's side. Fourth, it is learned that it is difficult to achieve full cost recovery for certain infrastructure sectors or in certain countries. However, if the project represents good VFM, government may provide capital and/or operating subsidies or loans for bridging cash shortfalls at the earliest to make the project viable and attractive to the investors. From the global experience there is reason to believe that it is important not to take a rigid and dogmatic view against subsidies. They should be looked at pragmatically when it makes sense. In that context, India has recently done some excellent works in furthering the concept of VGF and that is a model that one can perhaps discuss and learn from. Fifth, the government plays a critical role in facilitating private participation in PPP projects. For example, a guarantee fund as proposed in Indonesia which would provide government guarantees to shield the private partner from risks beyond his/her control, and land acquisition support to ensure the timely viability of the project site or road right-of-way may be appropriate mechanisms to consider. It is widely believed that the private sector is quite capable of handling risks. What it cannot do and should not be expected to do is to handle uncertainty. That is where it is believed that the government plays a critical role in reducing uncertainty, if not eliminating it. Sixth is the need for proactive public communication and stakeholder consultation. It is only appropriate that a proactive public communication and stakeholder consultation, which brings all parties together to the table, will contribute success to PPP projects even though at times it may delay things at the beginning. Finally, country experiences point to the important role played by the domestic financial markets in sustaining finance for PPPs. Until recently, the use of foreign currency denominated debt to finance infrastructure projects was the rule in Asia. These exposed projects were dependent on local currency revenues to exchange risks: the so-called double mismatch problem that sparked the 1997 financial crisis, the second part coming from the mismatch from the maturity side. Therefore, long-term bond market development and investment guidelines that enable banks, insurance companies, pension and provident funds, and other

financial institutions to finance infrastructure projects will be the key. As a parallel measure, some countries need to set up facilities to mobilise long-term funds for channeling to infrastructure projects. India has done that already. Bangladesh and Indonesia are in the process of doing so with support of the Asian Development Bank (ADB). ADB is working on a region-wide development of Asian bond markets so that the currency mismatches and maturity mismatches, at least as far as the local currency requirements, can be met domestically (Nag 2008).

PPP has been operating in China for over 20 years. In addition, an increased focus on the VFM in the public sector has led to a need to improve the efficiency of the management, delivery and effectiveness of public services, especially at the local level. China is seeking to widen the use of PPP in sectors as yet not open to it. According to Adams *et al.* (2006), the current PPP system in China is facing problems in the context of several models of bureaucracy arguing that these are as valid in China as they have been in the West. They argue that there are five key constraints present in the Chinese PPP system and that these are fundamentally associated with risks of various types, and suggest that extending PPP in China will require significant reform of public sector administration, closer supervision, transparent regulatory systems and easier access to capital for local private sector firms.

Developed countries set up specialised PPP units to facilitate and manage large infrastructure projects and establish public institutions to support PPP development. The lesson that can be drawn is that there is no unique formula for developing a sound PPP framework. There is a need for clear policy and legal frameworks for PPP that ensure right balance between public and private interests. There emerged a convergent understanding that good PPPs, due to their complexity, need to be well prepared, and require political backing at a high level. The public authority remains accountable but through early and well apportioned risk sharing the full range of benefits of PPPs can be harvested—not only the positive financial aspect, but also the benefits the private sector can bring in terms of innovation, greater efficiency, and VFM. New legislation and political commitment are driving forces for the process. However, caution should remain in that PPPs cannot be seen as a quick fix solution and should be developed only for appropriate projects (Barnier 2003).

3.3.2.4 Key Points of Success or Failure of PPP — Main Lessons Learned

According to UNDP (2008), the success or failure of any PPP is dependent on six key factors: (i) the political and legislative environment, (ii) a skilled dedicated unit to oversee the partnership, (iii) a viable contract, (iv) a clear and dedicated revenue stream, (v) strong communication with all interested parties, and (vi) careful selection of the private-sector partners. The combination of these factors—

excessive contractual requirements, poor public information efforts, and political intervention in the regulatory process—was a significant component in the failure stories of some PPPs. In the UNDP study countries, regulators have to deal not only with technical issues, e.g. tariffs and service quality, but also with social demands. Regulatory independence can be a crucial factor in the success of a PPP.

Political commitment and leadership, stakeholder ownership and public-sector involvement are crucial to a sustainable reform process and they must be in place prior to starting the process and maintained during implementation. A climate of trust and cooperation built through capacity building activities and the creation of a collaborative partnership is essential. A well-thought-out plan, with sector investments that are planned in parallel with reform of the utility, is essential. Investments may be from external support agencies or from some sources of private-sector finance, if certain conditions are met. The government needs to remain committed to sector investments and implement them timely, as delays in rehabilitation and extension works will jeopardize improvements in service, which will in turn hamper efforts to restore customer confidence and payment discipline. To this end, Government staff needs to be provided incentives to ensure that investments take place as planned. It is necessary that the State asset-holding company be institutionally autonomous, professionally competent and have clear financial targets. It is required that the issues of employment and job security for the utility staff be addressed in the early stages of the process, and the form of any contract be based on the development aims agreed to by all sectors.

According to APTATF (2006), seven guiding principles for PPPs may be proposed as a framework for assessing the efficacy of PPPs for funding, financing, and delivering public transportation services and facilities: (i) PPPs are a tool in the transit toolbox. PPPs are viewed as one of a number of techniques and mechanisms for funding, delivering and sustaining transit facilities and services. PPPs can be used successfully for a variety of purposes, including delivery of major projects, provision of cost-effective services, and utilisation of contractual relationships to improve quality and timeliness of capital projects and services. However, PPPs should not be viewed as an ultimate funding solution in the absence of other resources, but as a complement to existing and traditional sources of funding for service expansion, modernisation, and infrastructure investment. (ii) PPPs should be structured to maintain the public interest. In the vast majority of circumstances, control and oversight of the public asset—the facilities and services provided to the public-must remain with an entity whose "client" is the public interest. Thus, the governmental or public entity that holds this responsibility must carefully evaluate the transfer of risk and concomitant transfer of control within a proposed PPP to assure that these transfers bring commercial benefits and foster creative use of non-

traditional resources, while maintaining sufficient control/oversight to assure the preservation and sustainability of the public interest. (iii) PPPs should be utilised as a strategy to achieve public goals and support long-range regional plans. PPPs are often proposed and implemented as a means of implementing projects or selling/leasing assets in ways that do not directly support regional goals for multimodal transport investment. There have been projects or asset sales done primarily because they could be done, not because such undertakings achieved outcomes that met a regional prioritisation of transportation infrastructure investment. Thus, public transportation assets should not be sold simply for the sake of general revenue enhancement, especially if the generated revenues are used for purposes other than for improving transportation facilities and/or services. (iv) PPPs are most effective in those cases where a long-term revenue stream can be assured. Some agencies believe that the private sector can be a viable source of funding when no tax or general revenues are available and no identifiable revenue stream exists. The reality, of course, is that the private sector can only be a useful partner in those cases where financing—as contrasted to funding—is the issue, or in those rare cases where capital invested at risk by a private partner has a strong probability of generating a long-term return on that investment. In order for such a return to be generated, the presence, predictability and stability of a long-term revenue stream are mandatory. (v) PPPs should be based on constructive and beneficial sharing of risk. One of the key premises underlying PPPs is the beneficial sharing of risks inherent in project development. This means that the public sector and private sector assume respectively those risks which each are best suited to accept. For example, a common risk allocation may be for the private sector to accept the risks inherent in the cost and timeliness of construction, while the public sector is more capable of accepting the risks associated with environmental clearance, public acceptance, and ridership/revenue for development of a capital project. (vi) PPPs should be used constructively for increasing procurement flexibility and project effectiveness. There are many opportunities for maximising the competitiveness and performance of capital or operating assets through creative utilisation of private resources. Numerous examples exist in the literature that demonstrate significant cost and time savings owing to private contracting. However, in some countries, PPP deployments are obstructed by procurement statutes that have not kept pace with the emergence of PPPs, inhibiting some agencies from PPP deployments. In addition, where lifecycle costs and benefits are considered, the tax consequences of long-term private investment may substantially reduce the required public subsidy for transit facilities and services. Thus, utilising tax policy as an instrument for promoting PPPs can be a clearly positive action, presuming that tax revenue lost through such mechanisms is less than the direct investment necessary to achieve the same outcome through a

traditional grant-in-aid approach. (vii) PPPs for tolling and other forms of congestion pricing should be structured to increase transit usage. The concept of "high performance corridors" is gaining traction, particularly in the light of energy saving and global climate change. Increasing the transit share should be a desirable objective in any undertaking to reduce congestion, improve air quality, and reduce dependency on foreign oil.

According to Corrigan *et al.* (2005), ten challenges for successful PPPs include: (i) proper preparation for PPPs, (ii) creating a shared vision, (iii) understanding partners and key players, (iv) being clear on the risks and rewards for all parties, (v) establishing a clear and rational decision-making process, (vi) making sure all parties do their homework, (vii) securing consistent and coordinated leadership, (viii) communicating early and often, (ix) negotiating a fair deal structure, and (x) building trust as a core value.

Early and comprehensive preparation by both the public and private sectors is the key to successful PPPs. Preparation entails creating and constantly updating a plan for development showing specific sites for private investment opportunities. In addition, the public partner must identify development goals and resources, including commitments for inducements and incentives for prioritised projects in the plan. This specificity will enable developers to understand the true scope of the development opportunities in the community.

In the early stages of the process, institutional capacity building remains a great challenge. The public partner needs to make sure that it has the expertise to negotiate with the sophisticated private party and the authority to retain the use of one or more consultants to assist in developing the partnership. PPP can satisfactorily represent the public interests. Funding for government-imposed requirements, environmental cleanup, and the like are required at times to make the project work. To design a development plan in accordance with the needs of the community, the partnership can use various tools to involve the public in its visioning and implementation process.

Creating vision for the programme through a consensus-building process that identifies the opportunities, objectives, and ultimate goals for the community figures prominently. All successful projects start with a vision. Without a vision, the project will most likely fail. The vision is the framework for project goals and serves as the benchmark to ensure the realisation of joint objectives. Creating a vision is not always easy, and it is crucial that the vision is shared. Creating a vision involves building consensus and including all the stakeholders, even those who may be naysayers. By casting a wide net and giving all the stakeholders an opportunity to help craft the vision, less possibility exists for opposition to a project. Public

hearings, charrettes, visioning exercises, and other tools for involving stakeholders in the visioning process should be used to ensure the broadest outreach. Involving the media is another key factor for two reasons: First, it helps get the message out about the visioning process, and second, it helps form an alliance with the media, which will be crucial in articulating and publicising the vision once it is created. A vision is not just pretty pictures depicting the ultimate outcome. It involves a strategy for implementation, which includes funding mechanisms (public and private), potential partners (and their responsibilities), and an agenda or timeframe for achieving the vision (making the project a reality). These components are all critical for realising the vision and ensuring that it gets off the boards and onto the ground. Partners should make a practical analysis of market conditions and demographics to ensure that the vision is neither too grand nor too small. An important component of the vision is specifying the scale of the project or projects that provides people with an understanding of what is going to happen.

Various types of risk are potentially encountered in PPP projects: (i) market risk whether the projected demand for space will actually be realised; (ii) construction risks whether the project will meet the budget and schedule; (iii) ownership risks whether all the risks of owning and operating a development, such as tenant leasing, will be overcome; (iv) interest-rate risk whether the interest rate will increase; and (v) performance risk whether the project will achieve the public purpose for which government justified its participation. To minimise risk, it is necessary for public partners to develop financial and development safeguards that are negotiated and can be included in the development agreement between the public partner and the selected private partner.

On the reward side, strong, compelling reasons exist for both public and private partners to take the necessary risks and soldier on to build the partnership and implement the project. Most obvious for the public are the net economic and fiscal benefits that can be produced by joint action to overcome obstacles. The benefits to the private partner are perhaps the most obvious and readily measured: the deal must be profitable after paying all associated costs of investment of time and resources. Although the risks and rewards of a particular PPP may be more easily measured in the private sector, the public concerns are no less important, and a disciplined accounting of expected rewards and risks, or benefits and costs will go a long way in demonstrating to key stakeholders and the general public alike that the deal is worth doing and is being made with all relevant factors in mind. Clearly, the objective of this accounting should be to show that the ultimate outcome of the partnership will be a win-win for the public and private partners as a result of their respective investments and risk taking.

At the beginning of the partnership, entities must define the process by which decisions are made, implemented and reassessed. The most important step is creating a roadmap for decision making, with a timeline to schedule project implementation. The roadmap should delineate a plan of action that is maintained throughout the process, particularly during the implementation of entitlements, deal terms, financing, design and planning, and the environmental review phase. The road map formalises joint action and party commitments to the project, consequently promoting the sharing of information and resulting in more rational decision making. Furthermore, by establishing milestones and deadlines, the partners can assess the project's implementation status and each party's activities.

Entities within the partnership need also to define the relationships for engagement and the various actors' roles in the implementation of the project. One tool many partnerships have used is the memorandum of understanding, which documents (in a succinct and summary fashion) decision-making processes and relationships between partners. Project roles and responsibilities should also be assigned to entity representatives. To clarify expectations and ensure accountability, partnerships should adopt documentation measures, such as performance standards and clear metrics, for each position. To ensure collaborative decision making, dispute resolution mechanisms should also be incorporated into a contract.

Finally, creating and using mechanisms to allow continuous assessment of the effectiveness of decisions and implementation procedures remain a challenging task. To resolve constraints, such as funding source requirements and bottlenecks in the process, partners need to have the opportunity to modify the process. Furthermore, to incorporate new information and reassessed goals into the process, parties need to allow for incremental "baby step" decision making. To overcome changing conditions, time frames, and conflicts, the process must be inherently flexible.

Doing homework also includes understanding partners' limitations. For example, if part of the deal depends on long-term public investment, having a backup plan may be important in the event that the funding falls through because of budget cuts, changes in administration, or emergencies. One of the great qualities of the PPP approach to development is the tremendous creativity available to solve financial and development problems. The public partner, its public/private finance and development adviser, and the selected private partner require to structure the financing plan that often includes some combination of the following elements:

(i) Leadership creating positive change: It makes a visible difference. It has to do with creating a vision, motivating others to support it, and implementing it. Therefore, leaders must be committed to realising the final goals. The leadership

paradigm has changed considerably in the last 20 or 30 years, from a top-down command-and-obey pyramid to something more flattened out, more democratised. A good leader is a facilitator, a coach, an orchestra leader, an enabler. He/she brings people around the table and helps them move in a given direction. Such a person takes the initiative and does not wait for someone else to do it, and then follows through, tirelessly, patiently, painstakingly, to see the project to completion.

(ii) Leadership to be sustained: Successful leadership persists. It does not grow weary in the middle of a project. It keeps all the parties at the table coordinating their efforts. Transcending administration and political change by maximising opportunities for putting a deal together with one set of public officials makes good sense, as does passing the baton to new leadership in both the public and private sectors, that is, to people who have the same commitment and goals. Just handing off a project will not work. Positive change can be created through leadership.

(iii) Internal communication: Communication is essential to the internal dynamics of a complex partnership structure, allowing distribution of information and implementation of compatible efforts. Initially, the partners should communicate overarching project objectives to find common ground within the partnership. After obtaining consensus on project goals, partners should discuss and agree on strategies to reach those objectives. Communication is central to the PPP process for many reasons, including ensuring a more efficient decision-making process by facilitating the exchange of information, ideas, and needs and creating opportunities for public involvement.

(iv) External communication: Consistent communication with a broad array of actors external to the partnership is integral to ensure widespread support and diverse perspectives within the process. Partners should reach out, listen, and respond to stakeholders and the community, elected and appointed officials, the media, and investors. The partnership should develop a clear and concise concept of the project that can be communicated in a consistent and cohesive voice to these actors.

(v) Making the deal a win-win for all parties: Some general rules to follow in achieving a fair deal structure include the following: (a) principals should spend sufficient time preparing or reviewing a detailed term sheet that should be circulated and agreed to by all parties before documentation begins. A well-thought-out term sheet will assist in surfacing issues that need to be discussed, and it allows legal counsel to reasonably determine the intent of the parties; (b) not letting legal counsel or the documentation process drive the outcome: Only the principals retain the shared vision, understand the risks they are willing to take, and generally are able to keep the transaction on track when the inevitable unforeseen conditions

arise. Transactions fail because the principals either ignore or abdicate their responsibility for supervising the negotiation; (c) when possible, building in objective measures of the expected outcomes that can be used to determine the ultimate fairness of the transaction. (d) Both sides need to hire competent legal and technical counsel; (e) allowing sufficient time for final negotiations and documentation: An immovable deadline, forced compromises may result in lasting resentment by one or both parties. On the other hand, too much time can also result in an unsatisfactory outcome and will usually mean larger legal bills; (f) understanding the long-term nature of the partnership: The public sector is not going away anytime soon, and private developers, even those with short- to intermediateterm investment horizons, are still creating assets in the built environment that should last for generations. The difference in time horizons may require compromise; (g) understanding that compromise is a necessary requirement for achieving a fair transaction: It is not a sign of weakness. Principals are the only parties that can keep the ultimate objectives in mind and know when compromise is appropriate.

Trust is tangible and can be earned through work and commitment to the project. Building trust incrementally through small efforts within the partnership creates a record of small successes that support bigger strides. In other words, success breeds confidence, and confidence breeds trust. Parties begin to build trust in each other's interests, capacity, and diligence toward the project during the selection process. Many approaches exist for selecting appropriate private partners that provide opportunities to verify their qualifications. The Request for Qualifications (RFQ) is submitted by the public partner to evaluate references, track records, and resource capacity. The RFQ provides the public sector with the ability to choose a partner in which it can trust and also helps narrow the list of competitors, particularly if the public partner chooses to invite development proposals by issuing a Request for Proposals.

In sum, for the future development of PPPs, it is critical to: (i) lay the groundwork for a successful joint venture, (ii) develop a shared vision and strategies for implementation, (iii) understand the role of each player and the potential risks and rewards for each, (iv) identify leaders and establish a process for making decisions, (v) create tools for gaining commitment throughout the project, (vi) establish ways for all parties in the partnership to communicate, (vii) negotiate a fair deal that meets the needs of each partner, and (viii) build and maintain trust.

3.3.2.5 Suitable PPP Model for Bangladesh

Many forms of PPP exist around the world and are continuously being developed to suit project characteristics. Main defining feature is the degree of

private control over and involvement in financing. However, there is no unique model. Each project will define what is suitable and what is required. The PPP process is extremely dynamic and the particulars of most arrangements are tailored to the specific circumstances involved. At the same time, many of the individual components used to design and structure specific partnerships (i.e. contract terms, in-kind contributions, financing facilities, or grants) can be used with a number of different PPP approaches. There can, therefore, be no one generic or "best" model of PPP structure, nor does the present exercise make any recommendation as to the suitability of individual model for Bangladesh.

The overall aim of PPPs is, therefore, to structure the relationship between the parties, so that risks are borne by those best able to control them and increased value is achieved through the exploitation of private sector skills and competencies. Under PPP arrangements, private sector contractors become long-term providers of services rather than simply upfront asset builders, combining the responsibilities of designing, building, operating and possibly financing assets in order to deliver the services needed by the public sector. As a result, central and local government agencies become increasingly involved as regulators and focus resources on service planning, performance monitoring and contract management rather than on the direct management and delivery of services. The result is that the public mission is delivered through the private sector. The scope of potential benefit will, however, depend on the type of project being undertaken and the exact terms of the contract governing the PPP. Public bodies have a critical role to play in the management and regulation of PPP during their design, construction and operation, PPPs also require effective contract monitoring procedures to ensure that contractual obligations continue to be met in terms of both quality and timing. It is also essential to recognise that the nomenclature used to describe the partnership process has not been standardised. There are several terms often used interchangeably-turnkey and BOT, for example. There are also single terms that are used loosely and can be applied to situations that are fundamentally different. For example, BOT can be used to describe procurements that involve private financing, as well as those that do not. As such, it is necessary for PPP practitioners to delve beyond the terms and concepts and become familiar with the way in which the partnership process itself works. Indeed, the terminology debate surrounding the definition of PPP categories itself mirrors the evolution of PPP approaches and the evolving regulatory environment defining PPP. For example, the Channel Tunnel-linking France and Britain costing approximately Euro 15 billion, met with considerable delay, cost overruns and financing problems. In a major overhaul of project organisationincreased responsibility was given to the private sector to manage the construction and financing process (Barnier 2003).

The principal criteria for distinguishing concessions from other PPP type structures is the extent of risk transfer to the private party. This criteria will then also allow each type of PPP to be defined and related to the relevant legislation and methods for selecting private parties. While the choice of PPP structures is limitless in terms of financial and legal forms, all PPPs can be defined in relation to the rules governing the choice of private partners and the selection and application of public procurement procedures. As a result, PPPs, whether for works and/or services, are covered: (a) under the detailed provisions of public procurement directives; and (b) by the rules and principles of the contract.

The advantage of the BOT approach is that it combines responsibility for usually disparate functions-design, construction, and maintenance-under one single entity. This allows the partners to take advantage of a number of efficiencies. Firstly, the project design can be tailored to the construction equipment and materials that will be used. Secondly, the contractor is also required to establish a long-term maintenance programme up front, together with estimates of the associated costs. Thirdly, the contractor's detailed knowledge of the project design and the materials utilised allows it to develop a tailored maintenance plan over the project life that anticipates and addresses needs as they occur, thereby reducing the risk that issues will go unnoticed or unattended and then deteriorate into much more costly problems. The benefits of this "life cycle costing" are particularly important as most infrastructure owners spend more money on maintaining the systems than on development. Finally, the life-cycle approach removes important maintenance issues from the political vagaries affecting many public maintenance budgets, with owners often not knowing how much funding will be available to them from year to year. In such cases, they are often forced to spend what money they do have on the most pressing maintenance needs rather than adopting a more rational and cost effective preventive approach.

The public sector awards BOT contracts by competitive bid following a transparent tender process. Tenderers respond to the specifications provided in the tender documents and are usually required to provide a single price for the design, construction and maintenance of the facility for whatever period of time is specified. Depending on the terms of the tender, tenderers may be given some flexibility in preparing payment schedules. Tenderers are also required to submit documentation on their qualifications, thereby allowing evaluators to compare the costs of different offers as well as ability of the tenderers to meet their specified needs. While the potential exists to reap substantial rewards by utilising the integrated BOT approach, project sponsors not accustomed to this approach must take great care to specify all standards to which they want their facilities designed, constructed and maintained. With a BOT approach the public sector relinquishes

much of the control they typically possess with more traditional project delivery, and unless needs are identified up front as overall project specifications, they will not generally be met. An integrated BOT approach alone does not relieve public sector owners of the burden of financing related infrastructure improvements. From design through operation, BOT contracts can extend for periods of up to 20 years or more involving construction and operation of major infrastructure systems, e.g. mass transit systems.

The PPP structures provide new opportunities for the private sector to perform tasks that would otherwise be undertaken by the public sector. However, PPP arrangements can also involve private sector financing for projects that would otherwise be fully financed by the State. These types of PPP arrangements are particularly attractive as they afford all the implementation and operational efficiencies, together with new sources of capital. Access to additional sources of capital allows owners to implement important projects sooner by avoiding the need to wait for future government budget cycles for funding.

The primary vehicle for PPP opportunities involving direct private sector investment is the design-build-finance-operate (DBFO) concession agreement. These agreements enable a private investment partner to finance, construct, and operate a revenue generating infrastructure improvement in exchange for the right to collect the associated revenues for a specified period of time. Concessions can be awarded for the construction of a new asset or for the modernisation, upgradation, or expansion of an existing facility. Concessions often extend for a period of 25 to 30 years, or even longer, and are awarded under competitive bidding conditions. Under a concession approach the ownership of all assets, both existing and new, remains with the public sector. It is their responsibility to ensure that the assets are properly used and maintained during the concession period and that they are returned in good condition when it is over. Concessions are generally awarded based on: (i) the end price offered to users; (ii) the level of financial support required from the government and other grantors; and (iii) ability to implement the project.

Each PPP model has strengths and weaknesses which must be recognised and integrated. PPP does not provide a "quick fix" and should be applied only where suitable and when clear benefits and advantages can be demonstrated. PPP models must be adapted to sectoral and project context. Desired impacts and benefits will influence PPP selection and design. Some of the most important issues that will influence the selection of a preferred form of PPP for projects in the transport sector are the size and scope of the project, the ability to apply user tolls and the extent of risk transfer required. Major and minor roads schemes or mass transit systems are well suited to traditional design and build contracts, as operating costs in a typical

scheme are low when compared to the capital costs of construction. Traditional procurement contracts are essentially an extension of the existing conventional approach, endeavouring to transfer design and construction risk to the private sector through fixed price contracts. In such instances, responsibility for maintaining the infrastructure will remain within the public sector. In some instances, the construction of, particularly a major road scheme, may be funded in part or in whole by user tolls. For example, bridges and tunnels are particularly suited to user tolling where there is a clear benefit to be gained from choosing the tolled route over a different alternative route. In such circumstances, the public sector must decide whether to transfer responsibility for financing the project and collecting tolls to the private sector contractor. Different types of PPP contracts are already being implemented in Europe. Toll motorway concession contracts are suitable where the private sector contractor will finance a major road scheme, collect user tolls and bear the risk associated with traffic demand. BOT contracts are more suitable where the private sector will receive user fees paid by the public sector, but the public sector will finance the project and accept the risk associated with demand. Shadow toll DBFO contracts are likely to be more suitable where the private sector contractor will accept some of the risk associated with traffic demand, but user tolls are not applied. However, there are also a range of disadvantages associated with this approach including the greater level of demand risk retained by the public sector and the fact that as motorists do not pay for the economic cost of infrastructure provision, infrastructure investment may not be rationally allocated. Minor projects are more suited to traditional design and build contracts and are not likely to be suitable for other forms of PPP unless bundled together into a larger contract with a significant operating element.

PPPs have existed in the international water sector for a number of years. The considerations that will shape the selection of a preferred form of PPP for projects in the water sector are similar to those in the transport sector and include the size and scope of the project (including its operational content), the ability to apply user charging and the extent of risk transfer required. The construction of water supply or waste water networks under PPP arrangements is likely to be linked to the level of information available on the extent, composition and performance of existing networks. If information is not sufficient, traditional procurement arrangements may be more suitable. On the other hand, water supply and waste water facilities are likely to be very suited to BOT and DBFO contracts. They may also be suited to concession contracts where there is an opportunity to introduce user charging. However, water supply and waste water facilities are considered to be less suited to traditional procurement design and build contracts as the public sector would retain

the risks associated with operating increasingly complex treatment processes, without having had a role in the design of those processes.

As demonstrated, private outsourcing arrangements have the ability to affect service improvements and gains in operational efficiency. However, their ability to enhance risk sharing or capture more important life cycle costing efficiencies is limited. These latter indicators can be somewhat enhanced with certain types of leases, but the extent to which this is possible depends both upon the required service standards and the duration of the lease agreement. Given that they do not involve private sector capital investment, outsourcing partnerships have no ability to accelerate project implementation or leverage public funds. Therefore, these approaches are best suited to situations where improvements in operational efficiency are desired, but where there is little need for major capital improvements. Like outsourcing, BOT arrangement can enhance both operational and service indicators. In addition, they also bring about extensive life cycle cost benefits. Although certain risk elements are shared, pure BOT structures do not involve private investment and therefore cannot be expected to leverage funds. The BOT approach is appropriate when owners need to embark on new capital projects and hope to achieve greater operational efficiencies. They can also streamline both implementation costs and the implementation process as a whole. BOT projects can prove a useful first step in moving towards future partnerships involving private investment, as they provide the opportunity to demonstrate the types of savings and efficiencies private sector involvement can bring to infrastructure development.

PPPs involving private investment provide the potential to achieve all the cost and operational efficiencies associated with the BOT approach. In addition, the benefits leveraging and accelerated project implementation are also added. As such, investment partnerships have the potential to deliver maximum benefits to the public sector. However, these arrangements also introduce legal and regulatory concerns, and require sophisticated management on the part of the government to ensure that its requirements are met. Therefore, in order to justify the considerable effort involved in resolving such issues, investment partnerships are often best suited to larger and more costly projects.

Successful concessions rely on a series of checks and balances. A well-crafted agreement uses checks and balances to create co-dependence and transparency, while enabling all the parties involved to achieve their goals. Without the participation of any one of these actors it would not be possible to develop these projects on a partnership basis. This reality forces all of the participants to be receptive to the needs of its fellow partners and to work together towards a joint solution and work through new issues as they arise. Partnership is achieved by providing credibility for the private partner risking its money and legitimacy for the

government sponsoring the project. Legitimacy is achieved by ensuring that partnership projects meet the needs of the paying public, produce desired additionalities, and reinforce wider financing goals. It is also achieved by rewarding for the successful negotiation of risk and providing the private partner with a reasonable return on its investment. However, if the rewards are too high then that legitimacy is undermined. Legitimacy is also undermined when investors are more interested in the profits derived from lucrative construction contracts rather than the successful operation of a concession itself once it is built. Achieving partnership also requires strong political support. Moreover, as risks and challenges increase, so must the government's support and commitment (Barnier 2003).

PPPs are defined and governed by a complex interaction of national and municipal legislation and regulation and project contractual documents. This implies contractual and implementation conditionalities. The legal situation in Bangladesh is still evolving. Therefore, full legal due diligence and careful contract design are crucial for all parties. An effective and sustainable institutional structure is essential for promoting and fostering successful PPPs.

3.3.2.6 Way Forward for PPP Development

From the foregoing analysis it follows that the general prerequisites for the success of PPP are: (i) fast growing economy with dynamic and healthy financial system; (ii) stable policy environment, robust legal and business support systems, and institutions guaranteeing rule of law; (iii) large and growing domestic market; (iv) sound economic fundamentals, (v) steady economic reform regime; and (vi) regulatory framework rewarding entrepreneurship and risk taking.

In order to avert risk, it is necessary to remove the perception that public money is diverted through PPP to meet private ends. Three factors are important to highlight in PPP operations: transparency, consultation with stakeholders and sound regulatory framework. In the case of infrastructure projects, PPPs entail higher costs than under standard models (mainly due to higher rate of return demanded by private investors although income risk is borne by the public sector). PPP schemes are of low quality relative to standard model of public procurement. One reason is the central assessment focuses on VFM. The issue is whether guidelines designed are appropriate and correctly applied.

In order to make the way of PPP forward, it is crucially important to: (a) create the institutional framework; (b) open new window: legal basis for project implementation and contract execution, devise ways for independent operation and management outside the purview of public procurement, and install mechanism for accountability, design and planning; (c) formulate policy framework, incentive

packages, and mechanism for implementation; (d) ensure competitive bidding to meet transparency, accountability, and creditworthiness of projects; (e) bring clarity on fiscal incentives, life-cycle, financing requirements and modalities, and project management and operation; (f) involve negotiators with technical knowledge and experience in project design, financing, and management in PPP operations; (g) create bridge between public and private sector interests using incentives and financial instruments; and (h) adopt flexible models and approaches of private participation along with collaborative innovative partnership based processes (Mujeri 2009).

3.4 PRIVATISATION AND PPP INVESTMENT TARGETS AND STRATEGIES FOR THE SIXTH FIVE YEAR PLAN

3.4.1 Privatisation Investment Targets

The government is yet to decide on the privatisation of the remaining SOEs. Privatisation investment targets of the SFYP, therefore, remain contingent upon future government policy towards privatisation of the SOEs.

3.4.1.1 Strategy for Achieving Privatisation Targets

The confusion created around the privatisation policy yet remains to be fully cleared. According to Draft Industrial Policy (DIP)-2009, the present government would not further privatise any operational SOEs and only sick and closed SOEs would be considered for privatisation through PPP. However, things are not yet clear about the government's stand on privatisation. The confusion over the government's privatisation policy should be cleared sooner than later. The Ministry of Industries announces the industrial policy that contains a chapter on privatisation of SOEs and Privatisation Commission (PC). But the PC is under the administrative jurisdiction of the Cabinet Division, which is headed by the Prime Minister. The PC reports directly to the cabinet committee on economic affairs chaired by the Finance Minister.

The DIP-2009 may contain salient features of the privatisation policy and activities of the PC, but the fact remains that the privatisation policy is formulated independently. One such policy announced in 2001 is already in place. Unless and until that is changed through cabinet approval, the provisions of the existing policy would continue to apply in the case of transferring SOEs to the private sector.

One cannot entirely rule out the objectives of the DIP-2009 over privatisation of the SOEs. Because nearly 50 per cent of the SOEs have gone out of operation or could not be re-commissioned after their privatisation, leading to large-scale retrenchment of workers. This is where the government should rather blame its

policy, more than anything else, for such unwanted development. Basically, the government from the early 1980s started privatisation of the SOEs for the purpose of reducing the substantial fiscal burden by offloading mainly the loss-making ones. The privatisation process gained momentum in the early 1990s. But the move to dispose of the loss-making SOEs failed to inspire the private sector's confidence, resulting in the slow progress in the government's privatisation programme.

3.4.1.2 Estimate of Fund Requirements for Implementing Privatisation Programmes

The prevailing government impression is that current private sector environment is not conducive to further privatisation of the SOEs. Therefore, fund requirements for implementing privatisation programmes under the SFYP remain to be estimated subject to final government policy decision on the privatisation of the existing SOEs.

3.4.2 PPP Investment Targets

The PPP concept was added more formally to the Bangladesh Budget, 2009-10. The government for the first time allocated Tk.2,5000 million for PPP initiatives to implement different projects in infrastructure, health and education in the budget for FY2009-10. Three new heads for PPP were: (i) Tk.1,000 million for PPPTA to cover expenditure related to pre-feasibility studies and other preparatory works before asking the private sector to submit their bids for PPP projects, Tk.3,000 million for PPP VGF to attract private initiatives for the construction of power plants, hospitals, schools, roads and highways which are non-profitable but essential for public services, and Tk.21,000 million for creating Infrastructure Investment Fund (IIF) to accelerate the process of investment through PPP, to provide equity or loan to the private investors to ensure government's participation depending upon the type of projects and to extend different financial incentives from IIF to encourage investments. However, the government could not make much progress in finalising the PPP regulations and undertake any projects under the programme.

The Prime Minister's Office (PMO) has finalised a draft Bangladesh Public-Private Partnership Policy and Guidelines replacing the existing PSIG (GoB 10 March 2010) keeping provision for promoting local investors in implementing infrastructure projects each costing up to \$10 million. Provisions for extra and special fiscal incentives have been incorporated in the policy for large PPP projects as well. The PPP policy has redefined infrastructure projects into three categories: large project (above \$10 million), small project (above \$1 million to \$10 million) and very small project (up to \$1 million). The draft policy has included provisions, such as direct negotiation for awarding contract for large projects, exit policy for

investors, PPP budget and Annuity Payment Fund, which, according to sources, is a new concept. At least 16 modalities have been included in the draft to implement projects under the PPP initiatives. According to the draft policy, line ministries and executing agencies will encourage local investors through awareness creation and motivation to participate in infrastructure projects. A target over the next five years is to achieve at least 10 per cent equity to be taken up by local entrepreneurs for large PPP projects and up to 100 per cent for small PPP projects, the draft policy says.

The BPSIG has two types of projects—large projects each costing \$25 million or above, and small projects each costing less than \$25 million. The new PPP policy has proposed to establish a 19-member Public-Private Partnership Council (PPPC) to be headed by the Prime Minister. Most of the members of the PPPC are government ministers including finance, planning, commerce and law. The PPP policy also provides for the formation of a 11-member Public-Private Infrastructure Committee to be headed by the Principal Secretary, PMO. However, only representatives from private sectors have been included in the committee.

The draft policy has included 16 modalities for the implementation of PPP related projects. These are BOT, BOO, BOOT, Capitalisation, DBFO, Securitisation, Build and Transfer, Build, Lease and Transfer, Build Transfer and Operate, Lease Management Agreement, Management Contract, Rehabilitate-Operate-Transfer, Rehabilitate-Operate-Maintain, Service Contract, Supply-Operate-Transfer and Joint Venture Agreement. The policy has underscored the need for a strong role of the Planning Commission in identifying and promoting PPP related projects. A Project Fair shall be organised by the Planning Commission could utilise this fair to introduce PPP projects in the national planning process. It shall present these projects in the fair for the assessment of the investor's interest and will develop a list of potential PPP projects after feedback from the fair.

3.4.2.1 Strategy for the Project Implementation Targets under PPP

PPP is in nascent stage in Bangladesh, and most of the public sector agencies and authorities are not well-equipped with the know-how, analytical capacities and delicate intricacies involving preparation and management of the PPP model. There is urgent need for capacity building of the public sector agencies and the line ministries for management of PPP transactions. This aspect has also been emphasised in the BPSIG. Capacity building would involve training, study tours, research on PPP practices followed in different infrastructure sectors in the country and abroad and dissemination of the research findings to all concerned.

PPP cannot be developed on any standard formula nor can it be copied randomly from other projects or locations. The project context, revenue stream, socio-economic conditions, public sentiments, political situation, and regulatory mechanism are important considerations for crafting effective PPP. The success of PPP lies in determining a comprehensive and integrated vision: developing a workable balance between the roles of the public and private sectors, identifying financing options, ensuring sustained financial support to make the vision a reality, and exploring innovative projects. PPP projects will be very capital-intensive and there is a fear of rent-seeking. Therefore, ensuring competitive bidding process is very vital. A match between asset and liability and cashflow is also crucial. In terms of foreign partners, repatriation of foreign currency may create pressure on the reserve. Reviewing the private partner's financial and technical capacity would be a big job for the government.

A purely public finance approach to implement infrastructure projects has many limitations, such as slow decision-making, inefficient project management, poor operating performance, etc. On the other hand, a purely private finance approach may also cause problems, such as over pricing, unequal service distribution amongst the poor and rich, lack of social and environmental considerations, etc. Instead, by blending strengths of both public and private sectors, PPP modes of implementing infrastructure projects avoid many of these deficiencies. Projects implemented under PPP can increase the VFM spent for infrastructure services by providing efficient, lower-cost, and reliable services.

However, it is important to underline the fact that for successful PPP projects to implement and function, both public and private sectors have to work in a "winwin"environment and should assume full roles and responsibilities in their respective positions. In some cases, contrary to the popular belief, government has a bigger role to play for making PPP projects successful. Experiences with PPP projects have not always been pleasant and there are numerous examples to substantiate this view. Many PPP projects in other countries were either held up or terminated due to reasons such as wide gaps between public and private sector expectations, lack of government commitment, lengthy decision making process, poorly defined sector policies, inadequate regulatory frameworks, poor transparency —just to name a few.

3.4.2.2 Timebound Framework for Implementing the Strategy

The key issues affecting the development of successful PPP schemes focus on four key areas: (a) ensuring open market access and fair competition; (b) protecting the public interest and maximising value added; (c) defining the optimal level of grant financing both to realise a viable and sustainable project to avoid any

opportunity for windfall profits from grants; and (d) assessing the most effective type of PPP for a given project.

Ensuring open market access and competition: A key requirement of public financing is that PPPs should not impact negatively on the operation of open markets nor on the clear and transparent rules of these markets. This issue is particularly relevant with respect to tendering and selection procedures for private partners, the use to which grants are put and the provisions made for renewing contracts (with special reference to the length of concession agreements). While regard must be taken to ensuring that private parties are able to realise financial returns by guaranteeing sufficient opportunity to generate revenues, this must be matched with a concern to avoid the creation of non-competitive or closed markets. An impact is clearly on the designed duration of concession contracts but procurement procedures also must respect the current body of directives and, above all, the principles and rules of the contract setting out the need for open and fair competition, transparency and proportionality.

Protecting the public interest: The objective in developing control mechanisms is foremost to protect the public interest. This manifests itself in many forms and will impact on project design, scope and implementation. Most notably, grants will require the adoption of public norms, quality and performance standards together with effective monitoring and management systems in local public sector partners. There will also be a degree of reassurance obtained at the tender, evaluation and contracting stages including the possibility for grant renegotiation particularly sensitive to sustainable local capacity if required. However, there is also an important role for the public to play and therefore the creation of independent consumer groups and associations acting as "watchdogs" will be encouraged.

Ensuring full compatibility between PPP arrangements and State Aid Rules: Provision of grant financing must be matched to the real need for grants. In particular, care must be taken that grants do not provide an unfair assistance to construction or operation, thereby constituting unacceptable State aid.

Defining the right level of grant contribution: A legitimate concern is to ensure that its grants closely match real needs. This is not only to ensure financial efficiency but also that the maximum use is made of limited funds. A further concern is to achieve an effective balance between the desire to facilitate project realisation and, in the public benefit, to limit the private sector's ability to achieve undue profit from grants. This requires careful calculation of actual financing requirements to achieve project viability. Consideration also needs to be given to avoiding the possibility that grants constitute incompatible State aid.

Selection of the most suitable PPP type: PPP arrangements should not be entered into merely for the sake of undertaking a PPP project. A detailed review of the costs and benefits of private sector involvement versus public alternatives must be undertaken to ensure that a PPP enhances the public benefit. The degree of private involvement needs to be carefully matched to the objectives and needs of the project and the public. Appropriateness, cost, the ability to effectively implement and manage should be the paramount considerations in selecting a PPP structure.

Success and constraint factors: The characteristics of projects, partners and implementation arrangements will create a series of constraints. These must be fully recognised and integrated. A PPP must be regarded as an active partnership requiring a degree of flexibility from each side. However, the extent of flexibility must also be clearly defined to ensure that project boundaries are clearly known. The management of public grants imposes transparent rules on how private sector partners can be selected, how financing can be used and the benefits which parties can expect from the project, together with performance and quality requirements. However, the government also can play a valuable role to play in assisting public beneficiaries to protect the interests of the citizens.

Timing: Successful PPP design requires that all parties are brought together at an early stage. This is particularly important for the government which, because of the need to carefully justify its use of grants, must undertake careful analysis of proposed PPP arrangements to ensure that its objectives are met. Early public involvement and sharing of functions is, therefore, crucial and preferable if a grant is foreseen. Four situations can be considered where timing is a crucial issue in relation to grant attribution: (i) where a PPP exists, (ii) where a PPP is already under negotiation but a grant is required to enable it, (iii) where a grant is awarded and a PPP is entered into, and (iv) where a PPP is desired regardless of grant. In each situation a grant may be possible but certain preconditions must be met allowing the government to satisfy its requirements.

Recognition of grant financing objectives and best use of grant financing: Grant financing, while attractive, carries a number of constraints. Grants have specific financing objectives, conditionalities and limitations. The project and its different partners must be able to effectively integrate and accept these and manage their consequences.

Future requirements: PPPs require substantial reform of legal and financial system to make their application possible. This requires possibly actions to define the role of the public sector, institutional capacity building at all levels including the allocation of qualified and motivated staff to specialised PPP units, reduction of market risk through user-oriented strategic approaches and development of private

sector investment facilitation mechanisms. Additionally, the "paying public" i.e. the consumer, must also be integrated and given the power to influence PPP design and operation. This "bottom up" influence is crucial to the sustainability of the PPP approach and will require coordination with NGOs, consumer associations and the public (Barnier 2003).

Success of PPP projects is based on the existence of: (a) an enormous financing requirement in the environment and transport sectors to upgrade and extend networks in line with the accession requirements and effective service provision; and (b) an equally large financial shortfall in available public funds and the ability of international institutions to cover costs, which requires not only the identification of additional funding sources but also attention to the more effective use of public funds and to increasing their impact. Additionally, there is a growing realisation that cooperation with the private sector in PPP projects is able to offer a number of advantages as the following: (i) Acceleration of infrastructure provision-PPPs often allow the public sector to translate upfront capital expenditure into a flow of ongoing service payments. This enables projects to proceed when the availability of public capital may be constrained (either by public spending caps or annual budgeting cycles), thus bringing forward much needed investment. (ii) Faster implementation—the allocation of design and construction responsibility to the private sector, combined with payments linked to the availability of a service, provides significant incentives for the private sector to deliver capital projects within shorter construction timeframes. (iii) Reduced wholelife costs-PPP projects which require operational and maintenance service provision provide the private sector with strong incentives to minimise costs over the whole life of a project, something that is inherently difficult to achieve within the constraints of traditional public sector budgeting. (iv) Better risk allocation—a core principle of any PPP is the allocation of risk to the party best able to manage it at least cost. The aim is to optimise rather than maximise risk transfer to ensure that best value is achieved. (v) Better incentives to perform—the allocation of project risk should incentivise a private sector contractor to improve its management and performance on any given project. Under most PPP projects, full payment to the private sector contractor will only occur if the required service standards are being met on an ongoing basis. (vi) Improved quality of service—international experience suggests that the quality of service achieved under a PPP is often better than that achieved by traditional procurement. This may reflect the better integration of services with supporting assets, improved economies of scale, the introduction of innovation in service delivery, or the performance incentives and penalties typically included within a PPP contract. (vii) Generation of additional revenues—the private sector may be

able to generate additional revenues from third parties, thereby reducing the cost of any public sector subvention required. Additional revenue may be generated through the use of spare capacity or the disposal of surplus assets. (viii) Enhanced public management-by transferring responsibility for providing public services government officials will act as regulators and will focus upon service planning and performance monitoring instead of the management of the day-to-day delivery of public services. In addition, by exposing public services to competition, PPPs enable the cost of public services to be benchmarked against market standards to ensure that the very best VFM is being achieved. International interest in PPPs is attributable generally to three main drivers: (1) Investment in infrastructure economic growth is highly dependent on the development and enhancement of infrastructure, particularly in utilities (e.g. power, water and guidelines for telecommunication) and transport systems. In Bangladesh, there is an urgent need for new social infrastructure which is seen as the most pressing area for private sector involvement. (2) Greater efficiency in the use of resources – the experience of privatisation has shown that many activities, even those traditionally undertaken by the public sector, can be undertaken more cost effectively with the application of private sector management disciplines and competencies. (3) Generating commercial value from public sector assets-significant amounts of public resources are invested in the development of assets, such as defence technology and leading edge information systems that are then often used for a narrow range of applications within the public sector. Engaging private sector expertise to exploit these assets in a wider range of applications can lead to the realisation of substantial incremental value for the public sector. However, PPP should be regarded as an option amongst a range of possible tools to be applied only where the situation and project characteristics permit it and where clear advantages and benefits can be demonstrated. Indeed, consideration of PPP should not preclude other options including the traditional public-public models.

Anticipated Progress of PPP Implementation under the Present Framework

Best management practice for the proposed PPP Office is effective use of public resources. In this context, special initiatives to involve the private sector under PPP will be taken in order to meet the probable investment gap in infrastructure development and maintenance, alongside the government's investment. It is believed that successful application of PPP concept will open up the door for increased flow of investment from both local and foreign investors. In order to involve the private sector in financing investment deficit, PPP framework is expected to be more transparent and strengthened. The existing PPP framework and

the institutions associated with PPP should be more transparent and should also be strengthened to ensure the success of the PPP sector. At the same time, it is essential to ensure the participation of the government in PPP projects (Ahsan 2009).

There is no unique formula to develop a sound PPP framework. Private sponsors in PPP ventures have a natural tendency to press for deals that effectively privatise the profits while socialising the losses. To guard against such risks, the PPP Office needs to be staffed with technically sound and experienced negotiators. The government will have to be extremely cautious in setting up an outfit for PPP projects. The potential investors must not use PPP projects as a conduit to access public investment without performing and fulfilling their obligations.

Legal Basis for the PPP under the Present Framework

Whether the present regulatory framework is sufficient to make the PPP initiative effective in terms of project processing and financing aspects requires to be revisited. The PSIG issued by the Cabinet Division in 2004 is currently the guideline for implementation of projects under the PPP. This has not been issued under any law passed by the national parliament. As a result, there were doubts and lack of clarity regarding the consistency between PPR-2003 and the private sector project development, approval and financing that are to be implemented under the jurisdiction of PSIG-2004. Later, the PPA-2006 was enacted by the national parliament, which through section 66 incorporated concessions agreement related provision, extended the government's legal jurisdiction to formulate independent PPP guidelines.

In the PPRs promulgated by the government in 2008, rule 129 incorporates various PPP related models. As of now, PPA-2006's section 66 and PPRs-2008's rule 129 may form the legal basis for project implementation and contract execution under the PPP initiative. Therefore, under the present framework infrastructure development activities by the private sector under PPP initiative can be continued. However, the entire procedure should be brought under the purview of a comprehensive framework in order to ensure competent administration, regular monitoring, sound accountability and professionalism, for which independent act and required legal framework must be developed.

At present, projects under the PPP initiative are being financed through IDCOL and IPFF by the government. IPFF is a 5-year term project. Since IDCOL was established under the Companies Act, through it necessary resources can be arranged for financing large-scale projects. However, due to failure to formulate appropriate project proposals by the ministries, divisions or agencies, no initiative was taken to arrange large funds through IDCOL. In addition, there is lack of clarity

and hesitation regarding how the government will finance infrastructure development through the PPP initiative. There is a need for a legal framework for pooling of finances from various sectors (e.g. banks, insurance, pension funds). But, at present, government through IDCOL can provide money (equity or loans) to any infrastructure investment related funds.

Review of Present Guidelines and Dedicated Office for PPP

Project identification, screening, approval, tender floatation, implementation and the required institutional framework and the working procedure surrounding those tasks as covered in the PSIG-2004 deserve closer scrutiny. Under the PSIG-2004, PICOM is responsible for project processing, expediting, monitoring, supervision and expansion activities. The PICOM size, work periphery, institutional framework and organisational structure are found to have some weaknesses and limitations when compared to the guidelines, rules and institutional framework of the PPP policy adopted in other countries, especially that of India and the Philippines.

PICOM is very large in its scope of work and is not appropriate for formulating and implementing PPP projects. The present framework is inadequate for providing incentives and encouragement for project development. For projects being implemented under the present PSIG-2004, a number of committees have been set up, at the relevant ministries, divisions or agencies, for project identification, preparation of pre-feasibility study, recommendation, process of receiving approval from relevant authorities, floatation of tender and work allocation, etc. Other than these there is no institutional framework to communicate and coordinate activities between different committees. These tasks are not executed from a specific location but from different sections, branches or wings of the ministries. As a result, coordination and continuity cannot be maintained. Project approval process is neither organised nor logical. A model template or model contract would help expedite the project approval process. Above all, a dedicated office is required to reinforce PPP initiatives and to execute PPP budget.

To attract additional private investment in the infrastructure sector, it is imperative to take initiative to remove the limitations and weaknesses of PSIG-2004. In order to make the guidelines effective and investment-friendly it must be made concise, precise and simple—similar to the policy guidelines in place in other countries. The undertaking of the PPP initiative by the government in the introductory year of its term in office is indicative of the government's strong commitment in this regard. This will provide positive signal to foreign and national investors and will create conducive investment climate which is a precondition for

achieving the desired goal. The current government will undertake five strategic actions in order to transform the present PPP framework to a fast and attractive PPP initiative which will ensure extensive participation of the private sector in infrastructure development.

The following steps will be taken to amend the PSIG guidelines as well as the framework of PICOM set up under it: (i) reforming the guidelines and institutional framework stated in the present PSIG-2004; (ii) setting up a dedicated unit for PPP budget formulation and implementation; (iii) significant budgetary allocation for the PPP; (iv) providing tax incentive to the investors; and (v) extensive and continuous publicity of the new PPP initiative. Besides, for conducting the necessary amendments to PSIG-2004, a 7-9 member special committee will be formed comprising experts from the private and public sector, investors, specialists, and well educated entrepreneurs. The proposed committee will be involved in reforming the current PSIG, review of legal aspects, and formulation of PPP unit's structure, project proposal processing related standard format template, and model contract document.

Estimate of Fund Requirements for Implementing PPP Projects and Plan Allocation

In the budget for the FY2009-10, Tk.25 billion had been earmarked for PPP projects (Table 3.10)—government partnership in equity and loan assistance to different projects. The budget aims to: (a) identify projects that are sound, viable, and somewhat easy to implement; and (b) adopt some guidelines. For power and energy infrastructure, private partner may invest up to 70-75 per cent of the entire investment. For health, education and social sectors, government may contribute major part of total investment.

In the ADP for 2010-11, the government identified 22 sectors under PPP, including exploration, production, transmission and distribution of oil gas, coal and other mineral resources. Airports and terminals, effluent treatment plants, river dredging, highways and expressways, bridges, tunnels, flyovers, port development (sea, river and land), telecommunication infrastructure, and solid waste management are some of the large projects that are to be considered under PPP. The government proposed PPP projects under three categories: large projects worth more than Tk. 2,500 million, medium projects worth over Tk.250 million and small projects worth Tk.250 million each. The SFYP envisages a total investment outlay of Tk.546,256 million, of which Tk.21,851 million for technical assistance, Tk.65,551 million for Viability Gap Funding, and Tk.458,854 million for Infrastructure Investment Fund (Table 3.10).

(IN MILLION TAKA AT 2009-10 PRICES)				
Fiscal Year	Technical Assistance	Viability Gap	Infrastructure	All Heads
		Funding	Investment Fund	
2009-10 (Base	1,000 (0.04)	3,000 (0.12)	21,000 (0.84)	25,000(1.00)
Year)				
2010-11	1,540	4,620	32,340	38,500
2011-12	2,372	7,115	49,804	59,291
2012-13	3,652	10,957	76,698	91,307
2013-14	5,625	16,874	118,115	140,614
2014-15	8,662	25,985	181,897	216,544
Total Plan	21,851	65,551	458,854	546,256
Outlay				

TABLE 3.10
AN ESTIMATE OF PPP INVESTMENT OUTLAY DURING
THE SIXTH FIVE YEAR PLAN
(IN MILLION TAKA AT 2009-10 PRICES)

Note: Figures in the parentheses are relative weights.

3.5 CONCLUSIONS AND RECOMMENDATIONS FOR PRIVATISATION POLICY AND THE DEVELOPMENT OF PPP

3.5.1 Conclusions and Recommendations for Privatisation Policy

Actually, no effort was made by the concerned authorities to monitor the postprivatisation situation of the SOEs and assist the entrepreneurs concerned to address the issue. The government washed off its hand after handing over some of its lossmaking enterprises to the private sector entrepreneurs, who seemed to be happy to take over enterprises at prices well below their actual market prices. So, if the government pursues the same policy of transferring only its loss-making or sick or closed enterprises to the private sector, the outcome is unlikely to be different from that of the enterprises privatised earlier. Besides, not many private entrepreneurs would be genuinely interested to run such SOEs under joint ownership with the government.

Except for those in the reserved sectors, the government may consider transferring, if not fully, at least partially, the ownership of the profit-earning SOEs to members of the public through the stock market. Such a step would help the government achieve twin objectives of earning a hefty amount and providing a boost to the country's stock market. Moreover, transformation of these entities into listed public limited companies would ensure transparency and accountability in their operations. The stocks of a number of power and energy sector entities in the public sector have been received well by the investors. The government may plan to soon offload shares of the profit-earning Bangladesh Telecom Company Limited (BTCL) and its subsidiary, the Teletalk Bangladesh Ltd., to the general investors.

Since the experience gained from the privatisation programme until now has not been that palatable, the government needs to identify the loopholes in the programme and address them seriously. The PC could be the right body to work on it, provided it hires competent consultants. The government should not emit signals that discourage the private sector from participating in economic activities with full vigour and enthusiasm.

The present privatisation policies can be improved if the terms and conditions of the sale are well-defined and upheld. Discipline in the financial sector is a necessary condition for the success of the privatisation programme. Without financial sector discipline, privatisation may offer avenues for rent-seeking. The tendering process for selling enterprises should be strengthened to attract many potential buyers. The proceeds from privatisation could be used for workers' compensation and labour training. Privatised monopolies have to be well regulated. The issues of time framework, programme effectiveness, and the role of the capital market in the privatisation of SOEs deserve further scrutiny.

Drawing upon the lessons from the past experience, privatisation policy will need to be reformulated in synergy with other policies. Such a policy may contain the following features:

(i) Targeted Sector Policy: Except for the development of selected industries in the backward and disadvantaged regions, targeted policies whereby the government selects "winning" industries and provides them with financial assistance, either directly or through tax incentives or concessional loans, should be avoided. A privatisation strategy of "pick the winners" rests on the mistaken perceptions of the role the government should play in a market economy and on the ability of bureaucrats to perceive the future. There is no reason to believe that the government's ability to make a decision to invest is superior to that of the entrepreneur who places his own money at risk.

(ii) Foreign Direct Investment (FDI) and Technology Transfer: The greatest attractiveness of FDI is that it brings in the latest technology, which is vital for attaining global competitiveness. The policymakers should not consider FDI merely as a means of complementing domestic resources for industrialisation. They should also ensure that the foreign investors bring in new technology. The field survey reveals that difference in the vintage of technology makes a difference in the operational efficiency and performance of the privatised enterprises. A strict screening of FDI will be necessary for that purpose. In other words, permission to foreign investors to do business in this country should be made contingent on their bringing in the latest technology.

(iii) **Competition Policy:** The size of industry and the market structure are issues that should receive important considerations in the privatisation policy. Conceptually, and on grounds of equity, competitive markets and the absence of monopolies and oligopolies are to be preferred. In reality, however, large size connotes efficiency and competitive strength that are deemed necessary to operate in the foreign markets. Bangladesh does not have any competition law or policy, but sooner or later it must have one, if efforts at introducing the competition policy in the World Trade Organization are any indication.

(iv) SOEs and Privatisation: A market economy cannot thrive if there is a large presence of SOEs. The present privatisation policy suffers from a contradiction in that the government wants a gradual transfer of SOEs to the private sector and at the same time calls for raising their efficiency. It is, however, hardly likely that SOEs will ever behave like profit-seeking entities and improve their efficiency. Policy making is a dynamic process, and the objectives and strategies of a privatisation policy keep on changing with time. This is why privatisation policies in Bangladesh were revised from time to time in the past to address problems faced by the country's industrial sector. The existing privatisation policy should be recast in the light of its weaknesses in preventing market distortions and improving operating efficiency of the privatised SOEs.

(v) Deregulation Policies of the Government: The role of the government should be more of a facilitator than of a regulator. Its sphere should be limited essentially to the provision, development and maintenance of essential infrastructure and utilities in which the private sector is unlikely to show any interest. Unnecessary regulations should be eliminated. Regulations that are necessary should be set realistic goals, be implemented more efficiently, and be subjected to periodic review.

In Bangladesh, both policy formulation and policy implementation continue to remain weak. Policy formulation is weak because it is not always based on rigorous and sound analysis. The personnel engaged in formulating the policy often lack the technical skill to carry out the research required to assess the likely impact of alternative policy options. Policies also fail because the institutional arrangements for formulating the overall national economic policies are not always clear. There is a lack of coordination within and among various units of the administrative machinery responsible for formulation of policy. To cite an example, while the MOF formulates the broader macroeconomic policies, the responsibilities for framing sectoral policies are relegated to the line ministries. This points to the pressing need for putting on board an effective coordination machinery across different ministries.

3.5.2 Conclusions and Recommendations for the Development of PPP

The PPP guidelines ought to be prepared leaving enough inducements and also be declared at the soonest to fill the growing investment gap in the economy. However, for successful PPP projects to implement and function, both public and private sectors have to work in a "win-win" environment and should assume full roles and responsibilities in their respective positions. In some cases, government has a bigger role to play for making PPP projects successful. The key roles government should play are to create favourable investment environment under which private sector can benefit from adequate legal and regulatory frameworks, coordinated and supportive regime and suitable concession. A well-structured regulatory framework not only increases the willingness of the private sector to participate in infrastructure development, but also increases benefits to the government by ensuring efficient operation of projects. Sound legal framework is also instrumental in avoiding potential corruption in the PPP implementation process.

Creating enabling environment: A stable and congenial investment environment is of paramount importance for smooth implementation of PPP projects. For a transparent procurement regime, the government should standardise its PPP procurement process, provide general and/or industry-specific PPP guidelines, and standardised tender documents and model contracts for a range of infrastructure sectors. Such measures can significantly reduce not only the tendering costs to the private sector, but also the tender evaluation costs to the public sector. Furthermore, the negotiation time can also be shortened.

Creating a centre of excellence to deal with various counterparties during PPP project implementation has been proved to be useful in Bangladesh as elsewhere in the world. Set up in the 1990s, the Power Cell provided valuable service in selecting, negotiating and implementing IPP projects. A centre of excellence may be created to provide a single-point expert services to the proposed PPP Office in selecting, negotiating and implementing PPP projects.

As the government has now put greater emphasis on PPP projects, setting up a PPP Office immediately will help speedy implementation of these projects. It will also serve as a hub of expertise within the government. Accumulated knowledge from dealing with multiple PPP projects will help the government to avoid hiring costly international consultants in future. One of the important contributions PPP Office can make is helping selection of suitable concessionaire as the success of a PPP project depends largely on the selection of the most capable concessionaire. Such selection process requires a well-structured tendering process, an appropriate concessionaire evaluation method, and a set of well defined evaluation criteria.

From the point of view of investors and lenders, financial viability of a PPP project depends on a number of factors, especially market demand and tariff structure. Several types of government support can make infrastructure projects financially viable. For example, to secure minimum guaranteed revenue from the government is a way for majority of infrastructure projects to mitigate market demand risk. The government can also provide support in the form of the guaranteed minimum revenue, repaying the investors and lenders in the event of project termination due to situation outside their control.

In addition to support through a fixed revenue stream, different types of other financial supports from the government can also increase financial return of a project, which in turn enhance the attractiveness of PPP projects. Direct financial supports may include investment of capital, free use of project sites and facilities, and tax incentives. Financial support can also be indirect, for example, a loan repayment guarantee by the government, which assures that lenders will be fully repaid by the government if the project fails. Other government supports may include foreign exchange rate protection and early completion incentives, etc. Overall, the potential risks of any PPP project needs to be identified thoroughly in order to properly allocate those risks to right parties, and government is one of the most important parties to bear significant risk components in the PPP business. PPPs are not devices for government to develop infrastructure projects by transferring all the risks and how these risks are allocated between the public and private sectors.

Legal, Regulatory and Contractual Structures

Successful PPPs depend on the effectiveness of the national legislative and regulatory structures. Legal due diligence is required to define the constraints to PPP implementation and to define project scope. The effectiveness and impact of a PPP depends, to a large extent, on the regulatory mechanisms used to influence and guide the parties and in particular the private sector decision making process. Due to these critical interactions, it is preferable to ensure the development of effective legislative and regulatory provisions before developing PPP relationships. The analysis of a national and sectoral regulatory framework has four main purposes: (1) to identify elements that could impede private sector participation, affect viability or distort advantages to be gained; (2) to consider the need for restructuring of current operators ahead of a PPP with respect to their legal status and the flexibility of their mandate and articles of association; (3) to identify the need for and design sector specific regulation making private sector participation possible and effective including the development of institutional infrastructure to oversee and regulate

private operators; and (4) to identify which regulations need to be incorporated into PPP contracts, to identify their impact and to identify if safeguards against regulatory risk need to be included. In particular, the following issues must be investigated: (i) legal capacity of parties and legal requirement of the State to provide services, (ii) general legislation allowing or restricting private sector involvement, particularly by foreign companies, (iii) existence and legal basis of cost recovery mechanisms, (iv) ability to provide guarantees, (v) property issues of land and infrastructure. (vi) environmental impact assessment requirements. (vii) land acquisition, (viii) planning permission requirements, (ix) licenses, (x) need for project specific statutory requirements, (xi) potential conflict with directives, (xii) transparency of laws, (xiii) administrative coordination, (xiv) dispute settlement provisions, (xv) forms of possible State financial support, (xvi) competition and antitrust regulations, (xvii) potential impact of employment and social security laws, (xviii) currency and profit repatriation rules, (xix) public sector borrowing restrictions, (xx) tax and accounting liabilities, (xxi) adequacy of selection and procurement procedures, (xxii) legislation governing project agreements and operational issues, (xxiii) property law, (xxiv) intellectual property law, (xxv) transfer of know-how and technologies, and (xxvi) adequacy of oversight and monitoring provisions and authority to regulate services.

National legislative structures will not always be conducive to PPP arrangements, but certain methods can be adopted to facilitate their introduction. They include: (a) choosing a private sector arrangement that reduces risks associated with the deficiencies of the legislative structure, for example, using a fee based management contract for distribution or BOTs for bulk supply, if collection performance or requirements for providing subsidised services pose unacceptable revenue risk to the private partner; (b) choosing a private partner best able to manage legislative/regulatory risk; for example, in the case of adverse foreign currency or profit repatriation rules, contracting local companies may be more viable; (c) incorporating explicit safeguards in contracts; and (d) encouraging the development of effective regulatory and watchdog mechanisms. Experience has shown that early development of conducive and consistent national legislative and regulatory structures greatly facilitates the identification, development and implementation of PPPs. A particular requirement is to establish the roles and responsibilities of all parties and ensure that effective systems are in place to regulate and monitor PPPs to derive the desired VFM and necessary transparency in the implementation. When designing and evaluating PPP projects particular attention needs to be given to the integration of the uncertainties caused by an evolving national legislative and regulatory structure and the reform process affecting the country. Focus should be placed particularly on: (i) the impact of

legislation on the ability to guarantee open and fair competition, particularly with respect to the selection of utility operators; (ii) the potential change in legal status and rights and obligations of parties which includes consideration of potential changes in the ownership of assets; and (iii) the extent and effectiveness of public sector oversight and monitoring regulations and systems in ensuring compliance with contract conditions.

Contracts will define the parameters of the PPP relationship and limit the activities of all parties. Contracts need to provide sufficient flexibility and control to ensure that objectives of all parties are met and that differences can be resolved to the benefit of the project. Keeping things simple is often more effective than being over prescriptive. A PPP will involve numerous parties and therefore a corresponding number of contractual arrangements. While the nomenclature may change, the main contractual documents include: (a) Project Agreement-the main legal document setting out the rights and obligations of the contracting authority and the contractor; (b) Performance Specifications-including all of the technical, financial and service requirements of the contracting authority, must be specifically referred to in the Project Agreement as constituting an integral part and defining the parties obligations in relation to them; (c) Collateral Warranties-providing for direct links between the contracting authority and the individual sub-contractors appointed by the contractor; and (d) Direct Agreements-regulating the relationship between the contracting authority and outside funders. Other contractual documents of importance include: construction and operating contracts and financial security and guarantee arrangements. It is crucial that these documents are prepared with transparency and that clauses are fully understood by the concerned parties.

To safeguard public interest, scrutiny of contractual documents should aim to: (i) safeguard the public interest, (ii) ensure contract fairness, (iii) promote effective regulation and monitoring, and (iv) ensure contractual flexibility to meet changed circumstances. The contract needs to produce conditions of "fairness" amongst the parties which includes an equal distribution of risks and benefits. In particular, price setting mechanisms need to be transparent and equitable, the private sector should not benefit from unreasonable profits, as a result of the grant contribution, and dispute resolution needs to be effective. Promoting effective regulation and monitoring is an overriding requirement to ensure that contract terms are respected and the interests of all parties maintained. Ensuring contractual flexibility to meet changed circumstances covers in particular the transfer of assets from the public to the private sector and hence a significant change in the financial conditions of the project.

Procurement conditionalities of grant providers often represent the main cause for project collapse. A degree of flexibility is required, but the government's
objectives under procurement policy need to be respected. Procurement options will change with accession. The field of procurement is often the one with the greatest scope for conflict and PPP relationship failure, particularly if public bodies with separate procurement procedures are involved. This situation is further affected by the evolving legal and regulatory state in Bangladesh which may lead to uncertainty both in how to structure procurement procedures and who is responsible for what. Above all, it is necessary to bear in mind that the PPP process aims to attract private sector finance and know-how and, in order to maximise the benefits of PPPs, to include this at the earliest possible stage of a project. In this respect traditional procurement rules present a conflict as the private sector, to compensate for early involvement, will require assurances or a privileged position in the implementation stage. This creates public sector concern based on the arguments that: (a) any alternative procurement procedures will leave the public sector open to allegations of corruption, lack of transparency or unfair competition; (b) the regulatory environment does not allow procurement other than that based on competitive bidding; (c) the public sector does not want to be forced into an early relationship when all technical and financial parameters are not known; and (d) the private sector may derive unreasonable profits. Current procurement rules are designed to ensure transparency, open participation and cost effective solutions based on fully specified tender conditions. However, for complex PPP arrangements (particularly complex DBFO and concession projects) this may not prove to be the best option because: (i) these procedures are usually designed to operate under conditions of certainty; (ii) they prohibit extensive informal consultation and communication between the parties (which is essential to the development of partnerships); (iii) they are focused on lowest price whereas PPPs may also target other factors: and (iv) they force tender specifications to be complete and therefore leave little room for variations. Several procurement alternatives are being developed which have minimum criteria based on: (a) tender specifications which state the desired end goal but leave the bidders to propose solutions; (b) strict performance criteria and monitoring systems which bind contractors to their bids; (c) compensation for private sector participation in bids to those not selected; and (d) provisions to renegotiate contract terms over the contract life.

National authorities should aim, as a minimum, to fully integrate and be able to demonstrate the conditions of: (i) equal opportunity for all relevant companies in the same sector; (ii) respect of competition rules in awarding concession; (iii) respect of competition rules in awarding the investment contracts; (iv) respect of conditions of the concession (service to consumers, maintenance, etc.); and (v) absence of disproportionate remuneration on capital. It is argued that the open and restricted tender procedures limit the development of PPPs in two ways: (a) the prospect of

competitive tendering, and hence the cost and uncertainty of contract award, reduces the incentive to the private sector to participate; and (b) the requirement of open and restricted procedures is to provide a fully specified project output against which tenderers compete, principally on price. It is argued that this limits the ability to seek innovative solutions based on a private sector approach and potential efficiency gains that this would entail. The first argument is valid to a degree but can be qualified with respect to the type of PPP relationship targeted. Indeed, it is rare to have a situation where some form of competitive tendering is not involved and is usually only found where a PPP project is being promoted by a private sector party. The uncertainty surrounding competitive tendering can be managed by providing up-front information on the scale of the tender, the scope of evaluation criteria and performance requirements. This can provide an effective guidance to companies on whether tendering is in their interest. In order to avoid a too limited number of tenderers, a degree of market sounding and informal consultation can be undertaken in order to ensure that the planned tender and project will attract sufficient interest. Should this not be the case, this should in itself be an important indicator for project design and appraisal and may require a re-assessment of project parameters. It has been suggested that the cost of tendering, particularly for large complex projects, could be partially covered by contracting authority in order to share the risk associated with the tender process. It is believed that this should be considered only for very large projects where substantial conceptual work is required by tenderers. However, tenderers should be given a measure of intellectual property protection, in that the materials developed in their tenders will not be exploited by any other party. The argument that open and restricted tender procedures limit the ability to seek private sector innovations is valid if the requirement to provide completely specified projects at the tender stage is absolute. This limits competition to the financial considerations.

Internationally, the main drivers behind the use of the negotiated procedure have been the ability to: (a) secure the best VFM; (b) secure the optimum allocation of risk; (c) encourage innovative solutions; and (d) reduce tender or bid costs. If a negotiated procedure is permitted, the contracting authority must ensure that the following principles are clearly adhered to: (i) equality of treatment—this applies throughout the procurement process to the conclusion of a contract and therefore places limitations on the extent of possible negotiations; (ii) transparency—notably in the definition of procedures and publication of tenders in the official journal or adequate alternatives; and (iii) proportionality. In choosing the appropriate procedure, a contracting authority will have regard to a number of factors including: (a) the scope and nature of the project, (b) the degree of precedent available for reference and use, (c) the degree of risk transfer proposed (particularly as regards

statutory process risk), and (d) the role and influence of third party funders. In a DBFO or BOT contract, the case for the use of the negotiated procedure is difficult to make. In addition, there is nothing to prevent a contracting authority from seeking the views of tenderers. Examples of issues on which the views of tenderers should be sought include: force-majeure, intellectual property rights, payment mechanisms and limitations on liability. In the case of a DBFO contract, the contracting authority will be seeking optimal risk transfer in the context of the introduction of private finance. Where the restricted procedure is followed in DBFO projects, it may lead to the pricing of projects based on private sector costs of equity and debt without sufficient scope for innovation and an efficient allocation of risk to the private sector. A contracting authority can improve its judgment on the appropriate allocation of risk through regular and structured market sounding of private sector appetite for various types of project and the spectrum of risks and rewards they represent. Some of the risks which may be difficult to specify in advance in contract terms are: (i) demand or volume risk; (ii) elements of the statutory process risk; (iii) payment structures and mechanisms; (iv) maintenance costs impacted by demand or volume usage; (v) financing proposals; (vi) compensation and termination clauses; and (vii) change of law risks. In the case of negotiated procedure, serious consideration should be given to limiting the areas or scope for negotiation, thereby helping to reduce tender costs and the time expended leading to contract award. Efforts should be made to devise procedures that relate as closely as practicable to the restricted procedure, allowing the necessary flexibility to negotiate only on the key issues.

Institutional Framework

Effective legal, regulatory and contractual conditions are crucial to PPP success but can only exist if supported by an efficient institutional structure which facilitates both PPP development and provides clear boundaries to protect the interests of all parties. Two principal models of institutional intervention exist: the decentralised approach places responsibility at the regional level and within the concerned line Ministries, and a more centralised approach by creating one dedicated national PPP unit. In both cases, successful countries have realised the importance of sourcing high calibre experts to create a nucleus able to drive the process. At the beginning such unit focuses particularly on developing capability, required legal and regulatory structures, market interest and pilot projects in order to test and demonstrate the value of PPPs. As experience is gained, the role of such unit changes to focus on assisting the selection of PPP opportunities, counselling, ensuring VFM, investor attraction and, above all, maintaining political support. Such unit and the public sector in general have a key role to play in creating trust

which in turn allows a reduction in risk and therefore cost, but importantly also the development of effective and sustainable partnerships. Trust must include the open exchange of information, the possibility to have non-conflictual dispute resolution and respect for the objectives of all parties. Trust also implies a strong level of political commitment which must be developed, sustained and communicated by the necessary institutional framework. To this end, experience has shown the value in identifying a "political champion" of PPPs able to provide an effective link between political priorities and institutional structures. Political support should be realistic and practical about what PPP can achieve and how it is to be implemented. This requires institutional structure able and willing to effectively negotiate with the private sector.

An institutional framework is required to allow the public sector to change from being a direct service provider to an independent regulator, manager and monitor. Additionally, it must provide the role of project promoter. All functions require an in-depth understanding of the motives of the private sector and therefore how a balance can be achieved between them and the objective of safeguarding the public interest. Sustainable success of PPPs can be enhanced by including the civil society in the monitoring/oversight structure. Implementation of PPPs as an alternative financing and service provision model must be seen to provide and demonstrate VFM and quality service provision. The public, as paying consumers, are therefore a critical barometer of performance and suitability of PPP implementation and should be integrated into the monitoring process. This implies that PPPs are influenced not only from the top down but also from the bottom up.

Financial and Economic Implications of PPP

PPP projects present a different risk profile to conventional projects. Risk has a direct financial impact on the project as it is translated into financial terms by the private party, i.e. risks (defined as any factor, event or influence that threatens the successful completion of a project in terms of time, cost or quality) are directly translated into financial implications. Risk should be transferred to the party best able to manage it in the most cost effective manner. A prime responsibility of the public sector is to ensure VFM in the PPPs, if compared to traditional procurement methods. The direct relationship between risk and financial implact lies also in the fact that the degree of risk transfer to the private sector will influence the overall cost of the project to the public sector since all risk will be associated with a price premium. Therefore, the objective must be to achieve cost effective risk transfer, not simply risk allocation for its own sake. The objectives of risk transfer include: (a) to reduce long-term cost of a project by allocating risk to the party best able to manage it in the most cost effective manner; (b) to provide incentives to the

contractor to deliver projects on time, to required standard and within the budget; (c) to improve the quality of service and increase revenue through more efficient operation; and (d) to provide a more consistent and predictable profile of expenditure. Several techniques exist to determine VFM—their use should be carefully evaluated against need. Grant financing carries certain risks. The level of grant financing should be carefully matched to ensure that public benefit is maximised and adverse impact on private sector profits is minimised.

Revenue risk is the most fundamental of all unknown factors involved in PPP projects. Revenue flows are generally determined by two factors: utilisation levels, and tariffs. The availability of reliable historic information documenting demand and price elasticity levels varies among different sectors. In the case of road projects, for instance, even with extensive investigation of past traffic trends, forecasts of future growth potential, and surveys of people's willingness to pay tolls, there is always a significant residual risk on the traffic levels that projects will actually attract. This risk is only reduced after a number of years of operation. In order to arrange project financing, certain assumptions regarding usage and revenue levels must be made. Moreover, unforeseen future events can also have dramatic impacts. For road projects, the adequate level of traffic risks to be transferred to the private sector should be carefully analysed. Shadow toll or availability of payment mechanisms should be considered instead of real tolling, which usually does not yield enough revenue to cover a significant proportion of investment costs.

The capital construction cost of any project is one of the fundamental factors upon which financing is based, and when cost overruns are incurred, the financial feasibility of a concession can be jeopardized. Poor project definition, unknown geological conditions, or loosely defined safety specifications can have dramatic effects on capital construction costs. However, these potential problems can be mitigated with the completion of careful engineering studies before a concession contract is actually signed. Construction delays also have detrimental effects on capital costs. Other external factors, such as timely delivery of right-of-way, for example, are more difficult to manage. External forces, such as inflation, economic policy, embargoes, and political conflicts, also have the potential to have dramatic effects on capital costs.

Debt is a defining characteristic of nearly all concessions and, when money is borrowed abroad, foreign exchange fluctuations can threaten project viability. This risk can be exacerbated when government requires that concessionaires obtain a certain portion of their financing from foreign sources. Foreign exchange risk is the greatest when weak currency, e.g. BDT, is involved, putting projects in the country at greater risk. In certain cases, foreign currency risk can be assumed by sovereign

government, export credit agencies, or international financial institutions in order to make concession projects more attractive to private investors.

Although government negotiates contract terms and conditions with the concessionaires, they are not always successful in maintaining their commitments. This is particularly true of tolls and other user fees, which tend to be politically sensitive. This factor was critical to the demise of three out of the four private motorway operators in France. They can have substantial effects on existing concession agreements, and also weaken interest in future projects. Regulatory risk is exacerbated in countries where new and untested laws govern PPP projects. Such risks can be expected to be great in Bangladesh with comparatively little experience in project finance.

Assessments of the inherent strength and stability of local political institutions are common in the investment field and are reflected in bond ratings prepared by internationally recognised rating agencies. As political risk increases, so does the cost of obtaining financing. The long duration of most concession agreements and the common aversion to user fee increases make PPP projects especially susceptible to political risk. This is exacerbated when new government oversees unpopular projects instigated by previous administrations. Political risks are often assumed by host government, but such an assignment can prove less than optimal in the face of lackluster political support for an infrastructure partnership.

A principal objective of the public sector is to protect the public interest and ensure delivery of VFM. Publicly procured and operated projects provide the tax paying public with the ability to control the quality through votes and taxes. The introduction of private operators may reduce this control if effective control or oversight systems are not developed. Along with the development of an effective public sector management and monitoring capability, it is necessary to promote the development of consumer "watchdog" associations and allow for public consultation. This not only creates a direct link with the private operator but also develops a strong sense of consumer ownership or participation in the PPP projects.

Ensuring VFM in a PPP

PPPs should be used only if they provide better VFM than traditional methods. VFM assessment techniques are complicated and require quality data and should be used after careful reflection. However, VFM must be a primary objective in maintaining the public interest. PPPs should only be adopted as a procurement and implementation option if they are reasonably expected to deliver enhanced VFM over traditional methods. VFM is therefore crucial to deciding the suitability of a PPP in general and the suitability of a particular project design. Additionally, given certain restrictions on procurement procedures, the evaluation stage of a tender

becomes crucial in deciding which tenderer is able to offer the best solution, which is a function of VFM provided.

Factors determining VFM will obviously vary from project to project and between sectors. In general, however, PPP will generate value improvements in a number of areas including: (i) reduced life cycle costs, (ii) better allocation of risk, (iii) faster implementation, (iv) improved service quality, and (v) generation of additional revenue. There are six key drivers of VFM in PPP projects including: risk transfer, long-term nature of contracts, the use of output based specification, competition, performance measurement and incentives and private sector management skills.

VFM generation potential should be investigated with particular reference to: (a) the scope of the project including the balance between asset provision and service delivery, (b) the potential for cost effective risk, (c) transfer particularly with respect to demand and residual value risk, and (d) the scope for user charges-third party revenues and alternative asset usage that might reduce project costs. Traditionally, this type of information is gathered from market analysis and reference to previous projects and historical data. However, if these sources prove insufficient or substantial concerns exist, it may be necessary to undertake a shadow bid. This can be done in one of two ways: (i) estimating the cost savings required this involves adding the additional costs of a PPP approach (including the cost of private finance, profit margins, tendering costs and the cost of public sector regulation) to a financial comparator (defined as the comparison of the cost of the preferred PPP tender with the cost of delivering the project through traditional public sector procurement methods) and then making a valued judgement on the potential of the private sector to eliminate these additional costs: and (ii) actual bid -this involves developing an actual bid for the PPP project and comparing it to the estimated cost of traditional public sector procurement costs.

In the case of projects where the public sector is the sole or main funder, a detailed VFM assessment is recommended at the end of the procurement. The assessment should compare the costs and benefits (in monetary and non-monetary terms) of the preferred PPP tender with the costs and benefits of traditional procurement, or under certain circumstances, with other comparable measures. A VFM assessment comprises two key elements: (a) monetary comparison— comparison of the cost of the preferred PPP tender, with the cost of traditional public sector procurement, expressed in terms of discounted cash flows over the life of the PPP contract (the Financial Comparator). Under certain circumstances, other quantifiable measures may be used as the basis for a Financial Comparator; and (b) non-monetary comparison—comparison of all the factors that are difficult to

quantify in monetary terms, but their value to government and the wider public is significant (e.g. speed of project delivery, quality of service, and security of supply).

The monetary comparison could take one of four forms depending on the characteristics of the project. They include: (i) Financial Comparator—involving a comparison of the cost of the preferred PPP tender with the cost of delivering the project (to the standards set out in the initial output specification) through traditional public sector procurement; (ii) best available alternative—for projects where the cost of traditional public sector procurement is difficult to determine, the cost of the preferred PPP tender should be compared with the best available alternative costing; (iii) price benchmarks—involving a comparison of the preferred PPP tender with reliable, comparable and independent price benchmarks or unit costs (for example, standard costs per volume); and (iv) comparable PPP projects—involving a comparison of the preferred PPP tender sitting PPP projects.

The Financial Comparator is a technique employed particularly to assess the VFM provided by a preferred PPP option and selected tenderer. In practice, if the preferred PPP option results in the transfer to the private sector of all services included in the preferred option arising from the project appraisal, the differences between the Financial Comparator and the preferred option will be limited. It should include all risks and the value of any assets made available to the project. Care needs to be taken to avoid double accounting, particularly with respect to public sector costs that would not be part of a PPP contract. The costs expressed in the assessment should be presented in real terms in a discounted cash flow analysis and over a range of applicable discount rates. The Net Present Value (NPV) of the public sector project is compared with the NPV of the PPP option. If the difference in NPVs is positive, the PPP alternative is considered attractive. A further refinement entails making the cash flow calculations stochastic through the use of ranges instead of mean values and the application of Monte Carlo analysis. The result is a probability distribution of the NPV of the PPP option as compared to the public procurement option. This distribution would also indicate the possible spread in the output and again a positive value means the PPP is the more attractive option. The VFM assessment is therefore the fundamental tool in deciding whether or not to proceed with a PPP contract.

Optimising the Grant Contribution

Grant financing can have positive and negative impacts. Grants, like the entire project financing package, should be matched to actual needs. A compromise has to be reached between permitting project realisation, enhancing private sector profit levels and maximising social benefit. An inherent characteristic of grant financing is

that beneficiaries have little incentive to optimise the amount they request. Additionally, application process introduces a certain element of rigidity in that the grant amount is determined at the project design and application stage and is approved before procurement. This together with procurement procedures that do not facilitate price negotiations make it difficult to adapt grants to real requirements unless an effective negotiation phase is foreseen. The overriding consideration must be to match grants to real project needs, thereby avoiding the potential for a "Ferrari syndrome"¹ in which over ambitious or oversized infrastructures designs are financed and implemented. The grant represents the "financing gap" between forecasted revenue generation and required revenue generation. An alternative has been to calculate the Internal Rate of Return (IRR); if this is below an acceptable level, the grant contribution should represent that amount required to raise the IRR to an acceptable level. However, both represent a certain number of difficulties not least of which is the definition of an acceptable IRR and the level of affordability to sustain required user charges and tariffs. Alternative methods include: (i) making a distinction between project types and assigning fixed rates of grant assistance to each; this obviously provides no incentive to optimise grants or undertake financial engineering; (ii) an holistic approach to financing would look at not only the financial analysis of the project but also the financial situation and in particular the debt absorption capacity of the project beneficiary; this would allow a more precise assumption on the amount of debt that a project can assume both with respect to the project viability and the ability of the project beneficiary to finance debt; (iii) greater emphasis can be placed on determining more accurate estimations of the IRR and the ability to pay; both, currently, suffer from a lack of consistent and reliable data which makes benchmarking the figures very difficult; and (iv) a facility that is not sufficiently exploited at this time, due to restrictive procurement procedures, is to allow the private sector. A further element to consider when analysing the amount of effective grant to provide is the potential for conflict with policy and directives on grant.

¹ Venture investments are not success in themselves. Often it is the opposite. When it is the right thing, it is more the beginning than an exit. It has to make 10 to 30 times back on the money, which investors also prefer not to be spent, i.e. the best companies do not need it. So the investor would want to look at his/her business and think conservatively his/her business can be worth that much in 2-7 years (and not by wishing or blue sky analysis). Entrepreneurs that have literally been around a business know that venture funding is only taken when they are certain that the investors will be paid back. It is not free money to explore one's dreams with a Hallmark lesson about failure at the end: More money will not solve fundamental technical, product or people issues, nor buy momentum. For the wrong business, it is a noose. For the right one, it gets one to the real destination as quick as a Ferrari.

Grant financing has strengths and weaknesses which must be integrated into the project. Grants should be used when required and matched to actual project needs. Grants can be delivered in a number of methods depending on required impacts. Grants have a strong conditionalities which may limit their application. The ability to use grants in a PPP depends on the ability to meet conditionalities or provide sufficient safeguards to protect the public interest. The impact of including grants in project financing needs to be carefully evaluated against their strengths and weaknesses. Grants can impact positively on project viability but their use must also be justified in terms of real need. Grant financing has traditionally been employed by the public sector to realise infrastructure requirements which are not financially viable to other sources of financing (due to risk, viability or scale issues), or which present particular social characteristics requiring them to remain in the public domain. As a result, grants may have different financing objectives and implementation procedures to classical commercial sources which in turn creates perceived barriers to successful cooperation between the two. Due to the decreasing amounts of available public finance, there has been considerable pressure to integrate grants into more commercially orientated forms of financing and hence PPP relationships. Deriving the maximum benefit from grant financing requires an identification of their relative strengths and weaknesses. The most commonly cited advantage of grants is the ability to finance projects which would/could not otherwise be financed by commercial sources alone. This is most often the case with "social" infrastructure which does not usually provide sufficient financial viability for commercial financing. This argument is valid provided that the investment costs together with operational and maintenance costs are included and therefore that the investment is sustainable over its useful (financial) life and provides a real social benefit. The use of grants is, arguably, most valuable in co-financing applications where its objective is to increase the financial viability of a project to a level allowing the application of commercial financing. This leveraging function entails the use of grants to reduce the overall cost of the project or to enhance the value of the revenue stream. It is in this field that grants can be applied most intelligently to derive the maximum benefit. Grants can be used directly to finance risk coverage or used as a guarantee mechanism. However, the presence of the grant giving body and the willingness to commit public funds additionally provide the private sector with a certain assurance regarding the seriousness of the project and sponsors. The above two strengths are associated with the "leveraging" effect of grants meaning that the availability of grants is usually conditional upon or enhances the availability of cofinancing or is a facilitator to identifying other sources of funding. In this case, grants have an important and complimentary role to play in PPPs as both tools aim to increase the value and volume of financing. Conditionalities are usually attached

to grants which are often wider than financial conditions. This can have the advantage of accounting for or realising socio-economic externalities particularly if these impinge on project viability and grants pay for them. However, grant financing also has a number of weaknesses which must be recognised if they are to be successfully integrated into the PPPs. Most importantly, grants, in themselves, provide little incentive to efficiency enhancements usually associated with the pressures of commercial financing. Additionally, the availability of free funds can cause a degree of dependency and "crowding out" of alternative sources. A common complaint has been the difficulty and cost of implementing grants which are usually subject to more lengthy and bureaucratic procedures. This has made their integration into commercial financing packages difficult.

Grant financing usually focuses on the provision of services, supplies and works for the realisation of physical infrastructure. It, therefore, intervenes directly on the capital costs side of a project by reducing costs and/or enhancing revenue streams. Grant financing can be used in a number of different ways with the objective of optimising its impact. This objective is driven in part by the fact that the availability of grants is often limited relative to overall financing needs, and that grants should not be seen as an alternative to other sources of financing but rather as a constituent part of a financing package. Alternative applications of grants include (but are not limited to) the following: (i) provision of regular subsidy payments to operational costs, which can be particularly useful in the first years of operation when cash flow is still developing but is not sufficient to cover all costs, particularly the cost of capital: (ii) coverage of financial costs, which can include: reducing the cost of borrowing by effectively "softening" loans, providing loan guarantees, financing risk elements, subsidising taxation payments, and covering exchange rate losses; (iii) subsidising revenue flows, particularly useful if a policy objective is to keep user charges low; however, this should not be considered a permanent arrangement due to the introduction of inefficiencies; (iv) financing the public sector's contribution in-kind; and (v) assisting the financing of the public sector's financial incentives to the private sector. In all cases, it is crucial to assess the real need for grants and to optimise the grant amount relative to this. While grants have many positive contributions, the negative impacts of grants on a project and public financing should not be forgotten.

Managing the PPP Relationship

PPP relationships function when the concept of a partnership between parties is fully recognised. This requires both joint cooperation and an understanding and integration of the aims and objectives of all parties. This interdependency can be demonstrated by a tripod whereby if one leg is removed the structure collapses:

public sector aims to realise cost effective infrastructure and public services. Government aims to assist accession, while private partner aims to realise profit and operational objectives.

These issues are usually raised at the beginning of a project but also during project implementation, particularly with the current trend of privatisation. Methods must be developed allowing the effective integration of public grants into the PPP process focusing particularly on changes to contractual terms between parties. This requires recognition of the fact that as the complexity of PPP relationships increases, the government may find itself no longer in the position of majority financier and therefore imposing its current conditionalities may create inefficient barriers to project realisation. Additionally, the use of grants may also change in terms of what is financed, thereby further removing the government from physical project implementation. In order to define such methods, PPP relationships may be distinguished in terms of changes required to ensure that: (a) no undue financial benefit accrues to the private sector as a result of grant financing; (b) there are clear justifications for the application of grants in particular with respect to demonstrating VFM; (c) there is transparency and fairness in selection and procurement procedures; (d) the government is able to benefit from an early involvement in project design and implementation; and (e) effective monitoring systems and procedures are available.

The pertinent feature of BOT group of PPP relationships is that while ownership of assets and responsibility for funding management remain with a public body, the assets have a private operator who derives financial returns from their operation and hence (direct or indirect) charging of users. As a result, the concerns of undue financial gain and VFM are particularly relevant. While the procurement process can essentially remain the same, the advantage of these relationships is gained through the grouping of contracting, engineering and operational functions to derive life cycle cost benefits. The real issue therefore becomes one of how to design procurement and particularly evaluation procedures to ensure that all efficiencies of the BOT approach are captured. Given the restrictions procedures, some flexibility can nevertheless be introduced either by allowing variant solutions in tenders and/or by placing more emphasis on evaluation techniques which identify the full range of costs and benefits.

This approach allows project beneficiary to organise a tender which takes advantage of life cycle cost benefits resulting from the tender competition while also respecting the need for presenting full technical specifications. To further ensure that the project meets implementation criteria, the government should play an active role in the development of the evaluation criteria (which in itself is a useful analytical tool for project design). Given the time difference between grant

approval and project implementation, such evaluation criteria will also better define the need for grant financing. It is therefore recommended that the results of the evaluation process be integrated into the financing memorandum and the grant adjusted accordingly. This could provide a mechanism to more accurately match grant contributions to actual need. Concerns of undue financial gain to private parties can be addressed by stipulating the expected financial returns to operations either by defining payments to contractors or setting maximum user fee charges. Indeed, it is now common practice to limit user charges and build in incentives for additional profits to be raised through efficiency gains, thereby reducing the burden on fees. The monitoring function is particularly important in this relationship as the public body changes from being an operator to a manager and must therefore develop adequate monitoring and oversight capabilities to ensure that the contractor delivers against contract specification. The existence of these capabilities would allow the government to ensure its VFM, public benefit and monitoring requirements. The government should be present at the evaluation of the private contractor to ensure the fairness of the procedure against specifications.

The comments relative to BOT relationships are also relevant for DBFO and concessions as the public sector entrusts operations to a private party but additionally the financing responsibility is shared in that the private concessionaire brings an equity participation and/or privately identified financing sources. Asset ownership, however, remains ultimately with the public sector. A DBFO must demonstrate the ability to make sufficient financial returns to warrant private financing in a qualified risk environment. This raises the question of the best role for grant financing being either in the realisation of infrastructure or the realisation/facilitation/leveraging of a financing package. Even more so than with BOT schemes, there are efficiencies to be gained by ensuring that funds are pooled and managed by the concessionaire. Due to the implied derogation of responsibility an even greater degree of preparation is required with particular attention to the definition of performance criteria which will both ensure that conditionalities are met but which do not stifle private sector initiatives to enhance efficiencies. The answer to this apparent contradiction may lie in the use of more effective evaluation techniques, notably, the application of a public/financial comparator at project design and procurement evaluation.

An issue which impacts both on private sector participation in projects and the government's ability to approve PPP arrangements is the duration of concession agreements. Private operators will naturally aim to maximise the length of concessions to safeguard their cash flow and the viability of their investment. The government, on the other hand, may aim to promote open competition and fair market access, reduce the possibility of monopolies and ensure the public benefit. A

number of considerations can be taken into account when designing concession agreements both when the government is directly or indirectly involved, including the following: (a) At the tender evaluation stage there must firstly be a clear demonstration of VFM from a concession arrangement which should be a priority factor in approving it. It is argued that currently not enough effort is placed in identifying VFM and where further efficiency gains or cost savings can be achieved; (b) A common complaint of the private sector concerns the perception of fairness of concession tenders: this can be overcome, in part, by increased efforts to publicise the purpose and organisation of tenders and to ensure greater openness and transparency in procedures; it is therefore argued that a perception of fairness will create greater interest in concession tenders and facilitate their organisation on a more regular basis; (c) As a general rule, the lower the amount of risk assumed by the private party and the lower their financial contribution, the shorter should be the concession period: (d) A common tool is to impose a maximum cap on user charges but to support the concessionaires cash flow with subsidies (or shadow charges); while this does not promote the implementation of effective tariff systems or the polluter pays principle, it does allow social considerations to be integrated into the financial implications of concession duration; (e) Another common tool is to separate the concessionaires revenue stream between user charges and an incentive payment relating to cost savings realised through increases in operational efficiency; this allows greater justification for longer concessions because the concessionaire is incentivised to take a long-term operational approach to meet his/her revenue targets; and (f) Several countries have taken the approach that where the former public utility has been privatised and has been awarded the first concession, the period of the first concession should be very short (in the region of 5 years maximum) to reflect the fact that there has been an unfair competitive advantage and that the concessionaire probably received the concession at a very low price. This gives sufficient time for the private sector to analyse the concession and prepare for the next tender and for the former public utility to restructure itself sufficiently to compete in a fair market. The loan agreement fixes the financing parameters and reduces uncertainties for all parties involved. It contains concrete commitments and may serve as a roadmap for the planners.

Implementation Mechanism

A degree of flexibility is required throughout implementation corresponding to the different needs of all parties. However, project structures need to be sufficiently robust to allow effective monitoring and to ensure that the public interest is guaranteed. Indeed, effective implementation structures are a precondition to the allocation of grants. PPP relationships will require changes to the implementation

systems associated with classical grant financed projects. This is primarily because the role and responsibilities of the parties change with increased private sector involvement. The most important of these is the transformation of the public sector role from operator to a management and regulatory function. This requires both the development of effective regulatory systems and monitoring practices. This entails strengthening of national legislative, regulatory and institutional capacities to provide an effective framework for PPPs. Indeed, as PPP relationships become more complex, the VFM and correct use of grants issues extend in duration to include operations over the period of the concession. Therefore, in order to facilitate the approval for grant financing it is proposed to extend the period of active monitoring to the life of the concession (if feasible) and to associate noncompliance or non-performance issues with a disbursement of funds (i.e. approval of the interim payment) or indeed repayment of the grant.

The implementation of any public sector infrastructure project requires a significant level of proactive management of the interface between the national authority and the contractor in order to ensure that the service is provided in accordance with the precise requirements set out in the project. In a conventional project, project management covers the procedures and organisation needed to take a project through the planning, design, procurement and construction stages before handing it over to operational staff to deliver the service. In the context of a PPP project, two separate management processes must be considered: (i) project management-dealing with the development of a project up to and including award of contract, generally along the lines of conventional project management, but with additional expertise reflecting the changed nature of the process; and (ii) contract management-describing the procedures and organisation required to ensure that the appropriate service is provided from the date of contract award to the end of the operating period. In a PPP project that involves a transfer of operating activity to the private sector, contract management extends throughout the term of the contract. The overall objective of contract management is to ensure the actual delivery of a service that represents VFM and typical contract management responsibilities include the ongoing monitoring of performance, the management of change, the authorisation of payments and the maintenance of records and reporting. Contract management responsibilities may also include the discharge of statutory duties in relation to reporting to national authority.

Performance management forms part of the contract management function and relates to the monitoring of service delivery and the assessment of performance relative to the standards defined in the output specification. Since payment for services will be based upon the achievement of specific objectives, this is a critical factor that will determine whether or not the contractor is in compliance with the

contract terms and therefore the amount of payment due. The transfer of risk in the project agreement must be confirmed on an ongoing basis by the performance monitoring carried out. This will ensure that the level of service required by the output specification is delivered. It follows that any failure to implement effective performance monitoring arrangements may result in performance risk reverting to the contracting authority with a consequent loss of VFM. Effective performance monitoring and management of the risk transfer element of the contract are critical from the point of view of service delivery and VFM. Where monitoring shows under-performance by the contractor, the contract manager must ensure that the obligations of the contractor under the terms of the project agreement are properly enforced. The onus on contracting authorities in relation to the effective management of PPP contracts will be critical to ensuring satisfactory long-term service delivery and risk transfer. Performance monitoring will involve a variety of significant tasks. These tasks are usually set out in the project agreement and are likely to include: (i) review and analysis of measurements of specified parameters carried out by the contractor relating to load conditions and the performance of a facility; (ii) review of quality control and quality assurance procedures to ensure that quality systems are in place and effective; (iii) independent monitoring by the contracting authority to verify that the monitoring undertaken by the contractor is accurate and valid; and (iv) independent calibration of measurement equipment used in the delivery of the service to verify its accuracy.

Key issues arising in relation to the contract and performance management of PPP projects will include: (a) identification of the skills and expertise required to effectively manage the implementation of a PPP project and to ensure that these resources are put in place early in the process; (b) ability to ensure effective and non-reversible transfer of risk; (c) impact on contracting authorities of PPP projects in terms of the availability and long-term retention of the expertise and resources needed for contract management; (d) procedures for reviewing PPP projects, especially in the pilot phase, with a view to learning lessons as experience is gained; and (e) nature of the ongoing relationship between the contracting authority and the project funders.

The implementation of public sector infrastructure projects using the PPP approach is intended to deliver cost effective, reliable and timely services at agreed prices and to agreed quality standards, consistent with legal standards, financial probity and management accountability. The success of this process will be significantly aided by the maintenance of a good relationship between the contracting authority and the contractor. The expertise developed by the contractor during the procurement stage should be maintained through implementation and operation in order to ensure consistency of approach and a detailed understanding of

the process. In doing so, care must be taken with regard to the following: (i) Contract management structures should be established during the procurement stage in parallel with the project management function in order to ensure a full understanding of how the specifics of the service and the monitoring systems are reflected in the contract documentation. (ii) Personnel will require a detailed knowledge of contract documentation in order to provide for continuity in achieving effective service delivery. At the outset, it will be necessary for the contracting authority to establish realistic financial and resource budgets to cover the costs relating to contract management and performance monitoring. While arrangements can be made to have these costs covered by the contractor, it is usually considered more satisfactory that each party bear its own costs in order to avoid any possible conflict of interest. In addition, while the PPP approach is designed to allocate risk to the contractor, competent contract management is necessary to ensure that this risk transfer is effective.

It will be important to ensure that such arrangements are properly managed so as not to confuse the respective contractual responsibilities of each party. Underlying these arrangements will be specific provisions in the project agreement to be administered by the contract management team, covering all aspects of service delivery and payment including: (a) output specifications-establishing the required levels of performance and the associated information requirements for judging service performance, all of which must be capable of objective measurement; (b) payment arrangements-enforcing and monitoring the payment mechanism, including the conditions required for the commencement of payment and the basis for ongoing certification (frequency, measurement basis, variations, and specific conditions); (c) financial performance-reviewing the ongoing financial performance and position of the contractor against the forecasts set out in the financial model and enforcing and monitoring any arrangements for revenue sharing or profit capping; (d) monitoring arrangements—involving the defined monitoring obligations of the contracting authority and the contractor, the provision of facilities for monitoring by the contracting authority, and the procedures for determining compliance; (e) security and insurance-monitoring compliance with specific conditions in relation to insurance policies, indemnities, tax clearance certification, safety procedures and systems; (f) management of interactions-managing all of the interfaces between the operations of the contractor and those of the contracting authority; these interfaces may cover network management issues, the effects of new planning and development and the regulation of existing development; (g) dispute resolution-providing mechanisms for problem solving and dispute resolution where and when appropriate; (h) compliance-setting out the arrangements for dealing with non-compliance by the contractor including enhanced

monitoring, proposals for rectification and payment deductions; (i) contingency for default—arrangements to cover default on the part of the contractor where the continued delivery of the service is at risk, including step-in rights; (j) change management—implementing and managing the procedures and protocols for dealing with changing requirements over the life of the project; and (k) end of contract conditions—dealing with maintenance, the condition of the assets at the expiry of the contract period and the ability of the contracting authority to re-tender for the provision of the service. Formal dispute resolution procedures for the efficient and cost effective determination of issues arising during the contract should be put in place as an alternative to legal procedures. The contract manager must endeavour to resolve matters in dialogue and discussion wherever possible. Where this fails and more formal dispute resolution procedures are invoked (such as conciliation, arbitration and litigation), the contract manager should have comprehensive records of all relevant issues and be capable of giving evidence and generally supporting the contracting authority throughout the process.

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Chapter 4

SMEs Development in Bangladesh with Emphasis on Policy Constraints and Financing

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4.1 INTRODUCTION AND OBJECTIVES OF THE STUDY

4.1.1 Aims and Objectives

The major objective of this paper is to critically assess past measures towards institutional financing of small and medium enterprises (SMEs), identify their strengths and weaknesses and recommend measures for improving the financing arrangement for the growth of SMEs during the Sixth Five-Year Plan period. The paper also attempts to assess the refinancing scheme of Bangladesh Bank for SMEs and examine their coverage and efficacy in providing finance to SMEs. The paper recommends ways and means for SME development in general, and strengthening of the financing/refinancing of SMEs in particular.

This paper also attempts to understand the need of women entrepreneurs to access institutional finance and suggest appropriate measures for the Sixth Five Year Plan. More specifically, the paper examines the following in the context of women entrepreneurs: What are the barriers in access to finance? What are the government policies? What policies and programmes have been taken to overcome the barriers? To what extent refinance scheme of Bangladesh Bank addressed the need of the women entrepreneurs? What can be done in the Sixth Five Year Plan to improve access to finance?

4.1.2 Data and Methodology

Within the time and resource constraints, this paper is based on both primary and secondary sources of information. Efforts have been made to access necessary information available in various published and unpublished documents, reports, newspaper articles (e.g., those published in the daily Financial Express), seminar/workshop observations and other documents. Besides, a small sample survey of entrepreneurs was carried out to assess efficacy of various financing and

Bangladesh Bank's refinancing scheme. A perception survey was also conducted to collect insights of conduit banks and other financial institutions about how to improve upon the targeting and coverage of the schemes. The investigations were conducted to officials of commercial banks (private and public), non-bank financial institutions (NBFIs) and the Bangladesh Bank (BB). However, the officials of the banks included largely those of relevant branches who directly deal with SME loans.

The quick survey mainly focused on problems and recommendations towards better running the SMEs in terms of finance. One of the major constraints of conducting the survey was related to reluctance of the banks to provide with the list of concerned borrowers. Moreover, almost none of the enterprises were aware of the refinancing scheme of the Bangladesh Bank. As few banks agreed to provide with the list of borrowers they financed the quick survey suffered from two obvious limitations: first, it was not possible to ascertain whether or not the enterprises surveyed availed the loans under the BB's refinancing scheme. Second, very few women entrepreneurs could be investigated and, as a result, the women problems were largely narrated by the male entrepreneurs. However, the bank officials, incidentally who were all males, were able to explicitly mention major problems related to women entrepreneurships. Hence, a separate focus was given in this study to understand the constraints faced by women entrepreneurs, by conducting in-depth interviews with women associations, women entrepreneurs and bank officials.

Discussions and consultations with the organisations such as SME Foundation, Bangladesh Bank, representatives of chambers and trade associations were also used to supplement and validate the information gathered from primary and secondary sources. Following time and resource constraints and the wide range of SME activities that exist across various locations, it was difficult to adopt a large and scientific survey approach. Nevertheless, attempts were made to include samples over various locations in and around Dhaka City (e.g., Narayanganj, Savar, Tongi and Gazipur) to obtain insights as varied as possible.

Although the study is basically aimed at focusing on SME financing/refinancing in the course of investigations, eventually, some discussions cropped up on aspects related to overall development of SMEs in Bangladesh.

The distribution of sample of entrepreneurs is shown in Table 4.1. In all, we have interviewed 70 entrepreneurs and 18 bank/FI officials (from 17 bank branches). Care was taken so as to include at least a few female beneficiaries in the sample.

The study component of women entrepreneurs was also based on both secondary data and primary data collected through interviews with various

stakeholders. In-depth interviews were conducted by the researcher with 10 women entrepreneurs in SME and 10 officials of financial institutions. Interviews were also conducted with three women entrepreneurs of Women Entreprenuers Association of Bangladesh (WEAB) who had received institutional finance under the refinancing scheme from Micro Industries Development Assistance and Services (MIDAS) and Eastern Bank. Three focus group discussions (FGDs) consisting of 7-8 women in each group were held with women entrepreneurs. Moreover, in order to validate the information gathered from secondary sources and in-depth interviews, discussions were held with officials of SME Foundation, officials of Bangladesh Bank, officials of the research division of Dhaka Chamber of Commerce and Industry (DCCI) and CEO of three well established women entrepreneurs associations. Analysis of various governments national policies has been provided to understand gaps in public policies and highlight the various national commitments made to overcome the constraints of women entrepreneurs in SME. The stakeholders' consultation provided the recommendations for overcoming the barriers faced by women entrepreneurs in SME.

Type of	Ν	N Entrepreneurs by sex			
enterprise		Male	Female	Total	
Manufacturing	30	28	2	30	
		(93.3)	(6.7)	(100.0)	
Service	4	4	-	4	
		(100.0)		(100.0)	
Trading	26	34	2	36	
	50	(94.4)	(5.6)	(100.0)	
All	70	66	4	70	
	70	(94.3)	(5.7)	(100.0)	

TABLE 4.1 NUMBER OF SAMPLE ENTREPRENEURS BY SEX

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. Figures in parentheses represent of row percentages.

4.1.3 Structure of the Paper

The paper is organised in seven sections. Starting with the Section 4.1 presenting the background, objectives and methodology, Section 4.2 presents current status and contribution of SMEs in national economy. Section 4.3 presents the basic characteristics of investigated enterprises such as investment, employment, output, marketing, productive efficiency and aspects related to constraints and potential related to SME loans, including limitations of Bangladesh Bank's refinancing scheme. Section 4.4 begins with an overview of financing and refinancing scheme. It also addresses, based on perception of bank officials, aspects, among others,

problems of loan processing and suggestions for its overcoming. A wide range of issues related largely to overall SME development have also been discussed.

Section 4.5 analyses how public policy could address the constraints faced by women SME entrepreneurs. The barriers in access to finance have been identified based on in-depth interviews with women entrepreneurs, women's associations and financial institutions. Various macro policies and meso instruments related to women's access to institutional finance have been reviewed. A special focus has been given to the refinancing scheme of Bangladesh Bank for women.

Section 4.6 presents an analytical review of access to institutional finance. It discusses aspects relating to alternative modes of institutional finance for SMEs and examines their evolution over time. It also attempts to review the refinancing scheme of Bangladesh Bank with respect to modality of credit disbursement, sectoral coverage and terms of finance including its policy implications. Finally, Section 4.7 draws on the analysis of the survey of enterprises and bank officials and presents policy implications. It also draws on in-depth interviews with women associations, women entrepreneurs and bankers and outlines priority areas for strengthening financial arrangements and enhancing capabilities for women entrepreneurs.

4.2 CURRENT STATUS AND DEVELOPMENT OF SMES IN BANGLADESH

This section aims to provide current status and development of SMEs in Bangladesh. Starting with the definitions of SMEs used by various agencies, the section discusses status of SMEs in terms of number of establishments, employment, their sectoral composition and rural-urban distribution, and the contribution of SMEs in the national economy.

4.2.1 Definition of SMEs

Various definitions of SMEs are used by various organisations in Bangladesh. The definitions adopted by various agencies such as Bangladesh Bank, Bangladesh Bureau of Statistics and Industrial Policy from time to time are considerably different. The differences in definitions used basically stem from considerations of policy making and operational needs by different users. The definitions of SMEs by the Bangladesh Bank and the Industrial Policy (2005) are shown in Table 4.2.

According to Bangladesh Bank (2008), the SMEs are defined as follows:

For manufacturing units

 (i) an enterprise is treated as Small if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is Tk. 50 thousand to Tk. 1.5 crore, with employment size up to 50.

(ii) an enterprise is treated as Medium if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is between Tk. 1.5 crore and Tk. 20 crore, with employment size up to 150 (Table 4.2).

For non-manufacturing enterprises (such as service and trading)

Service units

- (i) an enterprise is treated as Small if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is Tk. 50 thousand to Tk. 50 lakh, with employment size up to Tk. 25.
- (ii) an enterprise is treated as Medium if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is Tk. 50 lakh to Tk. 10 crore, with employment size up to 50 (Table 4.2).

Trading units

- (i) an enterprise is treated as Small if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is Tk. 50,000 to Tk.50 lakh, with employment size up to 25.
- (ii) an enterprise is treated as Medium if, in the current market prices, the replacement cost of its fixed assets (excluding land and buildings) is Tk.50 lakh to Tk.10 crore, with employment size up to 50 (Table 4.2).

In the Industrial Policy 2005, significant changes have been made to the definition. In the case of the manufacturing enterprises, sizes have been defined in terms of the value of the fixed assets, Small defined as those having fixed asset in the range of Tk. 1.5 crore and Medium as being in the range of above 1.5 to 10 crore. In the case of the non-manufacturing enterprises (trading and service), the cut-off line has been identified in terms of employment size-small units having employment size up to 25 and Medium being in the range of 25 to 100 (Table 4.2).¹

While the definitions of SME have changed over time in various national documents, the annual Census of Manufacturing Industries (CMI) conducted by the BBS defines enterprises having 10-49 workers as medium industries, while those having 50 or more workers are identified as large industries. For industrial GDP

¹ Large units are defined as those with fixed capital above Tk.10 crore, while nonmanufacturing Large enterprises are defined as units having above 100 workers (Industrial Policy 2005). In sharp contrast to that used in the CMI, BBS has recently (National Report on the Census of Non-farm Economic Activities 2005) defined enterprises with less than 10 workers as Micro enterprises, while Small and Medium enterprises defined as having 10–49 workers and 50–99 workers respectively. Enterprises with 100 or more workers have been put under the Large category.

data, the medium and large industries are lumped together under Large category. The rest of the industrial units including cottage industries are grouped under the Small category.

Thus, there is no consistent set of definitions that can be used by all relevant agencies, including the financial institutions. If this inconsistency is not removed, obviously, the implementation of SME related programmes will suffer from flaws.² The following discussion including one on current status of SMEs in Bangladesh, however, uses largely the data and definition of BBS.

Enterprise	Definition by					
	Bangladesh Ba	ink	2005 Industrial Policy			
	Value of assets (TK)	Empl.	Value of assets (TK)	Empl. Size		
	(Excl. land/building)	size	(Excl. land/building)			
Small						
Manufacturing	50,000 - 1.5 crore	= < 50	< 1.5 crore	-		
Service	50,000 - 50 lakh	= < 25	-	= < 25		
Trading	50,000 - 50 lakh	= < 25	-	= < 25		
Medium						
Manufacturing	1.5 - 20 crore	= < 150	1.5 – 10 crore	-		
Service	50 lakh-10 crore	= < 50	-	25 - 100		
Trading	50 lakh-10 crore	= < 50	-	25 - 100		

TABLE 4.2 DEFINITIONS OF SMES

Source: Bakht (2008); Bangladesh Bank (Circular 26 May 2008); Ahmed (2008a).

4.2.2 Current Status of SMEs in Bangladesh

The National Report based on the nationwide census of all non-farm economic activities carried out by the BBS in 2001 and 2003 presents data by employment size category (however, without information on the size of fixed assets).³ Information available from this BBS report has been presented in Tables 4.2 and

² As will be seen in section 4, commercial banks were found to have not followed a particular set of definition; rather they arbitrarily use a definition that best suits their respective vision, consequently, making it difficult to monitor the impact of any relevant promotional measures.

³ There are currently 600,000 cottage industries (including handlooms) (BBS 2005, Hasan and Islam 2008).

4.3, the former shown in terms of number of establishment by employment size and the latter in terms of number of employment by employment size.

MICRO, SME & LARGE EN I ERPRISES IN BANGLADESH - 2001/05								
	Micro	Small	Medium	SME	Large	Total	All	
	< 10	10 - 49	50 - 99	10-99	100 +	10 +		
No. of Establishment	3620	76	5	81	6	87	3708	
<u>(000)</u>								
% of total units	97.6	2.0	0.13	2.18	0.16	2.35	100.0	
% of 10+ units	-	87.4	5.7	93.1	6.9	100.0	-	
Sectoral composition (%	of total)							
Manufacturing	12.6	34.8	45.1	35.5	66.4	37.5	13.2	
Trades and Service	87.4	65.2	54.9	64.5	33.6	62.5	86.8	
All	100	100	100	100	100	100	100	
Rural-urban distribution (% of total)						
Urban	35.5	60.1	73.6	60.9	83.1	62.4	36.1	
Rural	64.5	39.9	26.4	39.1	16.9	37.6	63.9	
All	100	100	100	100	100	100	100	

TABLE 4.3 SECTORAL AND RURAL URBAN DISTRIBUTION OF <u>ESTABLISHMENT</u> OF MICRO, SME & LARGE ENTERPRISES IN BANGLADESH - 2001/03

Source: Compiled from Economic Census 2001 and 2003, National Report, BBS, July 2005.

4.2.2.1 Number of Establishment

There are nearly 3.7 million non-farm establishments, of which 13.2 per cent are manufacturing with the remaining 86.8 per cent comprising trade and service units lumped together (Table 4.3). The overwhelming proportion, nearly 98 per cent of all establishments, consists of micro units having less than 10 workers.

If we focus on the 10+ units, small units constitute 87.4 per cent, followed by medium and large units comprising 5.7 per cent and 6.9 per cent respectively. In other words, 81,000 SMEs all together constitute more than 93 per cent of the total 10+ units.

Sectoral Composition

The SME units (categorised in terms of workers, 10-99) numbering 81,000, constitute 2.2 per cent of the total establishments; the remaining only 0.16 per cent are large units. Of the total SMEs, manufacturing constitutes nearly 35.5 percent and trade and service units together constitute the remaining, about 64.5 per cent.

Rural-urban Distribution

An overwhelming majority, nearly 64 per cent of the total number of all the non-farm establishments, is located in rural areas and the rest, about 36 per cent, located in urban areas (Table 4.3). Similar proportions (64.5 per cent for rural and

35.5 per cent for urban areas) are true for micro enterprises. Almost reverse is true for large units; that is, more than 62 per cent of the large enterprises are located in urban areas and nearly 38 per cent located in rural areas. Among 10+ enterprises, SMEs are located in rural areas by nearly 61 per cent and in urban areas by 39 per cent.

4.2.2.2 Employment

Table 4.4 shows employment of micro, SME and large enterprises. As can be seen from the table, nearly 11.3 million employments are generated by non-farm establishments in Bangladesh, of which 73 per cent are created by micro enterprises. Focusing on the 10+ units, small units constitute 35 per cent of the employment, followed by medium and large units comprising 8.8 and 56.0 per cent respectively. In other words, SMEs employ 1.3 million people, constituting 44 per cent of the total 10+ units employment.

 TABLE 4.4

 SECTORAL AND RURAL URBAN DISTRIBUTION OF EMPLOYMENT OF

 MICRO, SME & LARGE ENTERPRISES IN BANGLADESH - 2001/03

	Micro	Small	Medium	SME	Large	Total 10 +	All
	< 10	10 - 49	50 - 99	10-99	100 +		
Employment(000)	8272	1054	263	1317	1680	2998	11270
% of total units	73.4	9.4	2.3	11.7	14.9	26.6	100.0
% of 10+ units	-	35.2	8.8	43.9	56.0	100.0	-
Sectoral composition (% of	of total)						
Manufacturing	18.6	35.5	45.5	37.5	72.1	56.9	31.0
Trades and Service	81.4	64.5	54.5	62.5	27.9	43.1	69.0
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural-urban distribution (%) of total)	<u>)</u>					
Urban	40.0	61.3	73.8	63.8	88.0	77.4	52.1
Rural	60.0	38.7	26.2	36.2	13.0	22.6	47.9
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Compiled from Bakht 2008 (quoted from Economic Census 2001 and 2003, National Report, BBS, July 2005).

Sectoral Composition

Manufacturing constitutes 31 per cent and trade and service (lumped together) constitute 69 per cent of the total employment (Table 4.4). If we focus on units with 10+ units, the table shows that such establishments employ 57 per cent in manufacturing and 43 per cent in trade and service units. Nearly 35 per cent of these employments are due to the small category (10–49 workers), 9 per cent due to the medium category (50–99 workers) and the rest 56 per cent due to large category employing 100 or more workers.

Rural-urban Distribution

The micro units are mainly rural based with nearly 60 per cent of the employment in these units located in the rural areas. The reverse is the situation

with larger-size categories and the share of urban enterprises seem to rise with the size of the establishment. Thus, in the case of small enterprises, the share of urban units in employment is about 61 per cent, while the share is nearly 74 per cent in the case of medium enterprises and 88 per cent in the case of large enterprises.

Focusing on the SMEs taken together, Table 4.4 shows that the share of urban employment is nearly 64 per cent while that of rural employment is about 36 per cent.

4.2.2.3 Size and Structure of Manufacturing SMEs (10-99 workers)

As regards manufacturing SMEs (10-99 workers), the Economic Census 2001 and 2003 indicate that there are nearly 28,000 small and medium manufacturing establishments employing some 644 thousand persons (Table 4.5). In the 10+ size group, manufacturing SMEs account for nearly 88 per cent of the manufacturing establishments, while this is about 29 per cent of manufacturing employment.

Rural-urban distribution

Small manufacturing enterprises are almost evenly distributed between rural and urban areas both in terms of number of establishment (52 per cent and 48 per cent respectively) and employment (51 per cent and 49 per cent respectively). In the case of medium manufacturing enterprises, there is a higher incidence of both urban establishment and urban employment (57 per cent for both counts). Rural location for medium units constitutes 43 per cent in terms of both establishments and employment (Table 4.5).

(10-99 WORKERS) 2001/03								
	Micro	Small	Medium	SME	Large	Total 10 +	All	
	< 10	10 - 49	50 - 99	10-99	100 +			
No. of Establishment								
<u>(000)</u>	440	26	2	28	4	32	472	
% of total	93.2	5.5	0.5	6.0	0.8	6.8	100.0	
% of 10+	-	81.0	7.2	88.2	11.8	100.0	-	
Rural-urban distribution	n (%) of units							
Urban	26.4	51.7	57.0	52.1	79.5	55.4	28.4	
Rural	73.6	48.3	43.0	47.9	20.5	44.6	71.6	
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Size of Employment								
<u>(000)</u>	1506	488	156	644	1580	2224	3730	
% of all	40.4	13.1	4.2	17.3	42.3	59.6	100.0	
% of 10+	-	22.0	7.0	29.0	71.0	100.0	-	
Rural-urban distribution (%) of employment								
Urban	31.6	51.4	57.1	52.8	86.5	76.7	58.5	
Rural	68.4	48.6	42.9	47.2	13.5	23.3	41.5	
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

TABLE 4.5 SIZE AND COMPOSITION OF MANUFACTURING SME (10-99 WORKERS) 2001/03

Source: Bakth (2008) (Quoted from BBS Economic Census 2001 and 2003, July 2005).

Geographical Location of Non-farm Enterprises

Table 4.6 presents information on regional distribution of micro, SME and large enterprises across six administrative divisions of the country. As can be seen from Table 4.6, the highest concentration of SMEs in terms of both number (46.3 per cent) and employment (46.5 per cent) generated by them can be observed for Dhaka division, followed by Rajshahi (25-26 per cent), Chittagong. (12-13 per cent), Khulna (8.3-8.7 per cent), Barisal (3.9-4.0 per cent) and Sylhet division (2.7-2.7 per cent). Thus, Dhaka ranks the top position in terms of industrial location for all enterprise sizes. This is due to obvious reasons, such as availability of infrastructural and other facilities. Instead of Chittagong, Rajshahi ranks next to Dhaka in terms of the choice of the SME location. This is, perhaps, not surprising, with the existence of, among others, the Jamuna bridge, and different types of fiscal and financial incentives provided for the development of export-oriented SMEs, especially in the Northern regions of Bangladesh (See also Ahmed 2008a). In terms of the location of large enterprises, however, Chittagong seems to have been preferred to Rajshahi by the entrepreneurs.

Division	% total						то	F A T
	Micro	o (1-9)	SMEs	(10-99)	Large ((100+)	101	IAL
	Number	Empl.	Number	Empl.	Number	Empl.	Number	Empl.
Barisal	5.6	5.1	4.0	3.9	1.9	1.2	5.5	4.6
Chittagong	18.0	18.6	12.5	13.3	16.2	17.6	18.1	17.9
Dhaka	31.2	32.3	46.3	46.5	62.2	64.9	32.2	38.3
Khulna	15.1	12.9	8.3	8.7	7.7	6.9	14.7	11.7
Rajshahi	25.1	25.7	26.1	25.0	9.8	6.9	24.4	22.8
Sylhet	5.1	5.5	2.7	2.7	2.3	2.5	5.0	4.7
Bangladesh	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	36,20,461	82,72,858	81,573	13,17,088	6,118	16,80,476	37,08,152	11,27,0422

 TABLE 4.6

 LOCATION OF INDUSTRIES BY DIVISION, 2001 & 03

Source: Economic Census (2001, 2003), BBS; Ahmed (2008a).

4.2.2.4 Growth of Non-farm Activities 1986-2001/03

The evidence from data from the Economic Census 2001 and 2003 and the 1986 census (Table 4.7) suggests that there has been a higher growth in large and medium enterprises compared to small and micro enterprises. Large units grew at 7.1 and 5.4 per cent for the number of establishments and employment size respectively. In contrast, SMEs grew at smaller rates, 3.1 and 3.8 per cent for the number and employment size respectively.

Category	Yearly compound growth (%) in					
	No. of establishment	Employment				
Micro (<10)	3.2	2.7				
Small (10-49)	3.0	3.6				
Medium (50-99)	5.9	4.7				
SME (10-99)	3.1	3.8				
Large (100+)	7.1	5.4				

Table 4.7GROWTH IN NON-FARM ACTIVITIES BY SIZE, 1986-2001/03

Source: Bakth (2008) (Quoted from BBS Economic Census 2001 and 2003, July 2005).

4.2.3 Contribution of SMEs in National Economy

As evidenced from the preceding sections, SMEs are undoubtedly quite predominant in the industrial structure of Bangladesh. When micro enterprises included, SMEs comprise over 99 per cent of all industrial units, contributing over 85 per cent of industrial employment (Tables 4.3 and 4.4). Focusing on the 10+ units, small units constitute 87.4 per cent, followed by medium and large units comprising 5.7 and 6.9 per cent respectively. In other words, 81 thousand SMEs all together constitute more than 93 per cent of the total 10+ units. Again focusing on the 10+ units, small units constitute 35 per cent of the employment, followed by medium and large units comprising 8.8 and 56.0 per cent respectively. In other words, SMEs employ 1.3 million people, constituting 44 per cent of the total 10+ units employment.

All these estimates above demonstrate the overwhelming importance of SMEs in the national economy. However, it is rather difficult to provide any precise estimate of the SME contribution to industrial output or national GDP due to lack of relevant data at national level. The recent available estimates obtained from two major micro surveys, International Consulting Group (ICG) study and South Asia Enterprise Development Facility (SEDF) survey, suggest the SME contribution to manufacturing value added to be in the range of 20 to 25 per cent (Ahmed 2008a, Bahar and Uddin 2007, Sinha 2003).⁴ The micro, small and medium enterprises (MSMEs) together employ a total of 31 million people, equivalent to about 40 per cent of the population of Bangladesh, aged 15 years and above. More than three

⁴ Bahar and Uddin (2007) suggest the contribution of SMEs in employment to be 40 per cent. According to a recent study conducted by the Canadian International Development Agency (CIDA), six million SMEs operate in Bangladesh, which contribute about 50 per cent of the country's industrial output, employing 82 per cent of its industrial labour force (quoted in Bhuiyan 2009).

quarters of the household income in both urban and rural areas are provided by the MSMEs (Rahman 2007).⁵

The above statistics demonstrate the enormous importance of developing SMEs for the sake of growth and employment in Bangladesh. The general objective of the Fifth Five Year Plan (1998-2002) was to provide a top priority to the small and cottage sector. For the development of small and cottage industries (SCI), an outlay of Tk. 109 crore was envisaged for the public sector, while Tk.12,266 crore was earmarked for the private sector investment. Of this, the credit requirement was estimated at Tk. 1,280 crore including a foreign exchange component of Tk. 614 crore during the plan period for setting up of small and cottage industries in the private sector. The aim of these allocations was to raise the SCI sector's contribution (to GDP) from 5 per cent to 7.5 per cent by the end of the plan period (2002)⁶ (GoB 1997).

4.3 RESULTS FROM ENTERPRISES SURVEY

As elaborated in Section 1, a brief enterprise survey was conducted during the current study. The issues of enquiries included basic characteristics of the investigated enterprises such as investment, employment, output, marketing, productive efficiency and aspects related to constraints and potential related to SME loans, including limitations of Bangladesh Bank's refinancing scheme.⁷

⁵ Comparative statistics show that in China, the contribution of SMEs is enormous, in the range of 60 per cent in GDP and 92 per cent in employment. In Pakistan, SMEs constitute 60 per cent of the business ventures, but their contribution to the economy is only 15 per cent. In India, SMEs constitute 98 per cent of all industrial units, with their contribution to GDP as 80 per cent (Bangladesh Bank (PAU) 2008, Sinha 2003).

⁶ In spite of many barriers, which will be discussed in the next few sections, it is encouraging to note that in recent time three has been a robust growth of SME activities such as light engineering, dairy, leather goods, wooden furniture, paper and paper products, mineral product, agro-processing, pharmaceuticals, knitwear, and up to an activity to solar panel assembler, arsenic-buster, contact lens producer and generator equipment maker. Product range also varied from power and sun glasses, contact and cornea ulcer lens, automobile filters for world famous brands (e.g., Toyota, Corolla & Nissan), CNG and home products such as leather, Ayurvedic food, beauty products and jute rugs.

The picture was evident in the fourth SME fair in May 2009 at the Bangladesh-China Friendship centre, where there were 94 stalls and 12 pavilions displaying huge type of tremendously glowing SME products.

⁷ Because the sample size was small and the selection of sample was not random, the results from this brief survey are tentative.

4.3.1 Sample Enterprises

Tables 4.8 and 4.9 show size of sample enterprises in terms of employment and investment respectively. In all, we interviewed 70 enterprises, of which 42.9 per cent constitute manufacturing, followed by service industry and trading constituting 5.7 and 51.4 per cent respectively. A large majority of the sample units (81.4 per cent) has employment up to 30, while the remaining 18.6 per cent has employment 30 and above.⁸ In terms of investment, nearly 76 per cent of the sample has investment up to Tk 50 lakh, while the remaining about 24 per cent has investment between Tk. 50 lakh to Tk.100+ lakh.

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 TABLE 4.8

 SAMPLE ENTERPRISES IN TERMS OF EMPLOYMENT

Туре		Employment (No. of workers)					
	Up to 10	10-30	30-50	50+	Total		
Manufacturing	10	8	5	7	30	42.9	
Service	2	1	-	1	4	5.7	
Trading	31	5	-	-	36	51.4	
All	43	14	5	8	70	100.0	
	(61.4)	(20.0)	(7.1)	(11.4)	(100.0)		

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** Figures in parentheses represent percentages.

 TABLE 4.9
 SAMPLE ENTERPRISES IN TERMS OF INVESTMENT

Туре	Investment (Lakh Tk)					%
	Up to 20	20-50	50-100	100+	Total	
Manufacturing	4	16	5	5	30	42.9
Service	3	-	-	1	4	5.7
Trading	22	8	5	1	36	51.4
All	29	24	10	7	70	100.0
	(41.4)	(34.3)	(14.3)	(10.0)	(100.0)	

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. Note: Figures in parentheses represent percentages.

⁸ The problems relating to sample selection have been explained in section 1.

4.3.2 Characteristics of Enterprises 4.3.2.1 Occupation and Workforce

A majority of the entrepreneurs are relatively young, the average age being 42 years. A large majority of the entreprenuers have education up to secondary level (62.9 per cent) and more than 32.8 per cent have above secondary level; only 4.3 per cent are illiterate.

Nearly all (98.6 per cent) of the entrepreneurs have the current SME activity as the major source of occupation (in terms of income), while such SME activity was the major occupation to 55.1 per cent previously (Table 4.10). In other words, more entrepreneurs are finding the SME activity as their major source of livelihood. More than 33.3 per cent of the present entrepreneurs used to be service holders, who previously served in organisations involving mostly in this or similar type of activity (Not shown in the table).

Occupation	Major occupation					
	Now		Be	efore		
	n	%	n	%		
SME/activity	69	98.6	38	55.1		
Agriculture	-	-	1	1.4		
Communication/Transport	-	-	1	1.4		
Service	-	-	2	2.9		
Service holder	1	1.4	23	33.3		
Self-employed	-	-	4	5.8		
All	70	100.0	69	100.0		

TABLE 4.10MAJOR OCCUPATION OF ENTREPRENEURS

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** Major occupation refers to in terms of income.

The average size of workforce per enterprise estimates as about 16.9. The urban-based sample enterprises are dominated by permanent type of employment (88 per cent), while family and casual type constitute only 9 and 3 per cent respectively. Skill level of workers is a common concern to SME enterprises. Skilled workforce of our sample enterprises constitutes nearly 36.8 per cent, while the remaining 63.2 per cent are unskilled (Table 4.11).

Туре	No. of	Skill composition (no. of workers)		
	workers	Skilled	Unskilled	
Family	108	38	70	
	(9.1)			
Casual	36	-	36	
	(3.0)			
Permanent	1042	398	644	
	(87.9)			
All	1186	436	750	
	(100.0)	(36.8)	(63.2)	
Average size	16.9	6.2	10.7	

TABLE 4.11 DISTRIBUTION OF WORKFORCE BY TYPE

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Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** Figures in parentheses represent percentages.

4.3.2.2 Investment and Output

Table 4.12 shows investment level of sample enterprises. On an average, the sample SMEs have an estimated investment of Tk. 16.3 lakh in fixed capital and Tk. 24.3 lakh in working capital, the total capital amounting to Tk. 40.6 lakh. The working capital estimates as 1.5 times the fixed capital. The highest capital is required by service industry, Tk. 68.7 lakh, followed by Tk. 53.1 lakh and Tk. 27.0 lakh by manufacturing and trading enterprise respectively.⁹ Obviously, the trading units require lowest amount of fixed capital (Tk. 1.6 lakh), however, requiring the highest amount of working capital (Tk. 25.4 lakh).

TABLE 4.12AVERAGE INVESTMENT BY ENTERPRISE TYPE

Type of	n	Ave	erage investment (000	Tk.)
enterprise		Fixed capital	Working capital	Total
Manufacturing	30	2,921	2,390	5,312
Service	4	5,193	1,675	6,868
Trading	36	157	2,539	2,696
All	70	1,629	2,426	4,055

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

⁹ One has to be careful in using these estimates as the sample size was small and the selection of sample was not random. Incidentally, our sample of service enterprises (e.g. clinics) consisted of a few outliers in terms of fixed capital component.

Of the 70 sample enterprises, only two are export units, which means that most of the units under investigation produce items for domestic use only. Average value of annual gross output for manufacturing estimates as Tk. 60 lakh, while that for service industry estimates as more than double, Tk. 124.7 lakh. The gross value of annual turnover for trading units under investigation estimates as Tk. 8.6 lakh (Table 4.13).

TABLE 4.13 AVERAGE ANNUAL GROSS AND NET VALUE OF OUTPUT/TURNOVER BY TYPE (2008-09)

Type of product	n	Average annual gross output/turnover (000 Tk)			Average annual income
		Local	Export	All	(000 Tk)
Manufacturing	30	4,421	1582	6,003	716
Service	4	12,472	-	12,472	1,091
Trading	36	859	-	859	294
All	70	3,008	719	3,727	520

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

Note: Annual income represents approximate figures, net of all costs but before tax.

Average annual income (before tax) for manufacturing units estimates as Tk 7.2 lakh, while that for service industry estimates as Tk 10.9 lakh; for trading units, average annual income estimates as Tk 2.9 lakh.

4.3.2.3 Productive Efficiency of the SMEs

It is important to examine the efficiency levels of the SMEs in resource use (i.e. factor intensity) and their potentials for contributing towards industrial development (i.e. factor productivity). Tables 4.14 through 4.17 present some preliminary analysis on aspects related to productive efficiency of the SMEs in Bangladesh.¹⁰ Some results on large firms are also shown for comparison (available, based on BEI survey, quoted in Ahmed 2008a). Most of the estimated indicators indicate that the SMEs as a whole are more efficient users of resources (except for capital labour ratio) and also economically more productive than their large counterparts. This tends to suggest that the SMEs should receive greater allocative priorities in case a choice between SMEs and large industries is taken.

¹⁰ One has to be careful in using the results as this brief survey (with a small sample) is not expected to provide precise estimates for the relevant indicators.

	,	,		()
Туре	Average Investment [Fixed + Working (excl. land & building) (000) Tk]	Annual gross output/turnover (000 Tk)	Annual income (000 Tk)	Average Employment
Manufacturing	5,312	6,003	716	28
Service	6,868	12,472	1,091	35
Trading	2,696	859	294	6
All	4,055	3,727	520	17

 TABLE 4.14

 AVERAGE INVESTMENT, OUTPUT, INCOME AND EMPLOYMENT (2008-09)

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

TABLE 4.15CAPITAL LABOUR RATIO (000 TK)

Туре	F. Capital/Labour	W. Capital/Labour	T. Capital/Labour
Manufacturing	104.3	85.4	189.7
Service	148.4	47.9	196.3
Trading	26.2	423.2	449.4
SMEs	95.8	142.7	238.5
Large (1)	NA	NA	60.3

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** (1) drawn on BEI survey, quoted in Ahmed (2008a).

TABLE 4.16OUTPUT LABOUR RATIO (000 TK)

Туре	Gross Output (Turnover)/Labour	Gross income/Labour
Manufacturing	214.4	25.6
Service	356.3	31.2
Trading	143.2	49.0
SMEs	219.2	30.6
Large (1)	NA	15.0

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** (1) drawn on BEI survey, quoted in Ahmed (2008a).
ne

 TABLE 4.17

 CAPITAL OUTPUT RATIO

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS. **Note:** (1) drawn on BEI survey, quoted in Ahmed (2008a).

4.3.3 Aspects related to SME Loans

4.3.3.1 Size of SME Loan and Use

An overwhelming number (59 out of 70, i.e. around 84.3 per cent) of sample enterprises took loans from various commercial banks (Table 4.18).¹¹ On an average, the amount of last loan taken by our sample SMEs is in the range of Tk 910,000. The service units took the highest amount of loan (Tk. 1475, 000) followed by Tk. 1065,000 taken by manufacturing and the lowest, Tk. 747,000 taken by trading units. It is encouraging to note that almost the entire loan amount (97 per cent) was invested in respective enterprises. The interest rate was between 14 and 16 per cent. Almost all enterprise types needed collateral except for some trading and service units for which reportedly hypothecation served as collaterals. Guarantors were needed for 55 out of 59 enterprises. It took, on average, 41 days to process a loan application.¹² Then it took around two weeks to actually get the loans (Not shown in table), whereas the total frequency of visits for getting loans from the banks was around 17.¹³ In contrast, as will be seen later in this section, a trading enterprise can receive loan up to Tk.5 lakh in 24 hours notice from what are called multi-purpose organisations (sort of NGOs) on production of shop's lease deed with

¹¹ This finding should not be generalised as the selection of sample was not random. A study by SEDF (2006) (quoted in Rikta 2007) demonstrates that about two-thirds of the SMEs did not approach banks for working capital loans.

¹² A survey of SMEs reported that the entrepreneurs had to visit, on average, 15 times for one loan from the bank, whereas the frequency of visits for getting a loan from informal money lender was 3; the frequency was 2.5 for associations, and 2.25 for relatives and friends (Choudhury and Raihan 2000).

¹³ This represents banks other than the BRAC Bank, the bank which usually goes to entrepreneurs' doorsteps to offer loans. It is gathered that for the BRAC Bank, the frequency of visits is in the range of 10 (6 for bank people plus 4 for borrowers).

one guarantor in the form of a certificate from the market association concerned (See section 4.3.3.5).

Working capital	n	Amount of loan (000Tk)	% invested in this enterprise	Cases guarantor needed	Cases collateral needed	Annual interest rate (%)	Repayment Schedule (av.no. of installment)	Av. days taken to process applicatio ns	Required no. of visits to banks ⁽¹)
Manufacturing	21	1,065	96.9	19	12	14.5	38	42	12
Service	4	1,475	96.7	4	1	16.3	33	32	15
Trading	34	747	97.6	32	22	15.3	22	42	14
All	59	910	97.2	55	35 (2)	15.1	29	41	17 ⁽¹⁾

TABLE 4.18 SIZE OF LAST SME LOAN AND ITS USE

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

Notes: (1) This represents banks other than the BRAC Bank, the bank which usually goes to entrepreneurs' doorsteps to offer loans. It is gathered that for the BRAC Bank, the frequency of visits is in the range of 10 (6 for bank people to entrepreneurs plus 4 for borrowers to banks).

(2) Some banks (e.g. BRAC Bank, Anonno; Prothoma programmes) do not require collaterals under a few specific programmes.

As regards repayment schedule, average number of monthly installments of our sample borrowers was 29. It is encouraging to note that 58 out of 59 units (98.3 per cent) paid their installments solely from income of the enterprises (not shown in the Table).

4.3.3.2 Financing Working Capital

While SME loans are largely meant for meeting the needs of working capital, available information presented in Table 4.19 demonstrates that such amount of loans meets the demand for only less than one third (30.7 per cent), while most are met from own source, by 65.3 per cent. The remaining amount (4.0 per cent) is met from other bank loans, friends/relatives and sources such as NGOs. This implies that loan size is inadequate in comparison to their requirement. In terms of number of enterprise, 59 out of 70 SME units (i.e. more than 84 per cent) received some amount of loans from the commercial banks, while almost all (98.6 per cent) have to put in some additional amount from own sources to meet the required working capital. A little more than one fifth of the enterprises (20.0 per cent) received loans also from either NGOs or friends and relatives, while 5.7 per cent received loans from other banks as well.

Source of loan	No. of enterprise	% of total no.	Average amount (Tk)	% of total amount
SME loan	59	84.3	745,357	30.7
Other bank loan	4	5.7	41,157	1.7
NGO/Cooperative loan	9	12.9	14,929	0.6
Loan from friends/relatives	5	7.1	41,571	1.7
Own source	69	98.6	1,583,014	65.3
All	70	100.0	2,426,029	100.0

TABLE 4.19 AMOUNT AND SOURCE OF FINANCING WORKING CAPITAL

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

4.3.3.3 Problems Encountered during the Process of Getting Loans

The major problems generally encountered during the process of getting loans (as reported by the entrepreneurs) are summarised in Table 4.20. The key problems are:

- Difficult to find guarantor;
- Too many documents required to process which makes processing lengthy and complex;
- Repayment schedule unfavourable/repayment immediately after taking loans difficult;
- Interest rate is high;¹⁴
- Loan size is inadequate;
- Collateral based lending procedures are complex;
- Inability to prepare project proposals for seeking institutional finance.

¹⁴ Informal discussion reveals that interest rates charged by banks are not only high but also not transparent. Sometimes, significant difference exists between stated rates and rates actually charged. It appears to be not understandable to some entrepreneurs when this becomes yet higher when amount is compounded through accounting quarterly. This way, reportedly, interest rate of the BRAC Bank becomes as high as more than 22 per cent.

Problems	n	%	Rank
Too many documents required to process	52	14.9	2
Loan size inadequate	48	13.8	5
Duration too short/repayment schedule unfavourable/repayment before generating any cash flows	51	14.7	3
Interest rate high	50	14.4	4
Complex/lengthy procedures/methods	7	2.0	10
Unofficial payments required	5	1.4	11
High administrative costs	11	3.2	9
Difficult to find guarantor	53	15.2	1
Requirement of collaterals	34	9.8	6
Inability to prepare project proposals	22	6.3	7
Biased towards trading rather than manufacturing	13	3.7	8
Loans not available for twice to the same person	2	0.6	12
All	348	100.0	-

TABLE 4.20 PROBLEMS GENERALLY ENCOUNTERED DURING THE PROCESS OF GETTING LAST SME LOAN

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Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

4.3.3.4 Methods Suggested to Making Loan Process Easy

The methods generally suggested to making the loan process simplified are summarised as follows:

- Only trade license/lease deed should be considered adequate for loan processing
- Abolish mortgage system.
- Processing without guarantor altogether.
- Location, experience and goodwill of business should be considered.
- One guarantor should be considered to process.

METHOD SUGGESTED TO MAKING LOAN PROCESS EASY							
Ways	n	%	Rank				
Only trade license/lease deed should be	38	30.4	1				
sufficient to process							
One guarantor should be considered to process	12	9.6	5				
Processing without guarantor altogether	15	12.0	4				
Location, experience, goodwill of business	30	24.0	2				
should be considered							
Abolish mortgage system	19	15.2	3				
Abolish system of taking photo of	3	2.4	7				
business/mortgaged land							
Genuine business should be considered	6	4.8	6				
Abolish system of PIN/ID/passport	1	0.8	8				
Abolish system of lien of FDR	1	0.8	8				
All	125	100.0	-				

 Table 4.21

 METHOD SUGGESTED TO MAKING LOAN PROCESS EASY

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

4.3.3.5 Major Constraints of SME Financing and Development

A long list of current operational bottlenecks impeding the growth and development of SMEs, as reported by the entrepreneurs, can be furnished. Of this, a few are presented. Lack of running capital, high production costs/low profits, lack of access to finance, inadequate loan size, infrastructural bottlenecks (especially unreliable access to gas, electricity), problem of loan repayments before generating any cash flow, low levels of know-how, lack of marketing facilities and regulatory barriers are some of the pressing problems, as cited by the SME entrepreneurs. Unfortunately, the female entrepreneurs appear to be the most sufferers in access to finance. The major constraints of SME financing and its overall development are highlighted as follows:

- Lack of running capital
- High production costs/low profits
- Lack of access to finance
- Inadequate loan size
- Problem of repayment before generating cash flows
- Low production due to shortage of fuel/electricity
- Low profit due to domestic competition/lack of marketing/infrastructure facilities
- Procurement/lack of domestic raw materials
- Lack of information on technical and marketing aspects of SMEs
- Women have little access to financing/refinancing

Women find it difficult to comply with collateral requirements.

As asserted by the entrepreneurs, other constraints to the development of SMEs are lack of access to information, technology and know-how, absence of training facilities, lack of skilled workers and poor research and development (R&D). Improvements in these and other certain areas can provide genuine incentives to SMEs and contribute to their growth and competitiveness. According to the entrepreneurs, the provision of improved infrastructure, transportation facilities and better law and order conditions are prerequisites for promoting and fostering investments in SMEs.

As regards the export features, SMEs are rarely aware of available export incentives. On top of that, the existing system of export incentives is much complex to be availed of by them (See also Hossain 1998). The linkage of the export sector with the domestic economy has to be promoted. SMEs will be in a good position to supply the parts and components or even subcontract the final output to the exporters. Import substitution is a potential area the SMEs are contributing. The Dolaikhal workshops are good examples which are tremendously contributing to this. However, as the entrepreneurs emphasised, intuitional support has no option in this respect.

4.3.3.6 Suggestions for Overall Improvement

The following major suggestions were put forward by the entrepreneurs towards improvement and effectiveness of SME financing scheme (Table 4.22):

- Lower the interest rate
- Increase loan size
- Make repayment schedule easy (Make first repayment after 3-4 months)
- Waive the condition of obtaining guarantor
- Loans should be provided to appropriate persons
- Waive the condition of obtaining collateral
- SME schemes should take roles in creating markets of produced goods
- Close supervision/advice from sponsors needed over the undertaken activities/projects
- Impart training on business management
- Simplify loan procedures/methods

FINANCING AND OVERALL SME DEVELOPMENT							
Recommendations	Ν	%	Rank				
Increase loan size	48	12.8	2				
Make repayment schedule easy (first repayment after 3 months at			3				
the least)	47	12.5					
Lower the interest rate	49	13.0	1				
Simplify loan procedures/methods	23	6.1	7				
Lower the administrative costs, especially for small loans	9	2.4	12				
Waive the condition of obtaining guarantor	45	12.0	4				
Waive the condition of obtaining collateral	32	8.5	6				
Waive the condition of obtaining trade license/certificate from			12				
DoE	9	2.4					
Accept guarantors in stead of collaterals	2	0.5	17				
Impart training on business management	20	5.3	8				
Loans should be provided to appropriate persons	39	10.4	5				
SME scheme should take roles in creating markets of produced			10				
goods	12	3.2					
Close supervision/advice from sponsors needed over the			9				
undertaken activities	19	5.1					
Impart training on technical know-how	2	0.5	17				
Make loans more available to manufacturing units	1	0.3	20				
Create institutions to back up entrepreneurs for technical support	5	1.3	14				
Reduce loan ceiling below two lakh Taka for the benefits of			13				
small enterprises	7	1.9					
Women should get higher priority for receiving loan	1	0.3	20				
Small units deserve short term loans on easy conditions/without			17				
collaterals	2	0.5					
Establish industrial park through locating a cluster of activities	2	0.5	17				
Enhance subcontracting facilities ¹⁵	1	0.3	20				
All	375	100.0					

TABLE 4.22 RECOMMENDATIONS TOWARDS IMPROVEMENT AND EFFECTIVENESS OF FINANCING AND OVERALL SME DEVELOPMENT

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

4.3.3.7 Perceptions of Entrepreneurs on Overall Achievement of SME Financing

During our brief survey, the respondent entrepreneurs were asked to rate achievement of SME financing, at its current state, in respect of contribution to some areas of achievements. The score for assessment starts from 0 (no achievement) to 5 (maximum achievement). In all, eleven areas of impacts

¹⁵ For example, one enterprise under investigation, producing cloth labels, located in Panchabatti, Narayanganj finds it enormously difficult to keep production liaison with an export-oriented enterprise producing clothes, located in Siddirganj, far off from Narayanganj.

(however, not mutually exclusive) were identified as (1) employment (2) income (3) poverty aalleviation (4) skill/technological development (5) innovation (6) private sector development (7) export sector development (8) import substitution (9) increase in use of domestic products (10) enhancement of product quality and (11) enhancement of productivity.

Table 4.23, which is self explanatory, presents results of assessment of achievement of SME financing scheme, at its current state. As can be seen from the table, the overall achievement of the SME financing estimates as 61 per cent. A substantial number of 0 score (no achievement=169) and 5 score (maximum=273) were given to some of the eleven areas of assessment. It is revealed that the maximum score rate has been assigned to increased income opportunities (98 per cent), followed by 92 per cent to poverty alleviation, 86 per cent to employment generation and 88 per cent to private sector development.

The relatively lower scores were given to import substitution (53 per cent), skill/technological development (26 per cent), export sector development (27 per cent) and lowest to innovation (8 per cent).

ALSI LOT OT SELECTED CATERIA								
Contribution to	0	1	2	3	4	5	Total respondents	Overall assessment (%)
Employment generation	-	-	6	5	13	35	59	86
Income generation	-	-	-	-	7	52	59	98
Poverty alleviation	-	-	1	5	12	41	59	92
Skill/technological development	27	4	17	7	1	3	59	26
Innovation	47	3	8	-	-	1	59	08
Private sector development	1	-	1	6	16	35	59	88
Export sector development	36	2	3	7	4	7	59	27
Import substitution	19	3	7	2	8	20	59	53
Increase in use of domestic products	12	1	5	8	7	26	59	65
Enhancement of product quality	14	1	5	7	5	27	59	63
Enhancement of production	13	2	4	7	7	26	59	64
Total score	169	16	57	54	80	273	649	61

TABLE 4.23 EVALUATION OF SME FINANCING SCHEME, AT ITS CURRENT STATE, IN RESPECT OF SELECTED CRITERIA

Source: SME Background Study: Entrepreneurs Survey 2009, BIDS.

Note: Evaluation scores 0 – 5, where 0 represents no achievement at all and 5 represents highest achievement. In all, 59 out of 70 entrepreneurs responded to this question for 11 areas of development. Total maximum possible score is 59 x11x5 =3245.

4.4 RESULTS FROM PERCEPTION SURVEY OF BANKs/FINANCIAL INSTITUTIONS

As elaborated in Section 4.1, a perception survey was conducted during the present study. The investigations (largely qualitative) were conducted to officials of commercial banks (private and public), non-bank financial institutions and the central bank. Based upon perception of bank officials, this section covers analyses. in some detail, on aspects, among others, of problems of loan processing and suggestions for their overcoming. At the end, the section discusses a wide range of issues related to SME financing/refinancing as well as overall SME development. To begin with, an overview of financing and refinancing scheme is presented below.

4.4.1 An Overview of the Bangladesh Bank's Refinancing Scheme

The government has taken up programmes to provide financial assistance to promote SMEs through banks and non-bank financial institutions. Alongside the disbursement of loans, since FY2004-05 Bangladesh Bank took up a scheme of Tk.100 crore (as a revolving fund) for refinancing the schedule banks and financial institutions against the loans given to SMEs at bank rate. Currently, this scheme has been widened. Up to March 2009, a total of about Tk. 1,118 crore has been put in place for refinancing. The Bangladesh Bank, IDA and ADB have contributed refinancing fund to the extent of 57.8, 18.5 and 23.8 per cent of the total amount respectively (Table 4.24). Under the scheme, more than 11,000 beneficiaries have been covered up to March 2009. In terms of type of financing, working capital constitutes 28.7 per cent, followed by mid-term and long-term loans constituting 44.7 and 26.7 per cent respectively.

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SME REFINANCING BY TYPE OF CAPITAL AND BENEFICIARIE
(UP TO MARCH 2009)

Refinancing	Amount Refinanced (In crore Taka)			No	o. of Benefici	ary Enterpris	ses	
source	Working	Mid	Long	Total	Working	Mid Term	Long	Total
	Capital	Term	Term	Loan	Capital		Term	Loan
Bangladesh	144.53	306.00	195.21	645.75	1447	3702	1087	6236
Bank	(45.12)	(61.27)	(65.51)	(57.77)	(49.12)	(57.12)	(63.09)	(55.93)
IDA	55.78	91.70	58.91	206.39	859	1159	323	2341
	(17.41)	(18.36)	(19.77)	(18.47)	(29.16)	(17.88)	(18.75)	(21.00)
ADB	120.02	101.69	43.88	265.58	640	1620	313	2573
	(37.47)	(20.36)	(14.72)	(23.76)	(21.72)	(25.00)	(18.17)	(23.08)
Total	320.33	499.39	298.00	1117.72	2946	6481	1723	11150
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Source: Bangladesh Economic Review (2009).

Note: Figures in parentheses represent column percentages.

The scheduled banks have been refinanced to the extent of 57.6 per cent and non-bank financial institutions to the extent of 42.4 per cent of the total amount (Table 4.25). In terms of number of beneficiaries, the banks have covered 71 per cent and non-bank financial institutions 29 per cent (Table 4.26).

TABLE 4.25 SME REFINANCING BY BANKS/FIS BY TYPE OF CAPITAL (UP TO MARCH 2009)

Name of Banks/Fls	Amount Refinanced (In crore Taka)					
Refinanced	Working Capital	Mid Term	Long Term	Total Loan		
Banks	296.7	265.6	81.0	643.3		
	(92.6)	(53.2)	(27.2)	(57.6)		
Non-Bank Financial Institutions	23.6	233.8	217.0	474.4		
	(7.4)	(46.8)	(72.8)	(42.4)		
Total	320.3	499.4	298.0	1117.7		
Col %	(100.0)	(100.0)	(100.0)	(100.0)		
Row %	(28.7)	(44.7)	(26.7)			

Source: Bangladesh Economic Review (2009).

Note: Figures in parentheses represent row percentages.

TABLE 4.26 SME REFINANCING BY BANKS/FIS BY NUMBER OF BENEFICIARIES (UP TO MARCH 2009)

Refinanced Banks/Fls	No. of Beneficiary Enterprises covered for					
	Working Capital	Mid Term	Long Term	Total		
Banks	1865	5543	519	7927		
	(63.3)	(85.5)	(30.1)	(71.1)		
Non-Bank Financial	1081	938	1204	3223		
Institutions	(36.7)	(14.5)	(69.9)	(28.9)		
Total	2946	6481	1723	11150		
	(100.0)	(100.0)	(100.0)	(100.0)		

Source: Bangladesh Economic Review (2009).

4.4.2 SME Refinancing to Women Entrepreneurs

The refinancing scheme is also available for the women at 10 per cent interest rate in line with the guidelines of the Bangladesh Bank, the details of which are discussed in section 5. In all, 326 women entrepreneurs have been refinanced under the scheme so far, the total amount being about Tk. 22 crore (Table 4.27). Of this total amount, one third (33.3 per cent) has been refinanced by commercial banks, while the remaining two-thirds (66.7 per cent) refinanced by non-bank FIs. An average woman entrepreneur received Tk. 6.75 lakh; on an average, a woman received Tk 6.8 lakh in industry, Tk. 9.5 lakh in service and Tk. 5.7 lakh in trade. Short-term loans constituted 13.3 per cent,

followed by 47.8 per cent and 38.8 per cent as mid-term and long-term loans respectively (Table 4.28).

SME REFINANCING TO WOMEN ENTREPRENEURS BY SECTORS (AUGUST 2009)								
Refinanced	N	lo. of enterpri	ses finance	d	A	mount refinai	nced (000 Tk	<)
	Industry	Service	Trade	Total	Industry	Service	Trade	Total
Banks	48	21	92	161	29,600	7,950	35,650	73,200
	(29.8)	(13.0)	(57.1)	(100.0)	(40.4)	(10.9)	(48.7)	(100.0)
Non-bank	96	29	40	165	68,150	39,539	39,000	146,689
financial	(58.2)	(17.6)	(24.2)	(100.0)	(46.5)	(27.0)	(26.6)	(100.0)
institutions								
Total	144	50	132	326	97,750	47,489	74,650	219,889
	(44.2)	(15.3)	(40.5)	(100.0)	(44.5)	(21.6)	(33.9)	(100.0)
Refinanced								
per	-	-	-	-	679	950	566	675

TABLE 4.27 ____ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank. Note: Figures in parentheses represent row percentages.

TABLE 4.28
SME REFINANCING TO WOMEN ENTREPRENEURS BY LOAN TERMS
(AUGUST 2009)

Refinanced	Amount refinanced (000 Tk)					
	Short-term	Mid-term	Long-term	Total		
Banks	21,525	45,475	6,200	73,200		
	(29.4)	(62.1)	(8.5)	(100.0)		
Non-bank	7,750	59,739	79,200	146,689		
financial institutions	(5.3)	(40.7)	(54.0)	(100.0)		
Total	29,275	105,214	85,400	219,889		
	(13.3)	(47.8)	(38.8)	(100.0)		

Source: Agricultural Credit and Special Programs Department, Bangladesh Bank. Note: Figures in parentheses represent row percentages.

4.4.3 SME Financing

Following the government directives and initiatives, financing of SMEs by the formal sector is progressing (See also section 4.6). Tables 4.29 through 4.32 show the results of a survey conducted by the Agricultural Credit and Special Programmes Department of the Bangladesh Bank.

It can be seen that, as of 30 June 2009, loans by banks and other financial institutions have been extended to more than 3.8 lakh small and medium enterprises

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enterprise (000 Tk)

(Table 4.29). In terms of number of enterprises, PCBs are in the leading role in extending loans (69.4 per cent), followed by NCBs (24.8 per cent), SCBs (3.1 per cent) and the lowest by FCBs (0.9 per cent). The total amount of loans extended to 3.8 lakh SMEs is estimated as Tk 47,495 crore (Table 4.30). Averaged over all banks/FIs, the extended amount of loan per enterprise estimates as Tk. 12.5 lakh. Average loan per enterprise extended by NCBs estimates as Tk. 17.5 lakh, followed by PCBs (Tk. 9.4 lakh), FCBs (Tk 35.6 lakh) and SCBs (Tk. 26.8 lakh) (Table 4.31).

The results indicate that in spite of allowing refinance facility by BB, the banks and FIs have extended by only about 20.6 per cent of their total loans and advances to the SME sector ¹⁶. The contribution of SME loans in total loans is the highest in the case of NCBs (33.3 per cent), followed by SCBs (20.9 per cent), PCBs (17.9 per cent), non-bank FIs (13.7 per cent) and FCBs (8.1 per cent). It is observed that among the participating banks, BASIC Bank, BRAC Bank and Exim Bank disbursed a lion's share of their total loans and advances to the SME sector. ¹⁷

Types of banks	No. of enterprises					
	Manufacturing	Service	Trading	Total		
NCBs	26701	1709	66107	94517		
	(54.7)	(15.4)	(20.6)	(24.8)		
PCBs	16154	7081	241680	264915		
	(33.1)	(63.6)	(75.2)	(69.4)		
FCBs	463	563	2400	3426		
	(0.9)	(5.1)	(0.7)	(0.9)		
SCBs	3087	245	8656	11988		
	(6.3)	(2.2)	(2.7)	(3.1)		
Non bank/ FIs	2377	1533	2716	6626		
	(4.9)	(13.8)	(0.8)	(1.7)		
All	48782	11131	321559	381472		
	(100.0)	(100.0)	(100.0)	100.0		

TABLE 4.29 LOANS PROVIDED BY BANKS/FIS TO SMES BY SUB-SECTORS: NO. OF ENTERPRISES

Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank. **Note:** Data as of 30 June 2009. Figures in parentheses are percentage shares.

¹⁶ According to the Bangladesh Bank, SME loans have increased by only 2 per cent in the past two years, which is much lower than what was expected by the central bank (Governor, Bangladesh Bank, The Daily Star, 28 September 2009).

¹⁷ BRAC Bank has stopped availing BB's refinancing facility, reportedly in end 2007. The reasons are discussed later in this section. One major reason is related to disproportionately higher administrative costs in comparison to "insignificant" amount of fund provided under the scheme.

Types of	Amount of loans (million Tk.)					
banks	Manufacturing	Service	Trading	Total		
NCBs	94567	4881	65534	164982		
	(50.7)	(16.2)	(25.4)	(34.7)		
PCBs	62140	15613	171019	248773		
	(33.3)	(51.7)	(66.3)	(52.4)		
FCBs	2310	1884	7999	12193		
	(1.2)	(6.2)	(3.1)	(2.6)		
SCBs	19592	2635	9926	32153		
	(10.5)	(8.7)	(3.8)	(6.8)		
Non-	8073	5186	3592	16851		
banks/FIs	(4.3)	(17.2)	(1.4)	(3.5)		
All	186682	30198	258072	474952		
	(100.0)	(100.0)	(100.0)	(100.0)		

TABLE 4.30 LOANS PROVIDED BY BANKS/FIS TO SMES BY SUB-SECTORS: AMOUNT OF LOANS

Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank. **Note:** Data as of 30 June 2009. Figures in parentheses are percentage shares.

 TABLE 4.31

 AVERAGE AMOUNT OF LOANS PER SME EXTENDED BY BANKS/FIS

Types of	Amount of loans (Lakh Tk.)					
banks	Manufacturing	Service	Trading	Total		
NCBs	35.42	28.56	9.91	17.46		
PCBs	38.47	22.05	7.08	9.39		
FCBs	49.89	33.46	33.33	35.59		
SCBs	63.47	107.53	11.47	26.82		
Non-						
banks/FIs	33.96	33.83	13.23	25.43		
All	38.27	27.13	8.03	12.45		

Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank. **Note:** Data as of 30 June 2009. Figures in parentheses are percentage shares.

1ABLE 4.32

Types of banks	Amount of loans/advances (million Tk)				
	Total	SME sector	%		
NCBs	495,016	164,982	33.3		
PCBs	13,87,764	248,773	17.9		
FCBs	150,741	12,193	8.1		
SCBs	153,777	32,153	20.9		
All banks	21,87,298	458,101	20.9		
Non-banks/FIs	123,357	16,851	13.7		
ALL	23,10,654	474,952	20.6		

CONTRIBUTION OF SME LOANS IN TOTAL LOANS BY BANKS/FIS

Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank. **Note:** Data as of 30 June 2009.

4.4.4 Perceptions of Officials of Banks/Financial Institutions on SME Financing and Development

As mentioned earlier, a perception survey was conducted during the current study. The investigations were conducted to officials of commercial banks (private and public), non-bank financial institutions and the central bank. Since the survey was conducted largely to banks' branch offices (who are more instrumental in respect to loan operations), the perceptions gathered were related to SME financing and development in general, irrespective of whether or not they had refinancing scheme in their respective branches.¹⁸

4.4.4.1 Constraints of SME Financing/Refinancing

During the survey, information were sought from the bank/FI officials about problems encountered in the process of dealing with SME loan sanctions and their disbursements. The problems are presented under five broad categories such as aspects related to documents for processing, application and procedures, access to finance, aspects related to refinancing and associated costs in the process.

The major problems as reported by the bank officials are presented in Table 4.33.

Problems	n	% of N	Rank
Problems of Documents Processing			
Too many documents to process	8	47.1	1
Lack of education a major problem to process application	6	35.3	2
Applicants cannot produce correct account of stock of goods nor balance sheet	2	11.8	7
Applicants' inability/reluctance to produce TIN certificate/IT clearance certificate	2	11.8	7
Loans cannot be granted /takes long time as land under mortgage located far off	2	11.8	7
Trade license often not updated	3	17.6	5
Reluctant to provide post-dated cheques for repayment	1	5.9	11
Difficult to produce partnership deed in case of joint business	1	5.9	11
		(Cout To	11- 1 22)

TABLE 4.33 PROBLEMS REPORTED BY BANK/FI OFFICIALS IN DEALING WITH SME FINANCING

(*Cont. Table 4.33*)

¹⁸ This is also because given time and resources it was difficult to gather data from respective Head Quarters. However, a few interviews were conducted to personnel at Head Quarters of institutions as well such as BRAC Bank, Jamuna Bank, NCC Bank, IDLC and MIDAS.

Background Papers	: SFYP.	Volume	2

Non-cooperation from land registration office15.911Difficult to process cases for small units423.53Photographs of business, shops, mortgaged properties etc are15.911difficult15.911Processing other than in Bengali is problematic317.65Application and Procedures77Processing takes too long to examine documents due to423.51shortage of officials211.87Selection of appropriate entrepreneurs difficult211.87Lack of preparation due to loanees' low level of education317.64Collateral based SME lending procedures are complex – too317.64Required processing for remote entrepreneurs not feasible317.64Processing of cases with trading (rather than industries)317.64Profficult to extend loans according to demand423.54Preparation of documents/proposals expensive317.65Difficult to extend loan provide any training or advice on529.42Loan providers dn on provide any training or advice on529.42Distant entrepreneurs423.544Distant entrepreneurs423.544Inficult to extend loans according to demand423.54Processing of appropriate guarantors423.54Difficult to extend loan provide any training or	Problems	n	% of N	Rank
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Administrative costs too high423.54Banks find some SME financing risky investments317.66Investment in trading is less risky and so get preference529.42Aspects related to Refinancing Lengthy/cumbersomeproceduresfor741.21	Lack of a functional definition of SMEs that can characterise their uniqueness	4	23.5	4
Banks find some SME financing risky investments317.66Investment in trading is less risky and so get preference529.42Aspects related to Refinancing Lengthy/cumbersomeproceduresfor741.21	Administrative costs too high	4	23.5	4
Investment in trading is less risky and so get preference529.42Aspects related to Refinancing Lengthy/cumbersomeproceduresfor741.21reimbursement/disbursement </td <td>Banks find some SME financing risky investments</td> <td>3</td> <td>17.6</td> <td>6</td>	Banks find some SME financing risky investments	3	17.6	6
Aspects related to Refinancing Lengthy/cumbersome procedures for 7 41.2 1 reimbursement/disbursement	Investment in trading is less risky and so get preference	5	29.4	2
Lengthy/cumbersome procedures for 7 41.2 1 reimbursement/disbursement	Aspects related to Refinancing			
	Lengthy/cumbersome procedures for reimbursement/disbursement	7	41.2	1
No fixed rule for interest rates (except for women's loans) 4 23.5 3	No fixed rule for interest rates (except for women's loans)	4	23.5	3

(Cont. Table 4.33)

Problems	n	% of N	Rank
100% reimbursement often not provided from BB	6	35.2	2
Difficult to follow rules for extending loans without collaterals (esp. for women)	6	35.2	2
Poor human resource development in central bank	3	17.6	5
Inadequate/ineffective coordination among banks & central bank	3	17.6	5
Scheme not attractive due to excess liquidity situation	3	17.6	5
Entrepreneurs often need continuous loans to support working capital requirement	4	23.5	3
Refinance package not very attractive	3	17.6	5

Source: SME Background Study: Bank/FI Officials Perception Survey 2009, BIDS. **Note:** N= 17, total number respondent bank officials (out of 18).

Problems of Document Processing

One of the major problems of loans processing is related to a large number of documents that are required during the submission of applications. A complete list of documents required for loan processing is furnished in Table 4.34. As can be seen from the table, more or less 27 types of documents are required for loan processing. The actual number of documents, however, sometimes varies depending on the type of enterprise. Obviously, this is a cumbersome process of loans processing.

TABLE 4.34 LIST OF DOCUMENTS REQUIRED TO APPLY FOR LOANS (ACCORDING TO ENTREPRENEURS)

Sl. no	Documents required	
1	Photograph of owners/husbands/wives/guarantors, etc	
2	Photograph of shop/industries/land for collateral	
3	National ID of owner	
4	3-year old/valid trade license (up to date)	
5	Registered partnership deed (if applicable)	
6	Lease deed/ownership deed	
7	TIN certificate/Income tax clearance	
8	Municipality tax receipt (up to date)	
9	Land tax receipt (up to date)	
10	Bank account and annual statement	
11	Post-dated cheques signed for repayment	
12	Details of land for mortgage (CS, SA, RS Parcha)	
13	Utility bill of business	
		(Cont. Table 4.34

Sl. no	Documents required
14	Personal wealth statement
15	Balance sheet (audited) of firm
16	Previous bank transaction track record
17	Pay records of employees/Income statement of last 3 months for self employed persons
18	Experience certificate of firm
19	Statement on strict compliance of loan purpose
20	Requirement of 3 guarantors, with additional requirement of that from wife/husband
21	Lien against FDR (in case of CC)
22	Environment certification
23	Registration with VAT
24	All facility related offer letters
25	Memorandum & Article of Incorporation, Form X and XII (if applicable)
26	Certificate of Incorporation (if applicable)
27	Board/ Partnership Resolution (if applicable)
Source	: SME Background Study: Enterprises Survey 2009, BIDS.

The low level of education of the SME-entrepreneurs generally poses a major obstacle to preparing proposals, and for developing technological and marketing skills. The other problems relate to inability to producing correct account of stock of goods/balance sheet, TIN Certificate, income tax clearance, updated trade license, especially for small and the women entrepreneurs. The entrepreneurs, by and large, stand reluctant to provide signed post-dated cheques for future repayment. Loans cannot be granted or it takes exceptionally long time when lands for collaterals are located far off. Over and above, the entrepreneurs are deprived of loan facilities if the concerned premises are far away, usually in remote areas, from respective bank locations.

Application and Procedures

The procedure to get finance from the banks and FIs is considered complex. Even bank officials recognise that it takes too long to examine documents due to shortage of officials while meticulous selection of appropriate entrepreneurs is difficult. A survey of SMEs reported that the business owners had to visit, on average, 15 times for one loan from the bank, whereas the frequency of visits for getting loan from informal money lender is 4.3; from association it is 2.5, and from relatives and friends it is 2.25 (Choudhury and Raihan 2000). As was evident in the

preceding section on enterprise survey (Section 4.3, Table 4.18), the frequency of visits for getting loans from the banks was around 17.¹⁹

As most SMEs lack desired education level, the preparation of proposals is either difficult or expensive. In particular, collateral based SME lending procedures are complex as this has to deal with too many documents.²⁰ However, as bank officials admit, the processing of cases with trading (rather than industries) is considered relatively easy. In other words, SME loans appear to be disbursed more in favour of trading sector.

Access to Finance/Collaterals/Guarantors

As bank officials admit, most SMEs find it difficult to comply with collateral requirement while the preparation of documents/proposals are expensive. On the other hand, banks appear to find it difficult to extend loans according to amount demanded. More importantly, it is difficult for the entrepreneurs to find appropriate guarantors. Distant entrepreneurs appear to have been deprived of loans because of difficulty in inspection and monitoring by bank people. Loan providers usually do not provide any formal training or advice on preparation of project proposals or business development.

Associated Costs

On the supply side, administrative costs for banks and financial institutions (FIs) are high because of close monitoring and supervision required for SME loans. The banks and FIs consider some financing as risky investments and charge relatively higher interest rates to cover portfolio risks.²¹ In particular, disproportionate expenses for small loans remain a major problem.²²

¹⁹This figure represents loans from banks other than the BRAC Bank, perhaps, the only bank which usually goes to entrepreneurs' doorstep to offer loans. ²⁰ It is, however, encouraging to note that very recently (September 2009), South East Bank

²⁰ It is, however, encouraging to note that very recently (September 2009), South East Bank Limited (SEBL) has signed an agreement with Leather Sector Business Promotion Council (LSBPC) to develop a credit line for the underprivileged producers of footwear and leather goods in the country. Under the accord, SEBL will disburse Tk 20 million collateral-free loans among the small and medium footwear and leather goods manufacturers on a pilot basis. Relevant experts suggest that similar initiative deserves replication for other sectors in future.

²¹Mention may be made of the BRAC Bank which appears to charge relatively higher interest rates; the argument from their side is related to higher costs involved in relatively greater extent of monitoring and supervision. ²²For example, results from entrepreneurs' survey demonstrate that around 10 to 12 thousand

²²For example, results from entrepreneurs' survey demonstrate that around 10 to 12 thousand Taka are spent in applying for a two-lakh Taka loan.

However, the officials complain of not yet having any consistent set of definition of SMEs (For a discussion on inconsistency in definitions of SMEs, see section 4.2). 23

Aspects related to Refinancing

The bank officials under investigations themselves recognise that commercial banks and non-financial institutions, which get funds from Bangladesh Bank under the refinance scheme, often show their reluctance to extend loans to SMEs as they find it riskier, apart from the reason of current liquidity situation.²⁴

Lengthy and cumbersome procedure for reimbursement/disbursement of loans from the central bank is cited as a common problem of the refinancing scheme, while some (anonymity requested) reports that "the entire amount of loans extended under the scheme is never reimbursed unless this is severely pursued." The bank officials, by and large, observe that it is not feasible to provide loans without collaterals, especially to women. The interest rates are arbitrarily charged across various banks and enterprises without any uniform guideline. A considerable number of officials maintain that there is lack of effective coordination between banks and the central bank. Some banks (anonymity requested) observe that the refinancing package is not at all attractive due to excess liquidity situation in recent time.

Although the BRAC Bank had been relatively more successful in disbursing SME loans to women entrepreneurs, it has recently stopped taking the benefits of refinancing provided by the Bangladesh Bank. One of the major reasons of this is reported to be inadequate amount of money allocated for refinancing from the Bangladesh Bank. An amount of TK. 10 crore, for example, is reportedly utterly inadequate compared to its current financing of TK. 1,000 crore in the SME sector. Another major reason is that it becomes difficult to select a few loan beneficiaries from among a large number of applicants on some privileged terms and conditions provided by the refinancing scheme. This poses a yet more serious problem, particularly for women loan beneficiaries.²⁵

In summary, the problems of SME Refinancing Scheme can be highlighted as follows:

²³ Only recently, the central bank cautioned banks for charging high interest rates by distorting the definition of SMEs (Financial Express, 20 September 2009). The banks are also, reportedly, pushing the SME loans to customer loans and thus charging higher interest. ²⁴ Reportedly, the current idle money in the banks estimates as Tk. 35,000 crore.

²⁵As will be seen later, some bank officials suggest that the refinancing facility be provided to a selected trades or for women only.

- Unlike other Refinancing Scheme there is no Rate cap for SME Loan.
- Bangladesh bank refinancing scheme reimburses fund on first come first serve basis. As such, during granting a facility the banks/FIs cannot assess whether the financing will be reimbursed. As a result, they cannot offer any privileged rate for the SME financing.
- Under the SME Refinancing Scheme, the loan can only be provided as term finance format with fixed installment repayment. However, the entrepreneurs often require continuous loans (e.g. Cash Credit) to support the working capital requirement.
- Refinance has to be claimed on quarterly basis and replenishment is made often after more than one month. As such, refinance package may not be so attractive to the banks or FIs.

4.4.4.2 Suggestions of Bank Officials towards Better SME *Financing/Refinancing*

During the perception survey, the bank officials were asked to make suggestions towards better functioning of SME loan operation and management, and the overall SME development. Table 4.35 presents the major suggestions made. The suggestions are presented under seven broad categories such as SME access to finance, aspects related to collaterals/guarantors/repayments, monitoring and supervision, training/awareness/guidelines, SME Foundation, infrastructure and other facilities and aspects related to SME refinancing. The discussion below is largely based on insights from the bank officials; however, some of the findings are also drawn on some secondary sources, published and unpublished. Since SME financing, refinancing and SMEs development are heavily interrelated, the discussion has also covered some related issues towards SMEs overall development. Some of the pressing issues are discussed below.

TABLE 4.	3	5
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SUGGESTIONS OF BANK/FI OFFICIALS TOWARDS FACILITATING SME FINANCING/OVERALL DEVELOPMENT

Suggestions	N	% of N	Rank
SME Access to Finance	11	/00111	Ituliit
Introduce SME cell in each branch in rural areas	3	17.6	7
Introduce adequate no. of SME Service centres in each	4	23.5	4
bank, private and public			
Increase skilled workforce related to SME activities in	3	17.6	7
banks/Bangladesh Bank			

(Cont. Table 4.35)

Background Papers: SFY	'P, Volume .	2
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Suggestions	Ν	% of N	Rank
Provide right amount of loans at right time at reasonable	5	29.4	3
interest rates			
Relax/abolish the condition of collateral	1	5.9	11
Extend loans up to Tk 10 lakh without collateral	2	11.8	10
Waive VAT and other taxes for SME enterprises	3	17.6	7
Devise ways and means to reduce administrative costs,	3	17.6	7
especially for small loans	•	11.0	10
Introduce uniform guidelines for loans	2	11.8	10
Step up SME efforts in rural locations as SMEs are more rural-based	7	41.2	I
Involve NGOs in SME activities in rural areas	5	29.4	3
Collaterals /Mortgage /Guarantors/Repayment			
Simplify processing procedures	3	17.6	2
Select genuine entrepreneurs, men and women for extending loans	5	29.4	1
Collateral free loans to SMFs not feasible from banks	1	59	4
Since entrepreneurs not used to bank transactions adopt	2	11.8	3
NGO-system of collections	-	11.0	5
Monitoring and Supervision			
Close monitoring, supervision and advice needed for	3	17.6	4
effective use of loans	5	1710	
Monitoring, particularly small scale units, is expensive and	4	23.5	2
difficult			
More branches needed especially in rural areas for	5	29.4	1
monitoring at distance places			
Inter-bank cooperation needed for better monitoring	3	17.6	4
Step up monitoring over banks by Bangladesh Bank/SME	2	11.8	5
Training/Awareness/Guidelines			
Organise training programmes for SME entrepreneurs &	7	41.2	1
SME bank officials			
Create SME training fund	2	11.8	6
Provide free training on business management	3	17.6	3
Organise training programmes for SME entrepreneurs	2	11.8	6
through NGOs			
Standardise and ease functional definition of SMEs	2	11.8	6
Increase public awareness on SME activities/facilities	2	11.8	6
through media			
Establish SME data base (technical & marketing) for	3	17.6	3
facilitating correct investment			

(Cont. Table 4.35)

Suggestions	N	% of N	Rank
SME Foundation			
Role of SME Foundation should be strengthened	5	29.4	1
Foundation personnel need to have practical experience	3	17.6	2
Increase workforce related to SME activities in banks	5	29.4	1
Infrastructure and other Facilities			
Create infrastructural facilities (roads, electricity, gas, water, etc.)	6	35.3	1
Establish industrial park at various locations	2	11.8	7
Create subcontracting facilities so that specialisation takes	2	11.8	7
place			
Undertake steps to enhance marketing facilities	5	29.4	2
Enhance fiscal incentives to SMEs	2	11.8	7
Introduce wholesale crediting through banks (to avoid	2	11.8	7
collateral/guarantor)			
Enhance technological development	3	17.6	4
Undertake human resource development in SMEs	1	5.9	9
Enhance quality of products	3	17.6	4
Aspects Related to SME Refinancing			
Target refinancing scheme for a few specific thrust sectors	10	58.8	1
Establish SME bank for this scheme	6	35.3	3
Select a few banks for refinancing	4	23.5	5
Involve NGOs rather than commercial banks for	6	35.3	3
refinancing scheme			
Target refinancing scheme for women only	5	29.4	4
Target refinancing scheme for manufacturing only	8	47.1	2
Introduce pre-financing, rather than reimbursement of loans	3	17.6	6
provided			
Increase awareness regarding the scheme, particularly	3	17.6	6
among rural women			

Source: SME Background Study: Bank/FI Officials Survey 2009, BIDS.

Note: N= 17, total number of respondent bank officials (out of 18).

SME Access to Finance

A study by SEDF (2006) (quoted in Rikta 2007) demonstrates that SMEs have limited access to bank financing. It shows that about two-thirds of the SMEs did not approach banks for working capital loans. It takes about two months to have a loan sanctioned (Rikta 2007). As was evident in section 4.3 (enterprises survey), it takes, on average, 41 days to process loan applications.²⁶ Then it takes around two weeks

 $^{^{26}}$ A survey of SMEs (Choudhury and Raihan 2000) reported that the business owners had to visit, on average, 15 times for one loan from the bank, whereas the frequency of visits for getting loan from informal money lender was 3; the frequency was 2.5 for associations, and 2.25 for relatives and friends.

to actually get the loans, whereas the total frequency of visits for getting loans from the banks was around 17. This implies that perhaps the situation has not improved. For improving the situation, all commercial banks have to come up with special packages for SME development. ²⁷ Currently, two banks are leading in this area: the BASIC Bank in the public sector and the BRAC Bank in the private sector.²⁸ Following central bank's strict directives, several banks/FIs have established SME cells/financing units/service centres to channel funds to the SME sector (Table 4.36) ²⁹. However, the commercial banks should strengthen such SME wings to cater to credit needs of the SMEs in a better way and on softer terms.

Available information shows that 12 commercial banks have more than 126 service centres, of course, the BRAC Bank and the Eastern Bank being in the leading role (Table 4.36). Hence, bank officials suggest introducing more number of active SME service centres in each bank, private and public; particular mention is made to introduce at least a SME cell in each branch, particularly in remote areas. The bank officials themselves recognise the need for providing right amount of loans at right time at reasonable interest rates. They maintain that the involvement of NGOs in SME activities, particularly in rural areas, would be a step forward.

It is always a cumbersome process to select genuine entrepreneurs, men and women, for extending loans. Some bank officials reiterate the need for relaxing the condition of collateral, while some suggests that it is not feasible to extend loans to SMEs without collateral. However, it is of utmost importance to introduce uniform guidelines for SME loans (e.g. in respect to interest rates across various banks and sectors) and devise ways and means to reduce administrative costs, especially for small loans. Waiver of VAT and other taxes for SME enterprises should be considered. Simplifying loan processing is a common demand made by both entrepreneurs and bank officials.

Monitoring, Training and Awareness

Close monitoring, supervision and advice (technical, financial and marketing) are of absolute importance for effective use of loans while monitoring particularly

²⁷A few such initiatives, for example, are the "*Gharoa*" project of the Janata Bank; "*Mousumee*" is a product, initiated by IFC and light engineering and agri-business specialists; City Bank has a loan product namely *Noksh* it to help women. ²⁸As mentioned earlier, the BRAC bank has reportedly stopped financing SMEs under BB's Define and 2007 for project to proceed by the proceed bare have been discussed later

²⁸As mentioned earlier, the BRAC bank has reportedly stopped financing SMEs under BB's Refinancing Scheme in end 2007 for various reasons; the reasons have been discussed later in this section.

²⁹As evident from discussion with relevant entrepreneurs, such cells/wings appear to be not as effective as they should have been.

small units poses expensive and difficult. Training should be a part and parcel of SME development; for this purpose, creation of SME training fund should be considered. Recently, a large number of entrepreneurs have been provided with training for SME development, which appears to have proved not very effective, as observed by relevant experts.³⁰

The bank officials, by and large, suggest to organising training programmes for SME entrepreneurs through NGOs. According to them, it may be a good move to involve NGOs in SME activities in rural areas. A uniform and precise definition of SME enterprises is currently lacking and so bank people recommend coming up with standardised and functional definition of SMEs. Relative smallness of size has been a critical feature of the SME enterprises and such category of enterprises deserves special treatment. Due to the definitional problems, information on SMEs are not readily available.

Bank	Number of service
	centre
Mutual Trust Bank	10
Eastern Bank	31
City Bank	5
Islamic Bank	20
BRAC Bank	30
	(plus 429 SME Units)
AB Bank	5
Bangladesh Krishi Bank	1
Jamuna Bank	5
SIBL Bank	5
NCC Bank	2
Exim Bank	2
Shahjalal Islamic Bank	10

TABLE 4.36 SME SERVICE CENTRES ESTABLISHED: SELECTED BANKS

Source: Relevant websites and SME Background Study: Bank/FI Officials Survey 2009, BIDS.

³⁰ One may, however, take note of the fact that more than 5,000 entrepreneurs, including 2,000 women entrepreneurs, have received training under the programme, Capacity Building for SME development with the financial assistance from ADB. With the objective of creating awareness and enthusiasm among women entrepreneurs in the SME sector, two national Women Entrepreneurs Conferences were held, one in 2006 and another in 2008. In order to help the SME women entrepreneurs diversify and market their products, Women Entrepreneurs Products Fair 2008 was held under the sponsorship of SME Foundation.

SME Refinancing

In order to overcome multiple problems related to refinancing, the bank officials, by and large, suggest to targeting the scheme for a few specific thrust sectors or for manufacturing alone or exclusively for women entrepreneurs. Some, however, recommend for selecting a few banks or establishing a SME bank for this scheme. In this context, some suggest that pre-financing (rather than reimbursement) would be a better method of the refinancing scheme that can be thought of. Involving NGOs rather than commercial banks for refinancing scheme could be another alternative.

The major suggestions on aspects related to improving refinancing scheme can be highlighted as follows:

- Like home loan refinancing or share-croppers credit programme,³¹ a rate cap should be introduced to provide the ultimate benefit to the SME entrepreneurs.
- Since the fund is limited some priority sectors can be identified, which may be qualified for the loan with privileged rate.
- Clear guidelines should be formulated, so that banks/FIs can work with certainty that the project will be qualified for the refinancing scheme.
- Some trading or service units, which are categorised as SMEs, may not add value as much as manufacturing concerns do. So, determination of the privileged sector is important.
- Step up efforts so that banks may find refinancing more profitable to invest in the SME portfolio.
- Refinancing from the central bank may be allowed on monthly basis.

SME Bank

The main sources of credit, banks and other financial institutions, appear to be utterly inadequate in the rural and semi-urban areas where a large proportion (approximately 75 per cent) of the SMEs are located. For most SME operators in such areas, the NGOs are the only sources from whom they seek credits although the terms are not favourable. Some NGOs reportedly charge as high as 25 per cent rate of interest, or even more, on loans they provide. For overcoming this situation,

³¹ Bangladesh Bank has recently approved Tk. 500 crore for a credit programme to help 300,000 sharecroppers in 160 upazilas. The central bank assigned BRAC to disburse the collateral-free loans among the sharecroppers on a lower interest rate (Financial Express, 3 November 2009).

the bank officials suggest special banks to be established which may exclusively serve the SMEs by providing credits on easy terms and conditions.³²

Interest Rate

According to bankers' perspective, they can give loans at 10 per cent if the fund availability can be made at a lower rate than the existing one but at least 6.0 per cent spread is absolutely needed. According to the bank officials, profit making should not be the aim of the government.³³ If the government gets fund at 1.0 per cent interest rate, they should not provide this loan at a rate such as 5.0 per cent. On the contrary, there are huge unused money of the government coming from abroad, apart from excess liquidity available to the banks at present. Bankers generally suggest for tax incentives for the SME banking as the loss of the revenue on account of tax can be far offset by more revenues earned through establishing new industries. The interviewed banks suggest for performance benefit and annual awards for good performers.

SME Foundation

The SME Foundation was created in 2006 as an apex body for the development of SMEs in the country. Registered under Companies Act, the Foundation was entrusted with the task and responsibilities of implementing SME policy strategies as well as advocating, facilitating, financing, planning and coordinating roles aimed at SME development. The bank officials strongly maintain that the bodies such as SME Foundation and special cell under the Ministry of Industry have so far been not proactive enough. The time and resources at their disposal are largely wasted (Financial Express, 25 May 2009).³⁴ In contrast to what bank officials suggest, the

³²This demand also came from the fourth SME Fair-2009, organised by the FBCCI on 25 May 2009. To introduce SME products to the local and foreign businessmen, the fair displayed a large range of products, from a solar panel assembler to an arsenic-buster, contact lens producer, generator equipment maker, automobile filters for world famous brands of Toyota, Corolla, Nissan, CNG and Mehendro vehicles to home products, leather, Ayurvedic food, beauty products and jute rugs, organic fertiliser, food and energy efficiency goods including soya milk, soya meat, organic bricks. The fair clearly demonstrates that the Bangladeshi SMEs are varied and strong, powering the country's development a time of global economic downturn.

³³A seminar organised by SME Foundation on Credit Wholesaling shed some light on the new financing scheme for SMEs to be implemented by the Foundation. The seminar noted that nonperforming loan (NPL) in China is about 25.9 per cent of its GDP, while it is 3.1 per cent in India and 5.6 per cent in Bangladesh. So, NPL should not be referred to as the reason for not lowering the rate of interest. One may note that the interest rate in China is much lower than that of Bangladesh (Begum 2007, Financial Express, 25 August 2007).

³⁴ This was a remark passed by a speaker in the inauguration ceremony of four-day fourth SME Fair, organised by the FBCCI (Financial Express, 25 May 2009).

Foundation personnel put forward the major reason of dearth of appropriate human resources for their "low performance."³⁵ According to bank officials, however, appropriate steps need to be taken to make these bodies (e.g., SMEF and SME Cell) truly useful for SME promotion. Relevant experts suggest that the Foundation personnel needed to have practical experience related to SME operations.

Fiscal Measures

It is often alleged that the commercial banks have low disbursement of SMEs loans. Relevant experts observe that SMEs' contribution to nation building is historically proved. World war devastated countries like Japan and Korea have become the major economies based on this sector.

Relevant experts suggest that the government should offer more in terms of fiscal measures/tax incentive package to the SMEs in the annual budgets, which will positively impact on the growth of local industries in the wake of global financial meltdown.³⁶ The bank officials generally observe that, in particular, the small entrepreneurs can be selectively exempted from paying duties, value added tax and other charges, which would provide strong incentives for potential entrepreneurs to become actively interested.³⁷ The bank officials also recommend for providing subsidy on water, gas, electricity and exports.

However, as bank officials and relevant experts observe, SMEs have benefited little from the various measures undertaken in the recent years. Despite deregulation and industrial policy reforms, considerable discretionary powers still remain with the regulatory authorities, which are unhelpful to the SMEs (Bhuiyan 2009). The government agencies like Board of Investment (BOI), Export Promotion Bureau (EPB), Bangladesh Small and Cottage Industries Corporation (BSCIC) and Bangladesh Export Processing Zones Authority (BEPZA), which have the responsibly to promote industrial growth and exports, appear to have not been very effective in boosting investments in SMEs.

Currently, the investment incentives appear to have benefited the SMEs little. For many reasons, benefits of tax concessions or tax holidays provided for new investments cannot be availed by the SMEs (Bhuiyan 2009). They also have limited access to organised source of lending because of bank's difficult loan procedures and stringent collateral requirements. This is reported to be generally responsible for the slow rate of SMEs growth. Appropriate measures should, therefore, be devised

³⁵ Currently, the Foundation has an endowment fund of Tk. 200 crore.

³⁶This was observed by experts in a post-budget discussion meeting organised by Women Entrepreneurs Association of Bangladesh (WEAB) in Dhaka (Financial Express, 19 June 2009).

³⁷ This was also a demand coming from the fourth SME Fair-2009 in the interest of sustained growth of SMEs.

to simplify lending procedures for ensuring greater access of SMEs to institutional source of credit.

Practice of Domestic Factoring³⁸

As was evident from the preceding section on entrepreneurs survey (Section 4.3), a considerable proportion of SMEs face serious problems in marketing their products. Most of the small entrepreneurs sell their products on credit and cannot revolve the fund because of the huge amount of receivables from the buyers. Banks can help the SMEs in having a tripartite agreement and, in this way, can avoid risk of funding.

Experts of Bangladesh Bank and other bank officials are of the option that factoring could be an ideal financing solution for the country's SMEs due to the flexibility allowed under the scheme.³⁹ This is a collateral-free financing transaction. Moreover, a relationship based on trust is maintained in such financial transactions. According to relevant experts, similar financial transactions are already taking place informally; such a factoring scheme, when formalised, is expected to have immense potential in the SME sector.

SMEs Role in Rural Poverty

The SMEs typically constitute labour-intensive industries with relatively low capital base and they have a significant role in employment generation and overall economic growth in the country. It appears that, so far, most SME activities and finances have taken place in major urban areas, especially Dhaka and Chittagong. It is a general suggestion that SMEs now should concentrate elsewhere with the objective to help flourish and create more jobs in the SME-concentrated areas of rural and semi-urban locations.

Quality of SME Products

Productivity increase, quality improvement and standardisation are the major concerns for industrial enterprises, especially for the SMEs. The bank officials strongly suggest that quality of the products has to be improved to make them more competitive.

Database and Access to Information

Financing appears to be not good enough for the development of SMEs. The bank personnel lay utmost importance to establishing SME data base (on aspects

³⁸ Practices of Domestic Factoring are kind of financial transactions whereby a business can sell its accounts receivables (i.e. invoices) to a third party (called a factor) at a discount in exchange for immediate money with which to continue business.

³⁹The Bangladesh Bank Governor recently made a similar suggestion on Domestic Factoring (Financial Express, 26 July 2009).

related to, for example, technical, marketing, finance and level of activities) to ensure access to information in order to achieve well-informed and correct investment decisions. The banks should establish their branches in core villages to make the entrepreneurs more accessible to them. Besides, in order to reduce cost, bankers should ensure more access to electronic documentations and transactions. Appropriate laws, rules and regulations with required training are of utmost importance.

Development of SME Infrastructure

The bank officials strongly maintain that infrastructure development is the prerequisite to efficient financing and SMEs and development. Currently, the most severe constraints that hinder the development of SMEs are the lack of infrastructure (e.g., roads, gas and electricity), limited access to market opportunities, technology, expertise and business information.⁴⁰

Sub-contracting Business and Diversification of Investments

Sub-contracting is a method of running business where a large industry delegates responsibility to several small industries for the supply of product or services. Bank officials, by and large, suggest that sub-contracting business should have a strong role in boosting the country's SMEs. Besides, the linkage between SMEs and large industries has to be extended to back up the emerging SMEs. The bank people themselves recognise that more investments should be made in the SME sector, rather than in capital-intensive large scale units. It is important to ensure supply of technology and other services to the villages where the sub-contracting is easier, and where women entrepreneurs are dominant.⁴¹

Linkage between Agriculture and SMEs

Agriculture in Bangladesh is nearly saturated in terms of employment and the SME sector is the largest employer of industrial workers in the country. This fact alone points to its potential. It is imperative to give attention to agriculture and rural economy for the development of the SMEs. In this context, relevant experts suggest that the commercial banks should diversify their investment through introducing

⁴⁰Under an agreement recently signed, Banglalink and City Bank will now facilitate the SME sector by providing a combination of financial and communication solutions to increase efficiency of the SMEs.

⁴¹Experts expressed similar opinion in the award giving ceremony of "FBCCI-Standard Chartered SME Award 2009." The meeting asserted that one has to give more attention to agriculture and rural economy for the development of the SMEs. In this context, Switzerland is often cited as the best model of sub-contracting business while, reportedly, it is still a rural-based economy.

new products and increasing their product-base both in terms of sectors and geographical regions.⁴² The development of the agriculture sub-sectors such as soybean and maize cultivation, food processing and trading may be given a higher priority.

Seasonality of SME Operation and Financing

Seasonality has long been identified as a common challenge for SME financing in most industries. It is of prime importance to meet the needs of such types of SMEs as light engineering firms that manufacture agricultural machinery and spare parts and whose cash flows are dependent on the seasonality of farmers.⁴³

Establishing Industrial Park

Like the SME entrepreneurs (See section 4.3), the bank officials also lay great importance to set up a co-located cluster industrial park for some sub-sectors such as light engineering, textiles, garments, electrical machinery and plastic.⁴⁴ This is expected to help ensure economic use of finance, infrastructure, transfer of technologies, procurement of raw materials, marketing of products, capacity building and development of horizontal and vertical linkages among all stakeholders in the cluster.

"Operating leases" for SME Financing

Relevant experts, including some bank officials, suggest devising ways of moving away from the traditional collateral-based lending system, which will be of particular importance to women entrepreneurs. Financing private sector investment, mobilising private capital in local financial markets and providing advisory and risk mitigation services to businesses can be a step forward in SME development. Some even suggest introducing Operating Lease to enable SMEs of the country to have access to finance.⁴⁵ Such Operating Lease can be utilised for renting equipment,

⁴²The EBL recently launched "*Matribhumi*," a full range of financially attractive product for the development of SMEs for Non-resident Bangladeshis (NRBs) (Financial Express, 28 May 2009).

⁴³IFC in collaboration with the United Leasing Company Limited has recently developed a product "*Mousumee*" (seasonal), the country's first working capital loan product with a flexible repayment scheme.

⁴⁴It is encouraging to note that the SMEF recently signed a MoU with IFC to carry out a prefeasibility study of some co-located cluster industrial parks in various locations. As explained in the preceding section (Section 4.3), this was what the entrepreneurs suggested in order to ensure economic use of infrastructure and marketing facilities.

⁴⁵It is encouraging to note that IFC, a member of the World Bank group, is planning to introduce Operating Lease to enable SMEs of the country to have access to finance. IFC, in collaboration with Finance Limited and the Bangladesh Leasing and Finance Companies

vehicles and technology required for everyday business. It is expected to be a SMEfriendly product, as it does not require any collateral, involving few asset risk and which can be tailored to specific needs; this is expected to be less expensive than traditional leasing.

Credit Wholesaling for SME Financing

Bangladesh Bank and some other officials suggest that Credit Wholesaling (CW) may be one of the effective means of financing SMEs. Awareness about the use of the system is to be created among entrepreneurs. Both the Bangladesh Bank and the SME Foundation have set criteria for Credit Wholesaling. Meanwhile, BASIC Bank is undertaking CW with fund from the World Bank. The funding is also practiced through some NGOs and banks like ASA and BRAC. The PKSF is also undertaking some CW for the micro entrepreneurs at an interest rate of 12-12.5 per cent.⁴⁶

Women's Involvement in SMEs

According to bank officials, women are generally shy in access to finance because of, in some cases, their low level of education. The bank officials generally suggest to opening women entrepreneurs' cells in every branch of every commercial bank, particularly in remote areas. Readily available information demonstrates that the BRAC Bank is among the leading banks extending loans to women entrepreneurs. For example, while currently the bank has around 120,000 beneficiaries, the number of women beneficiaries is 3,500 (i.e. 2.9 per cent of total beneficiaries). Jamuna Bank, a relatively new bank, has only 12 women beneficiaries out of a total 761 SME beneficiaries (i.e.1.6 per cent).

As regards barriers to women entrepreneurship, they need to take guarantee from their husbands, apart from an additional guarantee from elsewhere in getting fund. Women are in need of getting their companies registered separately to get loan facilities under the circular of BB. According to bank officials, this poses a problem as many of the women have joint and informal businesses with their family members.

Relevant experts suggest to opening women entrepreneurs cell in every branch of every commercial bank, especially in remote areas. The bank officials observe that the SME booth, recently established at the FBCCI, needs to be more operational and effective so that all banking related information can be accessed,

Association, has agreed to offer the operating leases mostly to facilitate the SMEs (Financial Express, 24 January 2008).

⁴⁶The SME Foundation is now planning to implement through some designated banks and financial institutions.

particularly by women entrepreneurs. Under the central bank's directives some counseling centres are said to have been recently established for giving services to women entrepreneurs. Available information suggests that these are yet to be much effective.

Use of Women Refinancing Loan

In a few cases, there are reports of taking SME loans by well-off women without really undertaking SME ventures, according to some bank officials. Reportedly, in a few cases, husbands take loans in the name of their wives to avail the preferential treatments in terms of reduced interest rates.

Repayment Issues

Relevant experts suggest that the central bank further reduces the interest rate to make it more affordable to entrepreneurs. If banks can cope up with 22 to 25 per cent default in big loans, it is a valid question why should not they be able to carry out business in small loans where SME loan defaulters are minimum, in the range of only 5 per cent for most of the banks (Table 4.37).

Name of Bank	Branch	Recovery rate (%)
Jamuna Bank Limited	Motijheel	98
Mutual Trust Bank	Dholaikhal	100
Islami Bank Bangladesh	Nawabpur	90
BASIC Bank Limited	Mirpur	80
Bank Asia	Mirpur	80
Bangladesh Krishi Bank	Savar	80
BRAC Bank	HQ	95
BASIC Bank Limited	Gazipur	96
NCC Bank	Savar	98
Shahjalal Bank Limited	Joydevpur	100
Trust Bank Limited	Joydevpur	100
Pubali Bank	Mirpur	NA
Uttara Bank Limited	Joydevpur	90
National Bank	Savar	98
NCC Bank	Motijheel	97

 TABLE 4.37

 RECOVERY RATES OF BANKS DEALING WITH SMES: SELECTED BANKS

Source: SME Background Study: Bank/FI Officials Survey 2009, BIDS.

4.4.4.3 Perceptions of Bank/FI Officials on Achievement of SME Financing

During our brief survey, the perceptions of the respondent bank/FI officials were collected about how they rate achievement of SME financing, at its current state, in respect of contribution to some selected areas of development. In all, thirteen areas of contribution (however, not mutually exclusive) were identified as

(1) employment (2) income (3) poverty alleviation (4) skill development (5) innovation (6) private sector development (7) export sector development (8) import substitution (9) increase in use of domestic products (10) enhancement of product quality, (11) enhancement of productivity, (12) sustainability of SMEs and (13) women empowerment. The score for assessment, based on their judgement, starts from 0 (no achievement) to 5 (maximum achievement).

Table 4.38, which is self-explanatory, presents results of the assessment. As can be seen from the table, the overall achievement of the SME financing estimates as 61.6 per cent. A number of 0 score (no achievement=7) and a substantial number of 5 score (maximum achievement=53) were given to some of the thirteen areas of assessment. It is revealed that the maximum score has been assigned to increased employment generation (77 per cent), followed by 76 per cent to enhancement of production, 73 per cent to income generation, 69 per cent to private sector development, and 68 per cent to poverty alleviation.

RESI ECT OF SELECTED CRITERIA								
Contribution	0	1	2	3	4	5	Total respondents	Overall assessment (%)
Employment generation	-	-	3	3	2	7	15	77.3
Income generation	-	-	4	3	2	6	15	73.3
Poverty alleviation	-	2	3	2	3	5	15	68.0
Skill/technological development	1	2	4	2	1	5	15	60.0
Innovation	3	3	5	1	1	1	15	33.3
Private sector development	-	2	-	6	3	4	15	69.3
Export sector development	2	2	5	3	-	3	15	48.0
Import substitution	1	5	3	2	1	3	15	48.0
Increase in use of domestic	-	3	4	3	3	2	15	56.0
products								
Enhancement of product quality	-	-	5	3	5	2	15	65.3
Enhancement of production	-	1	2	3	2	7	15	76.0
Sustainability of SME	-	2	3	5	1	4	15	62.7
Women empowerment	-	2	2	6	1	4	15	64.0
Total score	7	24	43	42	25	53	195	61.6

TABLE 4.38

EVALUATION OF SME FINANCING SCHEME, AT ITS CURRENT STATE, IN RESPECT OF SELECTED CRITERIA

Source: SME Background Study: Bank/FI Officials Survey 2009, BIDS.

Note: 15 out of 18 bank/FI officials responded to this question.

evaluation scores 0 - 5, where 0 represents no achievement at all and 5 represents highest achievement. Total maximum possible score is $15 \times 13 \times 5 = 975$.

The relatively lower scores were given to increase in use of domestic products (56 per cent), import substitution (48 per cent), export sector development (48 per cent) and innovation (33 per cent). It is interesting to note that the correlation of the overall assessment scores of the officials with those of the respondent entrepreneurs

is estimated as 0.82, which is statistically significant at 99 per cent level, implying that both the category of respondents think the contribution of SME financing in selected areas of socio-economic development in a similar manner.

4.5 INSTITUTIONAL FINANCING FOR WOMEN ENTREPRENEURS IN SMES

4.5.1 Introduction

While small and medium enterprises (SMEs) are considered vital for the growth and development of Bangladesh, little is known about the role of women in them. In the earlier chapter it was noted that SME create the majority of national income and employment, but they have the least access to institutional finance. Access to institutional finance for women entrepreneurs in SME is further marginalised. Chowdhury (2006) noted that the heterogeneity of women entrepreneurs in Bangladesh must be taken into account when addressing their access to financing. The participation of educated women in small businesses by choice, rather than necessity, is a relatively new phenomenon. In earmarking resources for loans to women entrepreneurs for SMEs, government policies need to meet the needs of this group. In Bangladesh, it is important to design financial products specifically for women entrepreneurs in SMEs. These products need to be different for start-up capital for new business and for established business.

In various forum, policymakers and researchers have noted that access to finance is the most critical factor for women entrepreneurs in SME for market entry and running the business. The key issue in this section is to analyse how public policy could address the constraints faced by women SME entrepreneurs. There is no comprehensive study on women entrepreneurs' access to institutional finance, which have analysed their constraints, and linked this to macro policies. Hence, the approach taken in this section is an analysis at the *micro level*, followed by an analysis at the macro and meso level. At the micro level, the situation of women in SME has been analysed using Bangladesh Bureau of Statistics data and data from existing surveys. Here the barriers in access to finance have been identified based on discussion with various women entrepreneurs associations as well as bankers and women entrepreneurs in SME. In order to understand the role that public policy could play to address these constraints, analysis of various government policies has been provided at the *macro level*. The *macro level* analysis shows the various national commitments made to overcome the constraints of women entrepreneurs in SME in the National Action Plan, Five Year Plans, and the PRSP and in the sectoral policies. These commitments were implemented through various meso level instruments for SME access to finance. A special focus has been given in this section to the refinancing scheme of Bangladesh Bank for women entrepreneurs.

The policy recommendation for the Sixth Five Year Plan for women entrepreneurs in SME in section 4.7 follows from these analyses.

4.5.2 Micro Level Analysis: Situation of Women SMEs in Bangladesh

4.5.2.1 Extent and Nature of Women-owned SMEs: A Review

Neither the Bangladesh Bureau of Statistics nor the Economic Review of the Ministry of Finance shows industrial statistics that segregate data for women entrepreneurs in SMEs. The existing repositories of information, such as the Bangladesh Small and Cottage Industries Corporation (BSCIC) and the Board of Investment (BOI) for medium and large industries, do not generate or maintain gender-specific data. However, while statistics on the number of women entrepreneurs are scarce, several surveys have been undertaken. Their findings show that while the formal labour force participation of women has doubled since 1995/96, it is still quite low, only 29.2 per cent by 2005/06 (BBS 2008). At that time, most of the increase was due to growth in self-employment. About 15.86 per cent of the women in the labour force in 2005/06 were self-employed, and they were mainly concentrated in urban areas. About 29.86 per cent of urban females in the labour force were self-employed, while only 11.55 per cent of rural females were self-employed (BBS 2008).

Another earlier study showed the picture from a different perspective. According to data generated by the Economic Census conducted by the Bangladesh Bureau of Statistics (BBS) in 2001-2003 (Chowdhury 2006), women owned only 2.83 per cent of all enterprises. Chowdhury (2006) showed that while most SMEs are micro and small enterprises, the percentage owned by women is less than a half of one per cent. The share of women-owned enterprises increased with the size of the enterprise. This was because the survey had underestimated the clusters of manufacturing enterprises in cities and towns where male owners outnumber female owners .

Yet another study, the 2003 Private Sector Survey of Enterprises, revealed that micro, small, and medium enterprises (MSMEs) employed more than 31 million people and contributed 25 per cent to GDP. This study found that women owned 6 per cent of MSMEs, while a recent study by the Ministry of Industries (MOI) reported that women owned only 4.5 per cent of enterprises. In another study (PPRC 2006), female entrepreneurs formed only one per cent of the sample. Ahmed (2008a) argues that while women entrepreneurs make up less than 10 per cent of the total number of entrepreneurs in South Asia, in Bangladesh the proportion is estimated at 6 to 7 per cent. These enterprise surveys indicate a low level of participation by women entrepreneurs in formal business, while the Labour Force

Survey gives a much higher figure. This suggests that women-owned micro enterprises have been under-sampled in the enterprise surveys, especially in urban areas. One reason for this could be that many women are engaged in business, but about half of women-owned enterprises do not have trade licenses (2007 BWCCI). These enterprises were likely to be excluded from the enterprise surveys.

The 2004 National Task Force Report on SMEs identified lack of capital as the primary constraint to SME development. In Bangladesh, micro enterprises have access to institutional financing from microfinance institutions, while medium-size enterprises have access to commercial loans. Small enterprises are the "missing middle" in terms of the availability of institutional financing because they are too large to qualify for governmental micro credit assistance programmes, but too small to qualify for bank loans. Women entrepreneurs in small enterprises need their own policy support to avoid falling into this category.

The nature of women-owned SMEs in Bangladesh based on a review of existing surveys (the 2003 Private Sector Study, the 2006 South Asia Enterprise Development Facility (SEDF) study, and the 2007 Bangladesh Women Chamber of Commerce and Industries (BWCCI) study), suggests the following: (i) characteristics of the enterprises, (ii) demographic characteristics of women entrepreneurs, (iii) training in SMEs, and (iv) women entrepreneurs' access to financing.

Characteristics of the Enterprises

The 2003 Private Sector Survey (Daniels 2003) found that 18 per cent of female ownership positions were in agriculture, compared to 25 per cent of male ownership positions. This figure of 25 per cent may actually reflect problems with category definitions. If agriculture includes rice processing, female ownership would be 18 per cent. But if rice processing is considered as a manufacturing activity, it would be counted under that category. Because it is very unlikely that 47 per cent of male-owned enterprises are in manufacturing, compared to only 14 per cent of male-owned enterprises (Table 4.39), the survey probably over-sampled rural and micro enterprises and underestimated the clusters of manufacturing enterprises in cities and towns where male owners of enterprises outnumber female owners of enterprises. Table 4.39 also shows that while women tend to be more heavily concentrated in manufacturing (boutique, handicrafts), males tend to be more enterprise were mostly involved in manufacturing (61.6 per cent), mainly in boutiques, handicrafts and food processing, followed by service and trade.

Like studies from other developing countries, the SEDF (2006) study found that female-owned businesses have smaller employment and sales figures than male-
owned businesses; most women were sole proprietors. Moreover, women entrepreneurs preferred to start their business in sectors where female employment was already concentrated since they would have ready role models. Raihan (2007) argues that women's choice of food processing, clothing, and textile sectors reflects resource constraints, as well as an aversion to risk-taking and a preference for low entry barriers, and low financial risks. Women who own enterprises seem to have little experience with legal documentation since about half of these businesses did not have trade licenses (2007 BWCCI). The need for a trade license could be seen as an entrance barrier.

TABLE 4.39**DISTRIBUTION OF OWNERSHIP BY GENDER**

Sector	Female	Male	Mixed
Agriculture	18	25	29
Fishing	1	4	6
Manufacturing (boutique, handicrafts)	47	14	23
Construction	-	1	3
Wholesale & Retail, Trade	23	42	25
Hotels and Restaurant	7	5	11
Transport, storage and communication	1	1	-
Real estate, renting and business activities	1	3	4
Health and Social work	-	1	-
Other service activities	1	3	-
Total	100	100	100

Source: Daniels (2003).

Demographic Characteristics of Women Entrepreneurs

The 2003 Private Sector Survey showed that women entrepreneurs were younger than their male counterparts. The average age was 33 for women and 36 for men. About 58.3 per cent of women entrepreneurs belonged to the 15 to 30 years old age group and another 26.7 per cent belonged to the 31 to 40 years old age group, according to the 2007 BWCCI survey. The SEDF study (2006), in contrast, reported the average age of women entrepreneurs as 45. The SEDF study also reported that women had an average of 9 years of experience, which again raises questions about the sample frame, in this case suggesting that older women were over sampled.

The 2003 Private Sector Survey noted that more women entrepreneurs had higher education than did their male counterparts. The percentage of women

entrepreneurs with at least 10 years of formal education varied between 65 (SEDF 2006) and 85 (2007 BWCCI). The higher educational level in the 2007 BWCCI study correlates with the higher number of younger women entrepreneurs in that study. That study suggests that as more women receive an education, younger women engage in entrepreneurship, notably those between the ages of 15 and 30 who have at least 10 years of formal schooling. Like the earlier Labour Force Survey 2005-06, this study noted that enterprises owned by women entrepreneurs were mostly in urban areas. The study further noted that more than two-thirds of the women's fathers or husbands had received at least 10 years of schooling (the Secondary School Certificate), and in most cases either their fathers or husbands were also involved in business. About half the women business owners were married, and one-third were unmarried, and the rest were divorced or widowed (2007 BWCCI).

Training in SMEs

According to the 2007 BWCCI, more than 70 percent of women entrepreneurs had received training from a range of organisations, including non-governmental (NGO) organisations, the BSCIC, the Ministry of Youth, the Ministry of Women's and Children's Affairs, and women's associations. However, most of the training was not based on a prior assessment of needs and thus it was not relevant for women-led enterprises. Those who did not receive training were more likely to be from rural areas.

Women Entrepreneurs' Access to Finance

Private and public financial institutions in Bangladesh, like those in other developing countries, do not separate data on access to financing by gender. Studies have noted that women contribute around 26.26 per cent of the total amount deposited in banks, but they receive only 1.79 per cent of the total amount of outstanding loans (Choudhury and Raihan 2000). In 2003, only 6 per cent of women entrepreneurs had received loans from commercial banks, compared to 14 per cent for male entrepreneurs. On the other hand, a greater proportion of women entrepreneurs received loans from NGO-Microfinance Institutions: 22 per cent of women versus 16 per cent of men (2003 Private Sector Study).

Studies have shown that access to financing is one of the most critical constraints faced by women entrepreneurs (Ahmed 2008, BWCCI 2008, Raihan 2007, MOI 2004, Daniels 2003). This constraint was cited most frequently in the 2003 Private Sector Study as the key problem during startup and operation. The 2007 BWCCI study noted that about 79 per cent of women entrepreneurs had no

access to formal financial institutions, and only 19 per cent had ever received institutional financing, including from NGOs. Money from her own and her family's savings was the main source of capital for women starting a business in Bangladesh. This suggests that women-owned enterprises are especially constrained by lack of access to institutional financing.

Institutional factors have an important influence on the nature and extent of female entrepreneurship. Raihan (2007) noted that while the lack of institutional financing is a problem for most new and small firms, it had a greater impact on women entrepreneurs because they lack other sources of financing. The financing needs of men and women depend not only on socio-economic and socio-cultural factors where an entrepreneur lived (rural, semi-urban, urban) and the entrepreneur's educational background, but also on the type and size of the enterprise.

Earlier, it was noted that women entrepreneurs are concentrated in the category of boutiques/tailoring shops. A study on tailoring shops (Zohir 1994) found that women-owned boutiques required short-term loans, with the peak demand during festivals. Women-owned enterprises tend to require small monthly loans and extended repayment periods.

The SEDF study (2006) reported that women-owned enterprises made use of short-term loans more often than medium-term loans, which had an average size of Tk. 3,00,000.⁴⁷ The average interest rate was 13 per cent. The average time required to process an SME loan was 57 days for men-owned enterprises, in contrast to 145 days for women-owned enterprises. Moreover, the study suggested that women-owned enterprises increased their debt level as the businesses matured. About 46 per cent of women entrepreneurs in the study had applied to a financial institution for a loan in the past three years, yet the credit penetration rate were only 5 per cent. However, women-led enterprises were probably more likely to borrow money over the next three years since 85 per cent of women entrepreneurs reported an intention to borrow.

4.5.2.2 Survey Findings: Barriers in Access to Finance for Women Entrepreneurs

This section is based on the research conducted for this study. Our literature review suggested that an important theme within gender and enterprise research is whether female entrepreneurs are disadvantaged in obtaining financing for their businesses. In the exploratory phase, women entrepreneurs and bankers/financial

⁴⁷ In 2010, \$1=Tk. 70 approximately.

institutions were asked to describe barriers women faced in obtaining financing. Their responses fell into two broad areas: the demand-side and the supply-side barriers experienced by women in seeking institutional financing. Those responses are discussed below.

A. Demand side barriers

Social barriers: The concept of women entrepreneurs is not well accepted in the family and society in Bangladesh. Business is considered a male domain. Very few women enter business with family support. Those who do usually have other family members engaged in business, as noted in the BWCCI 2007 study.

Home-based enterprises: About 84 per cent of women-owned enterprises are based at home, compared to 48 per cent of male-owned enterprises (Daniels 2003). Many women entrepreneurs worked from rented property or at home to conserve capital.

Lack of collateral: Women entrepreneurs often complained about the "collateral requirement" for institutional financing. The collateral banks usually considered appropriate is land and buildings. Since women rarely own land, the requirement of land and building collateral constrains their access to institutional financing. As security for collateral-free loans, SME entrepreneurs had to give post-dated checks for each payment and one undated check for the full value of the loan, including the entire interest payment. This system gave the creditor assurance that claims for repayment could be realised quickly. Six months of bank statements are also required , but women-owned enterprises usually lack bank accounts in the name of the enterprise and therefore cannot provide checks in place of collateral.

No banking history: Women entrepreneurs observed that because new entrepreneurs have no banking history, bankers are reluctant to lend them start-up capital.

Women lack continuity in their careers: The track record of women-owned businesses often lack continuity because women entrepreneurs have to interrupt their careers to take care of family obligations.

Women entrepreneurs lack information: Women entrepreneurs lack information about credit facilities, financial instruments, business networks, and the borrowing requirements of financial institutions.

Restricted networking opportunities: An important source of information about institutional financing is networking by women entrepreneurs. There are about 12 associations of women entrepreneurs recognised by the Dhaka Chamber of Commerce and Industry (DCCI 2009). The main associations are the National

Association of Small Industries of Bangladesh, the Bangladesh Women's Chamber of Commerce and Industries, the Women Entrepreneurs Association of Bangladesh, the Women's Entrepreneurs Association, the Bangladesh Federation of Entrepreneurs, the Chittagong Women's Chamber of Commerce and Industries, and the Bangladesh Home Workers Women's Association. These networks operate mostly in urban areas. To become a member, women entrepreneurs must have a trade license and a tax identification number (TIN). Although membership could provide a basis for institutional financing, many urban and rural women-owned enterprises are not members of these associations. The women's associations do not have strong links with the industry associations and the Chamber of Commerce. There is no database of women entrepreneurs outside the professional associations, so it is difficult for loan officers to identify and communicate with women entrepreneurs who might be eligible for loans.

Changing bank managers: Women entrepreneurs reported that it takes time to build relationships with bank managers. Therefore when new bank managers were hired, the women were apprehensive about delays in the loan granting process.

B. Supply-side Barriers

Financial institutions reported that many women were doing business without a trade license, a TIN, or a bank account in the name of the enterprise. Banks cannot lend to businesses that have no banking history. The one exception was the BRAC Bank, which did not require a banking history and therefore was more accessible to women entrepreneurs.

Lending to women entails higher costs: In addition to the characteristics of women-owned businesses mentioned above, women also tend to lack business management skills. As a result, banks must spend more time with women entrepreneurs, which means higher costs.

Assumption that women business owners are risk-averse: Women entrepreneurs confirmed a reluctance to take out large loans because of a fear of defaulting. One women entrepreneur stated: "Debt is a bad and it should be avoided. Business should be expanded from your business earnings."

Gender stereotypes: Representatives from financial institutions perceive women to be less bankable than men. One stated:

"When women apply for loan, they often ask for as little as possible. The sectors where women mainly set up their business are not in the SME loan programmes. Women often are not serious about the growth of their business.

But women are considered to be credit worthy as their repayment rate is high."

Since women are perceived as less entrepreneurial than men, one implication of the finding is that there is a need for services where women could seek opportunities to meet with a loan officer to prepare their business proposal.

Higher administration costs: Bankers have to spend more time with women entrepreneurs to complete application forms and gather relevant information. The bankers' estimate of the cost of delivering credit to women is 6 to 7 per cent. For collateral-free loans, financial institutions used estimates of the value of inventory, receivables, advance payments, plants, and machinery. Financial institutions need reliable information about a firm's cash flow to assess its ability to repay loans. In women-owned enterprises, financial institutions must therefore undertake extra time and expenditures to assess the track record of the enterprise and its credit worthiness.

Women are perceived higher risk: Banks often consider women entrepreneurs in SMEs high-risk borrowers because they lack collateral. Women entrepreneurs represent (or are viewed as representing) activities in the informal sector, which means they deal with cash transactions, lack bookkeeping skills, and engage in businesses with little growth potential, all factors that make them risky to bankers. Most women entrepreneurs in SMEs do not have a credit history, so there is no Credit Information Bureau (CIB) report on them. Although the Bangladesh Bank circular has set Tk.100,000 as the lower limit for collateral-free loans, none of the financial institutions surveyed provided such loans. For loans of Tk.100,000, the Bangladesh Bank would find it burdensome to provide CIB reports, thus it discouraged financial institutions from providing these small loans.

Lengthy loan process: Women entrepreneurs noted that the loan application process is lengthy because so many documents are required (Table 4.40). A survey of SMEs in Bangladesh found that entrepreneurs have to make an average of 15 visits for one bank loan, compared to 3 visits for loans from informal money lenders and 2.25 visits for loans from relatives and friends (Choudhury and Raihan 2000). There were also delays in processing loans. Women usually needed credit during festivals and delays forced them to use alternative kinds of trade credit (Zohir 1994). *Complex loan processes* Women entrepreneurs felt that the loan process was complex. Criteria for loan selection were similar among financial institutions. Table 5.2 shows the list of documents required for collateral-free loans. Studies on

boutiques show that their owners turn to moneylenders during emergencies due to the complexity of the loan process (Zohir 1994).

TABLE 4.40 LIST OF DOCUMENTS REQUIRED FOR COLLATERAL FREE LOANS

- 1 Two years valid Trade License /Certificate of incorporation
- 2 Tax Identification Number (TIN)
- 3 For limited Company, copy of the Memorandum and Article of Association of the Company and Incorporation.
- 4 For partnership, copy of partnership agreement.
- 5 Income statement from bank where the entrepreneur maintains a current account
- 6 One year bank statement of the enterprise
- 7 Statement of sales, purchases, inventory, and balance sheet
- 8 Statement of loans if any
- 9 For rented premise, then copy of two years agreement for rental
- 10 4 copies of loan applications
- 11 Project profile/business plan
- 12 Credit Information Bureau (CIB) report from Bangladesh Bank
- 13 Clearance certificate from the electricity office
- 14 Nationality certificate/Voter ID card

Source: Information obtained from financial institutions.

High interest rates: Most women consider the interest rate for loans too high. They could not afford to pay 15 to 18 per cent. Collateral-free loans under the refinancing scheme have an interest rate for women entrepreneurs of 10 per cent, which means the bank pays just over 5 per cent. However, very few women entrepreneurs receive this kind of loan. Although bankers believe this spread would not cover the costs of the loan, women entrepreneurs noted that a recent Bangladesh Bank circular⁴⁸ directed an interest rate for large and medium enterprises for working capital and term loans of 13 per cent maximum, so interest rate for women entrepreneurs needed to be reduced.

Lack of gestation period: Women entrepreneurs find it difficult to repay bank loans before their projects start generating a cash flow. They need a grace period of at least three months to repay loans, since most are engaged in manufacturing. Women entrepreneurs prefer Micro Industries Development Services (MIDAS) because they allow a two-month grace period.

⁴⁸ BRDP circular no. 04, dated April 19, 2009.

Husband as guarantor: All financial institutions require two personal guarantors as security. Each one must be financially secure and must have a substantial savings account. One guarantor must be a spouse and the other a family member. In an ongoing study by MIDAS on women entrepreneurs, it was noted that in Rajshahi, a husband refused to be a guarantor for a loan taken by his wife. Collateral-free loans of up to Tk. 25,00,000 could be granted based on a personal guarantee. But none of the banks and non-bank financial institutions surveyed had ever provided collateral-free loans of Tk.25,00,000 to women entrepreneurs. Women entrepreneurs consider this requirement the most serious barrier to their access to institutional financing.

Slow and costly legal processes: Bankers are reluctant to lend to women entrepreneurs because of the slow and costly legal process involved in a loan default.

Women-owned enterprises are small: Women are more likely to own microenterprises, which require small loan amounts. This creates relatively high overhead costs for the banks that grant the loans.

Women-fronted enterprise: A common problem faced by financial institutions was that after a loan had been granted to a woman-owned enterprise, men managed the enterprise. The result is that women "relationship managers" at the financial institutions find it difficult to collect loan repayments from male-managed businesses.

The responses above show the many challenges that face women entrepreneurs who seek financing for SMEs, even though they have better repayment rates than their male counterparts. There are constraints to the entry, growth, and survival of women-owned SMEs. The question, therefore, is, how can financial products be tailored to better serve women entrepreneurs.

4.5.3 Macro Level Analysis: National Commitment for Women Entrepreneurship

Several national commitments have been made in favour of women entrepreneurs and their access to financing. An analysis of the National Action Plan, Five Year Plans, the Poverty Reduction Strategy Paper, Industrial Policy, and the SME Development Policy uncovers several governmental policies that address women entrepreneurs and their access to financing. These policies provide insights about gaps in macro policies that need to be addressed.

4.5.3.1 National Action Plan (NAP) for Women's Advancement

The NAP for Women's Advancement was developed in 1997. Its main objectives were to: (i) adopt a comprehensive and sustainable industrial policy that promotes equity for men and women; (ii) increase the number of women

entrepreneurs; (iii) enhance women's entrepreneurial skills; (iv) ensure women's access to markets; (v) provide infrastructure facilities for women entrepreneurs; (vi) upgrade women's technical expertise and develop technology suitable for women; and (vii) provide linkages with bankers and establish contact with the Ministry of Finance to allocate credit quotas for women in commercial banks (MWCA 2002).

4.5.3.2 Five-Year Plans

The importance of women entrepreneurs in Bangladesh was first highlighted in the Second Five Year Plan (1980-85). It recommended the creation of an environment that would foster women's participation in the economy by expanding opportunities for training, credit, and entrepreneurship development. This policy was carried forward in the Third Five Year Plan (1985-1990). With the Fourth (1990-1995) and Fifth (1995-2000) Five-Year Plans, women became eligible for micro credit programmes and women were placed within the context of macro framework with multi-sectoral thrust. The Fifth Five Year Plan emphasises women's legal rights in property inheritance, as well as equal rights to training and credit facilities (MWCA 2002).

4.5.3.3 Poverty Reduction Strategy Paper (PRSP)

The PRSP of the Ministry of Planning emphasised entrepreneurship as an important means to women's advancement. It proposed changes to the family and to inheritance laws to ensure that women have the right to own and inherit property. It also recommended measures to provide access to credit for SMEs. The recommendations related to women entrepreneurs were: offer one-stop business development services for SMEs; target women in credit and skill-building programmes and projects; distribute government-owned (*khas*) land to female members of households; give women access to local and international markets; make the banking system more women friendly by introducing innovative collateral provisions for women who do not own land; provide effective mechanisms for obtaining collateral-free loans from local banks and other sources; allocate budgetary funds for making small-scale loans to women and creating computer portals for women entrepreneurs.

4.5.3.4 Industrial Policy

Although the NAP, the Five Year Plans, and the PRSP highlighted women entrepreneurs, it was not until 2005 that the issue finally received attention in the industrial policies (IP) (2005 and 2009 (draft)) of the Ministry of Industries, which devoted a separate chapter to women entrepreneurs. The IPs considered SME a priority sector and a major driving force for industrialisation. Assisting women

entrepreneurs was given special priority. Generating productive employment, mainstreaming women into the industrial process, and poverty alleviation were underlying objectives of IP 2005 and IP 2009 (draft). To improve access to financing for women entrepreneurs in SMEs, both IP 2005 and IP 2009 (draft) noted that steps would be taken to offer women entrepreneurs pre-investment advice and assistance in creating and implementing projects. The necessary assistance and services (such as one-stop service centres for information about product opportunities, credit, market data, legal services, and technology) would be provided by the SME Foundation. IP 2005 and IP 2009 (draft) also proposed that: (i) incentives and financial support be considered for women entrepreneurs to establish themselves in small and cottage industries as well as medium enterprises; (ii) the government would assess the feasibility of a separate industrial zone for women entrepreneurs and enforce preferential treatment and quotas for women in new zones and market places; (iii) access to financing for women by financial institutions as well as government and private banks would be improved. This would entail evaluating and strengthening existing bank programmes for women entrepreneurs, arranging collateral-free or group-collateral loans, and offering special guarantees for women entrepreneurs. The government would also need to formulate special policy documents pertaining to financing for women entrepreneurs; (iv) public sector technical institutions would create training programmes that enhance the efficiency of women entrepreneurs; (v) the government would remove legal barriers to women's economic and business empowerment, particularly in relation to their participation in enterprises (GOB 2005a, 2008).

4.5.3.5 SME Development Policy

SME Policy Strategies 2005 pointed out that women entrepreneurs should be accorded preferential treatment wherever appropriate along with support to accelerate the retention and promotion of women entrepreneurs. The government identified 11 booster sectors, which are shown in Table 4.41. Studies have shown that women entrepreneurs are mainly engaged in boutiques (that offer women's and children's clothing) handicrafts, beauty services, prepared food, and baked goods. To promote women entrepreneurs, the category "designer of fashionable clothing and accessories" was chosen as a booster sector by the Task Force on SME (MOI 2004). This category was later included in the SME Policy Strategy as "Fashionable accessories, clothing and consumer goods." The categories of handicrafts, beauty services, prepared foods, and baked goods remain outside the booster sector for women entrepreneurs.

TABLE 4.41 BOOSTER SECTOR FOR SMES

1	
1	Electronics and electrical
2	Software development
3	Light Engineering and metal-working
4	Agro-based industry
5	Leather- making and leather goods
6	Knitwear and ready-made garment
7	Plastics and other synthetics
8	Healthcare and diagnostics
9	Educational services
10	Pharmaceuticals/cosmetics/toiletries
11	Fashion-rich personal effects, wear and consumption goods

Source: GOB (2004).

In emphasising financing for small enterprises, the SME Policy Strategy noted that 80 per cent of the total resources available for SMEs would be allocated specifically to small enterprises. Bangladesh Small Industries and Commerce Bank Limited (BASIC), which is government owned, and BRAC Bank, which is privately owned, would work together as lead banks and would be responsible for the distribution of credit and venture capital funding in the short run (GoB 2005b).

Although mainstreaming women entrepreneurs was recognised as a national priority, important policy guidelines like the Prudential Regulations for SME financing of Bangladesh Bank 2004, and the Micro Credit Regulatory Act 2006 of Bangladesh Bank do not have specific regulations concerning women's entrepreneurial development. Access to credit, entrepreneurial skill training and markets, in addition to equal legal rights to own property, were the key areas addressed in macro policies. The NAP and PRSP proposed a quota to measure women's access to credit from commercial banks. A major change in focus in the Five Year Plans and the PRSP was the introduction of innovative, collateral-free loans for women entrepreneurs. Although the PRSP mentioned one-stop business development services and fiscal incentives, it did not elaborate on these issues.

4.5.4 Meso Level Analysis: Bridge between Macro Policies and Micro Needs

It was noted in the earlier section that women entrepreneurship in Bangladesh have not developed much beyond micro and small enterprises. Various modes have been used for SME access to finance. An attempt has been made in this section to understand how and to what extent these have focused on women entrepreneurs.

4.5.4.1 Alternative Instruments for SME Financing in Various Countries

In various countries, several modes and instruments for SME financing have been used to bridge between macro policies and micro needs of the entrepreneurs.

Islam, Zol	iir &	Hossain:	SME	Devel	lopment	in .	Bangl	ad	esł	ı
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Table 4.42 suggests that Bangladesh is yet to develop many of these instruments. Moreover, it is important to understand to what extend these instruments have adequately addressed the needs of women entrepreneurs.

	THE FER			nem		it onli		- n (G	
S1.	Programme	Japan	USA	UK	Chain	India	Malaysia	Sri	Bangladesh
no					and HK			Lanka	
1	Direct investment by	Х	Х	Х	Х	Х	Х	Х	Х
	Bank								
2	Government	Х	Х	Х	Х	Х			Х
	investment in								
	venture capital or								
	equity capital								
	financing schemes								
3	Credit Guarantee	Х	Х		Х			Х	
	Scheme								
4	Leveraged	Х	Х	Х					
	investment with								
	government								
	participation								
5	Venture Capital	Х	Х	Х	Х	Х	Х		
6	Loans/guarantees to	Х	Х	Х	Х		Х		
	SMEs through								
	institutional network								
	through public-								
-	private partnership	37	37	37			37		
/	Credit database	X	X	X			X		
8	Sub-contracting	А	Λ	А			А		
0	Erit markent	v	v	v		v			
9	exit mechanisms for	л	Λ	л		л			
	stocks								
10	Stocks Strong legal and	v	v	v			v	v	
10	regulatory	71	Λ	1			Λ	71	
	framework for the								
	capital market								
11	Credit Scoring	x	x		x				
	Mechanism								
12	Bank Syndication						х	х	х
13	Specialized financial	Х	Х	Х	Х	Х	-	X	X
	institutions								
14	Credit Rating		Х					Х	Х
	System								

TABLE 4.42 ALTERNATIVE INSTRUMENT FOR SME FINANCING

Source: Raihan (2007).

Both in developed and developing countries, major sources of support and finance to SMEs were government and the private sector. Financial support included direct investment by governments in venture capital, credit guarantee schemes, commercial bank credit, credit database, exit mechanisms for companies and stocks, credit scoring mechanisms, financing through specialised financing institutions, etc. Public-Private Partnership is also becoming popular in many

countries like Japan, USA, UK and Malaysia. Specific types of financial support is given in Table 4.42. It shows that fourteen financial programmes were available in countries like Japan, UK and USA, but in South Asian countries the availability of these programmes was rare and even less so in Bangladesh.

4.5.4.2 Public Sector Mode for Financing SME in Bangladesh

An attempt has been made here to understand how and to what extent the public sector modes have focused on the needs of women entrepreneurs in Bangladesh.

(i) Women focused projects for entrepreneurs

Women Entrepreneurship Development Project (WEDP): WEDP was the only programme in the industry sector, which was directly related to women entrepreneurship development. This was initiated by BSCIC in 1982 with the support from USAID and was discontinued in 2004-05. It was the first programme to support women with larger amount than micro credit without collateral. The highest ceiling of the loan was Tk. 60, 000. The activities were to provide pre-investment counseling, assisting in project appraisal and feasibility studies, extending credit facilities, imparting training and providing marketing and technical support. Studies have shown that the rate of disbursement was 92 per cent. WEDP required consent and approval from the husband or another male relative before lending to women. This shows the lack of trust in women's worth, although the programme was encouraging women's investment. The project could not link the entrepreneurs with other institutional credit system (MWCA 2002).

Entrepreneurship development for women: The Jatio Mohila Shangstha (JMS) initiated a project in 1998 in 64 districts for five years with assistance from UNDP to support potential women to become entrepreneurs. The project supported those who were graduates of various micro-credit programmes of various agencies like the Department of Women's Affairs, Department of Youth, etc. The project also aimed to link the beneficiaries with institutional source of credit. Although the credit limit was from Tk. 30,000 to Tk. 1.5 lakh, the highest disbursement was Tk. 70,000. Before extending credit, management training was imparted to the entrepreneurs.

(ii) Specific Instruments in Financing

Micro credit programmes: The financial institutions and banks generally extended credit facilities to women under micro-credit programmes. Micro credit programmes in the rural areas were creating income generating activities where peer group worked as collateral. Women have shown proficiency in using micro finance.

Mainstreaming SME credit: In the last quarter of the 1980s, the Bangladesh Bank circular directed the commercial banks to lend at least 15 per cent of their lending capital for industrial sector. Five per cent was supposed to be spent for the small and cottage industries. But there were no guidelines for women entrepreneurs.

Special credit programmes : In addition, there was a special credit programme for small and cottage industries and one small loan scheme, for which the banks were required to set aside 2 per cent of their lending capital. However, there was no special circular or consideration for women entrepreneurs other than for poverty reduction project loans.

Separate branches for women: Some public sector banks have women branch but their role is to generate saving rather than encourage investment. Though not legally required, banks and credit programmes insist on husbands' or other male relative consent as guarantor before providing loans. Sonali bank is a pioneer bank, which opened a few women's branches in the country to promote saving habit of women. It had initiated a project "Credit for Urban Women Micro Enterprise Development," which offered loan between Tk.50,000 to Tk. 2 lakh without collateral. The viability of the project, hypothecation and a personal guarantee was required. The formalities were considered to be difficult for women and the amount was too small to establish a small enterprise. Janata Banks have good facilities in providing collateral free loans up to Tk. 5 lakh. But these were only available in Dhaka city.

Establishing separate bank for SME: BASIC bank was established in 1998 with the objective to cater to the credit needs of small and cottage industries. It functions through 17 selected NGOs due to the high cost of operations. BASIC bank is mandated to provide 50 per cent of loanable fund to small and medium industries and to follow strategies of Industrial Policy 2005. Among the SME borrowers, women entrepreneurs were negligible in number and male family members played the dominant role. It was reported that women borrowers were mostly "sleeping partners" of their husband.

Equity and Entrepreneurship Fund: The Bangladesh Bank has established a collateral free Equity Development Fund (later called Equity and Entrepreneurship Fund) in 2000 to support information technology and agro-based industries as thrust sector and women have not been considered as specific client group.

Refinancing Scheme of Bangladesh Bank: To overcome the financial constraints of the SME sector and induce banks and Financial Institutions to provide credit facilities to SME, Bangladesh Bank introduced a refinancing scheme for SMEs in 2004 using three sources of funds: Tk.100 crore of Bangladesh Bank's own fund, US \$10 million from IDA under the Enterprise Growth and Bank Modernization

Project; and US \$30 million from ADB. Recently, the Bangladesh Bank own fund was enhanced to Tk. 600 crore. All schedule banks and financial institutions could avail this facility at the bank rate subject to fulfilling the stipulated conditions against their financing of SMEs. Under the Bangladesh Bank's refinancing scheme for the small enterprise sector, any industry/business entity having a maximum total fixed investment up to Tk 10 million has been considered as a small enterprise.⁴⁹ The fund was to provide enhanced access to credit by SMEs, especially small enterprises. Disbursements made by financial institutions and leasing companies to small-enterprises were refinanced from the proceeds of the Small Enterprise Fund (SEF). ADB provided loan from its special funds resources with a term of 32 years, including a grace period of 8 years, with an interest rate of 1 per cent per annum during the grace period and 1.5 per cent per annum thereafter. The loan period was for 5 years, expected to end on 30 June 2010. The loan agreement between the Government of Bangladesh and the Asian Development Bank had an explicit gender dimension. At least 10 per cent of the funds of the SEF would be earmarked for women borrowers and they would be provided with assistance and advisory services for their loan applications.

Credit Wholesaling: The SME Foundation was planning to extend its credit wholesaling programme soon, especially for women entrepreneurs. In 2008, the foundation, under a pilot programme, had disbursed Tk 2 crore to MIDAS and SHOKTI Foundation for manufacturing sector only. The SME Foundation has lent at 4 per cent while MIDAS and SHOKTI Foundation provided loans to its women clients at 9 per cent rate of interest.

Domestic Factoring: Bangladesh Bank had introduced factoring to ease the working capital problem that would guarantee SMEs to enjoy consistent cash flow, lower administrative costs, and reduce credit risks. Financial institutions have not yet used domestic factoring for products like "boutique" which is a booster sector for SMEs where most women entrepreneurs were involved.

4.5.4.3 Private Sector Modes for Financing SME in Bangladesh

Upscaling microfinance: Successful intervention of micro credit programme in the last two decades has helped women entrepreneurs as some NGO-MFIs have started lending to this segment with loans ranging from Tk. 25,000 to Tk. 5 lakh. PKSF started micro enterprise financing from November 2001. They have micro enterprise collateral free financing of loan of Tk. 30,000 to Tk. 3 lakh. Among them about 90 per cent of the borrowers were women entrepreneurs. Clustering has been noted, e.g. Savar, Gazipur, Bogra for poultry, Noagaon, Rangpur for livestock,

⁴⁹ See ACSPD circular No.1, 2 May 2004, Bangladesh Bank.

Tangail, Gaibandha, Narayanganj for weaving, etc (Mahmud 2007). The advantage of micro finance institutions was that it is committed to that particular segment, the staffs were trained up, they were used to dealing with borrowers who do not have financial information and records. Hence, these institutions addressed the new entrepreneurs who had been in business for two years.

Down scaling financial institutions: Following the Prudential Guidelines for Small Enterprise Financing of Bangladesh Bank in 2004, there has been development in the formal financial institutions to introduce small and medium business finance windows in commercial banks. They addressed longer-term maturity, but have failed to address the need of a gestation period before a project could generate cash flow. For example BRAC Bank is devoted to SME Banking. They were the market leaders in giving loans to Small and Medium Entrepreneurs and have been doing so for the last five years. BRAC Bank is one of the leading banks for extending loans to SME women entrepreneurs. Of the 1.2 lakh beneficiaries, the number of women beneficiaries was 3,500. "PROTHOMA RIN" is a loan facility for small and medium sized business, which was operated by women entrepreneur. The product offers terminating loan facilities for the purpose of working capital finance and/or fixed assets purchase. BRAC Bank has a total of 80 female Relationship Managers, of which about 50 Relationship Managers were located in Dhaka, and the rest in Chittagong. They also started to target SME women entrepreneurs in Cox Bazaar, Narayanganj, Savar and Comilla.

Box 4.1: Strategy of IDLC

SME Division was formed in IDLC to cater to the needs of the SME sector. This division has a dedicated team of professionals for identifying SMEs with growth potential stunted due to lack of adequate and timely access to funds. In addition to required funding, clients also get sound and thorough financial advisory services which gives them the edge required to succeed in a dynamic and competitive business environment. With dedicated risk managers conducting in-depth industry and sector analysis IDLC has the required know how to advise clients on critical success factors ranging from the choice of technology, to sourcing of raw materials. IDLC already has a diversified product portfolio, which is being constantly enriched with the addition of new products, catering to all the possible financing needs of the SME sector. At IDLC SMEs have access to long term financing in the form of Lease and Term Financing enabling the acquisition of capital machinery and other fixed assets for enhancing their productive capacity. The Factoring of Receivables facility is a product geared towards solving working capital requirement of clients who have a significant amount of receivables from their buyers. Factoring of Accounts Receivable is a mode of financing receivables arising out of supply of goods or delivery of services on credit.

Source: IDLC website.

Other commercial banks have also opened SME financing but their coverage is small. During the period 2004-06, 14 banks and 7 financial institutions have established SME cell or SME financing units (Bangladesh Bank 2007). But there was no participation of foreign commercial banks (FCBs). Among non-bank financial institutions, IDLC of Bangladesh has played a leading role to focus on SME financing by providing financial products such as business loans, machinery loans, double loans and lease finance. It was the first to introduce factoring in the country, followed by IDLC. Among other SME financing instruments, IPDC of Bangladesh introduced the first asset securitization in 2004, followed by IDLC of Bangladesh, with Asset Backed Securitized Zero Coupon Bonds of Tk. 19 crore in 2005 (Siddique 2005 cited in Jobs 2007). Box 4.1 shows the strategy taken by IDLC for reaching the SME entrepreneurs. Similar strategy needs to be adopted by other formal financial institutions.

4.5.5 Case Study: Refinancing Scheme of Bangladesh Bank for Women Entrepreneurs

It was noted in the earlier section that the loan agreement between the Government of Bangladesh and the Asian Development Bank (ADB) in 2005 for financing small enterprises under the refinancing scheme had an explicit gender dimension. At least 10 per cent of the funds of the SEF would be earmarked for women borrowers and women borrowers would be provided with assistance and advisory services for their loan applications. Initially, Bangladesh Bank followed these criteria only for the ADB fund of the scheme. Almost two years later, an Inter-Ministerial Committee meeting, held on 28 January 2007, recommended reduced rate of interest, earmarking of loanable funds and relaxation of collateral requirement for small loans for women entrepreneurs, and the opening of SME women's borrowers window. It was due to the efforts made by the Ministry of Industries that Bangladesh Bank has issued on February 8, 2007 a circular providing significant preferential treatment to SME women entrepreneurs, including the provision that rates of interest chargeable to women entrepreneurs must be set at within + 5 per cent of the prevailing bank rate (Chowdhury 2007a). For the first time in institutional finance, a comprehensive package included reduce rate of interest, smaller size loans, and simplified procedure through providing help desk for women. Bangladesh Bank refinancing scheme for women SME was considered by financial institutions and women entrepreneurs to be a landmark initiative to facilitate women entrepreneurs' access to formal institutional finance. There is no evaluation of this scheme; hence, a special focus has been given here.

4.5.5.1 Highlights of Refinancing Scheme

The highlight of the refinancing scheme for women entrepreneurs is given in Box 4.2. It shows that the refinancing scheme has addressed several critical needs of women entrepreneurs: quota for women entrepreneurs, lower interest rate for women entrepreneurs at bank rate+ 5 per cent, lower loan amount of one lakh for women entrepreneurs (the usual was 2 lakh), dedicated women entrepreneurs desk, and establishing linkage with various women's associations. Moreover, the Bangladesh Bank has increased the fund for women from 10 per cent to 15 per cent and has set a minimum of 40 per cent for small enterprises. Financial institutions could provide collateral free loans up to Tk. 25 lakh against personal guarantee. The Bangladesh Bank has committed to refinance 100 per cent against the loan. This has been the main incentive for the financial institutions to provide loans to women entrepreneurs. Most importantly, a credible threat has been given to the financial institutions in March 2009 that if 10 per cent was not disbursed to women entrepreneurs, they could not avail refinancing facility. This is the first time that disbursement quota for women entrepreneurs has been used as a conditionality to receive refinancing from Bangladesh Bank.

Box 4.2: Refinancing Scheme of Bangladesh Bank for Women Entrepreneurs First circular dated 07/02/2007:

- 1. 10 per cent of the refinancing scheme was reserved for women entrepreneurs.
- 2. Bangladesh Bank shall refinance 100 per cent against the loan. Working capital and term loan to be provided to women entrepreneurs from one lakh to 50 lakh.
- 3. Interest on Bangladesh Bank refinance will be charged at prevailing Bank rate. The lending banks or financial institutions will apply their own interest rate on the loans made to the ultimate borrowers. The interest rate shall be a maximum of bank rate+5 per cent. The current bank rate is 5 per cent.
- *4.* The participating banks/financial institutions shall designate women SME help desk and shall be women friendly.

Second circular dated 18/03/2008

- 1. Financial institutions shall give priority to women in SME
- 2. All banks and financial institutions shall have "Women entrepreneurs dedicated desk". There must be sufficient manpower who are trained to deal with SME entrepreneurs. If possible, the chief women desk officer should be a woman. The proposed "Women entrepreneurs Dedicated desk" has to provide suggestion for project proposal, implementation and loan process, application for loan and other banking formalities etc.
- 3. In order to identify women entrepreneurs, the Bangladesh Small and Cottage Industries Corporation (BSCIC), SME foundation/other professional bodies

(Cont. Box 4.2)

like handloom, handicraft association/women organizations/ women's association like Bangladesh Women Chamber of Commerce and Industries/Women Entrepreneurs Association of Bangladesh/Bangladesh Home workers Women's Association (BHWWA)/National Association of Small Industries of Bangladesh (NASIB) etc institutions help could be sought. 4. The procedure for seeking loan should be simplified. For women SME entrepreneurs, a separate business strategy needs to be developed along with simple procedure for loan. SME foundation and financial institutions should undertake to disseminate all 5. facilities available to women entrepreneurs. 6. Financial institutions under the refinancing facility shall address Women SME entrepreneurs who have majority women share in the enterprise (machinery or business inventory/sales etc), can provide a maximum of Tk. 25 lakh against personal guarantee. Third circular dated 05/05/2008 Stated that the refinancing scheme under Bangladesh Bank (Bangladesh Bank, EGBMP, ADB) has earmarked 10 per cent of the fund for SME women entrepreneurs. In order to expand women entrepreneurs in national development Bangladesh Bank increased the fund from 10 per cent to 15 per cent. Of the 15 per cent, a minimum of 40 per cent shall be allocated for small women entrepreneurs. Fourth circular dated 02/03/09 Stated that it has been observed that desired loans are not being provided to women entrepreneurs under Small and Medium Entrepreneurs in spite of 15 per cent SME fund allocated for women entrepreneurs. Now bank and non-bank financial institutions are advised to provide at least 10 per cent of SME loans to women entrepreneurs. If any bank/ non-bank financial institutions fails to provide at least 10 per cent of the total applied fund for refinance to women entrepreneurs, no refinance facility will be provided to the concerned bank/nonbank financial institutional. Source: Bangladesh Bank Circulars.

4.5.5.2 Implementation of the Refinancing Scheme

Thirty-nine banks and non-bank financial institutions have signed participation agreement with the Bangladesh Bank to avail the refinancing facility of Bangladesh Bank under the SME refinancing programme. Up to June 2009, Bangladesh Bank has refinanced Tk. 1245.20 crore, of which Tk. 716.44 crore was from Bangladesh Bank fund, Tk. 224.50 crore was from IDA fund and Tk. 304.25 crore was from ADB fund. The share of the medium term loan dominated, accounting for 43.81 per cent of the loan disbursed. This is followed by working capital loans (30.4 per cent) and long-term loan (25.77 per cent). A total of 12,401 enterprises had been covered.

In terms of number of beneficiaries, commercial loans accounted for 58 per cent of the total, while Industry accounted for 27 per cent and service accounted for 15 per cent of the beneficiaries. Thus the refinance scheme has achieved to bring the small and medium commerce/traders within the fold of non-land and building based lending.

Bangladesh Bank had recently started to maintain separate data for women entrepreneurs. Till December 2008, Bangladesh Bank had disbursed only Tk. 47.9 million to women entrepreneurs under the refinancing scheme (Bangladesh Bank 2009). As of May 2009, only 8 banks and 12 non-bank financial institutions had participated in the refinancing scheme for women entrepreneurs, whereas 18 banks and 21 non-banks financial institutions had participated in this scheme. As there were 48 banks and 29 non-bank financial institutions, so many financial institutions were yet to participate in the refinancing scheme. The coverage was very low for women entrepreneurs. Only Tk. 13.82 crore had been disbursed to 211 beneficiary enterprises. The average loan size was Tk. 3.7 lakh by the banks and Tk. 9.4 lakh by the non-bank financial institutions.

Interestingly, BRAC Bank, which is the pioneer in SME Women Banking, has withdrawn from participating in refinancing scheme for women entrepreneurs. At present they have 3,500 clients under their SME scheme, who were paying an interest rate of 15 per cent. As the interest rate was 10 per cent for women entrepreneurs under the refinancing scheme, BRAC Bank noted that they faced difficulties as it created client segmentation. Only two banks (Mercantile Bank and Premier Bank) and three non-bank financial institutions (MIDAS Financing Ltd., IIDFC and Uttara Finance and Investment Ltd) have disbursed 68 per cent of the total disbursement (Table 4.43).

Majority of the loan seekers were from manufacturing (47 per cent), followed by commerce/trading (39 per cent). This was in contrast to the general picture where commerce/trading formed the maximum recipient of disbursement (Chowdhury 2007b, Bakth 2008). Hence, refinancing has brought the small and medium manufacturing owned by women within the fold of non-land and business based lending. This is because the non-bank financial institutions were providing credit mainly to manufacturing (67 per cent). But Banks were yet to reach manufacturing sector, as they were mainly concentrating on lending to commerce/traders (62 per cent). The average loan size of banks was highest for the manufacturing sector (Tk. 5 lakh), while for non-bank financial institutions it was highest for the service sector (Tk. 14 lakh).

TABLE 4.43 SME REFINANCING FROM WOMEN ENTREPRENEUR FUND OF SEF (AS OF MAY 2009)

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Name of the Bank/	Refinance Amount 000' Tk.								
Non-Bank financial Institutions refinanced	Working capital	Mid term	Long term	Total	Average size				
Banks									
One Bank Ltd	0	1500	0	1500	500				
Eastern Bank Ltd	0	5250	0	5250	210				
Premier Bank Ltd	11000	0	0	11000	2200				
Mercantile Bank ltd	800	14750	0	15550	353				
National Bank Ltd	0	2000	900	2900	170				
Uttara Bank Ltd	0	3300	0	3300	300				
Southeast Bank Ltd	0	300	0	300	300				
Mutual Trust Bank									
Ltd	0	500	0	500	500				
	11800	27600	900	40300					
Total	(29.27)	(68.47)	(2.23)	(100)	376				
	Non	-Bank Financi	ial Institutions						
United Leasing Ltd	800	4800	1500	7100	355				
Phoenix Finance Ltd	0	500	0	500	500				
Midas Financing Ltd	0	15500	9750	25250	548				
IDLC Bangladesh	0	7000	0	7000	700				
IIDFC	5000	600	21600	27200	2092				
Oman Bangladesh									
Leasing	0	1289	0	1289	644				
Lanka Bangla Leasing	450	0	0	450	450				
Islamic Finance	0	900	0	900	450				
BIFC	0	0	3500	3500	3500				
Peoples leasing & Financing Services									
Ltd	0	0	5000	5000	5000				
Uttara Finance & Investment Ltd	0	0	16000	16000	4000				
Fidelity Assets &									
Securities Ltd	0	2000	1800	3800	1266				
	6250	32589	59150	97989					
Total	(6.37)	(33.24)	(60.33)	(100)	942				
~	18050	60189	60050	138289					
Grand Total	(13.05)	(43.51)	(43.41)	(100)	655				

Source: Data supplied by ACSPD, Bangladesh Bank.

TABLE 4.44 DIFFERENT RISK AND SECTOR PREFERENCES OF PRIVATE BANKS AND LEASING COMPANIES (as of May 2009)

Financial institutions	Private banks Private leasing companies		Total						
	Financing terms (% of total)								
Working capital financing	29.27	6.37	13.05						
Medium-term financing	68.47	33.24	43.52						
Long-term financing	2.26	60.39	43.42						
	Sector (%	of total)							
Industry	38.95	54.54	50.00						
Trade	58.85	19.08	28.92						
Service	8.19	26.37	21.07						
Total (Tk. Million)	40.3	97.99	138.29						

Source: Data supplied by ACSPD, Bangladesh Bank

Working capital (WC) advances were typically lent for up to one year. Medium term loans were for between one to three years. Long terms loans were for maturities between three to five years. Analyses about the structure of disbursements out of the refinancing scheme till May 2009, in terms of their tenure (as working capital, medium-term and long-term), showed that medium terms loans and long-term loans dominate, and working capital loans were the least important in overall disbursement.

Table 4.44 shows that the private banks and leasing companies were sharply differentiated from one another in terms of the maturities of the loan products they sold. While banks provided about 30 per cent of their disbursements into working capital loans, leasing companies allocated only 6 per cent of their disbursements for that purpose. In sharp contrast, leasing companies provided 60 per cent of their lending into long-term loans, the corresponding percentage for the private banks being only 2 per cent. This was similar to the overall scenario (Chowdhury 2007b, Bakth 2008). As bank branch network was likely to be much larger, one would have expected the banks to be more conspicuous in long-term loans. But that does not happen in this case. The much smaller, geographically much more narrowly-based, and the definitely much less capitalised leasing companies were keener to take on riskier loan portfolios. This may be because the leasing companies finances machineries for these establishments. The leasing companies have disbursed 54 per cent of the loans to commerce/traders.

An interesting trend emerged from the recent data as of August 2009. Tables 4.45 and 4.46 show that within three months (June–August) the number of women entrepreneurs who have been refinanced has increased from 211 to 326, while disbursement amount increased from Tk. 13.82 crore

to Tk. 21.89 crore. Of this total amount, one third (33.3 per cent) has been refinanced by commercial banks, while the remaining two-thirds (66.7 per cent) refinanced by non-bank financial institutions. There has been a slight increase in the average size of loan: from Tk. 6.55 lakh to Tk. 6.75 lakh. On an average, a women entrepreneur received Tk 6.8 lakh in industry, Tk. 5.7 lakh in commerce/trade and Tk. 9.5 lakh in service. There has been an increase in medium size loans during June-August. So the highest disbursement was for medium term loans (47.8 per cent), followed by longterm loans (38.8 per cent) and working capital loans (13.3 per cent). The increase in SME loans to women entrepreneurs by more than 50 per cent from 211 to 326 women owned enterprises and disbursement from Tk. 13.82 crore to Tk. 21.89 crore within a span of only three months is incredible! This shows that the fourth circular in March 2009 has really made the refinancing scheme effective as both banks and non-banks FIs have become serious in funding women owned enterprises. The circular stated "If any bank/ non-bank financial institutions fails to provide at least 10 per cent of the total applied fund for refinance to women entrepreneurs, no refinance facility will be provided to the concerned bank/non-bank financial institution". This conditionality has indeed been a credible threat! Such conditionality could be applied for other instruments of SME access to finance.

Financial Institutions	Industry	Commerce/Trade	Service	Total
		As of May 2009		
Banks	31	67	9	107
Non-Banks FIs	70	16	18	104
Total	101	83	27	211
		June-Aug 2009		
Banks	17	25	12	54
Non-Banks FIs	26	24	11	61
Total	43	49	23	115
		As of Aug 2009		
Banks	48	21	92	161
Non-Banks FIs	96	29	40	165
Total	144	50	132	326

 TABLE 4.45

 NO. OF WOMEN OWNED ENTERPRISES UNDER REFINANCE SCHEME

Source: Data supplied by ACSPD, Bangladesh Bank.

TABLE 4.46 DIFFERENT RISK PREFERENCE BY BANKS AND NON-BANK FINANCIAL INSTITUTES ('000' Tk)

Financial Institutions	Working capital	Medium Term	Long Term	Total
		As of May 2	009	
Banks	11,800	27,600	900	40,300
Non-Banks FIs	6,250	32,589	59,150	97,989
Total	18,050	60,189	60,050	138,289
		June-Aug 20)09	
Banks	9,725	17,875	5,300	32,900
Non-Banks FIs	1,500	27,150	20,050	48,700
Total	11,225	45,025	25,350	81,600
		As of Aug 20	009	
Banks	21,525	45,475	6,200	73,200
Non-Banks FIs	7,750	59,739	79,200	146,689
Total	29,275	105,214	85,400	219,889

Source: Data supplied by ACSPD, Bangladesh Bank.

One may note from Table 4.45 that the increase in loan disbursement has been more for commerce/trade than manufacturing. This is a matter of concern as women were more concentrated in manufacturing. Commerce/Trading is more of a male activity and it is likely that this may lead to "women fronted enterprises" as suggested earlier. The Bangladesh Bank needs to set directives to provide 80 per cent of the loans to women owned enterprises in manufacturing as women entrepreneurs were concentrated in this sector. Table 4.46 suggests that banks have been lending more for term loans than working capital during the last three months. This is a positive move and needs to be encouraged.

Measures were needed to reduce the cost of loan administration and cover for the risks involved in non-land and building based lending. Also, adequate incentive is needed to motivate the financial institutions to reach women entrepreneurs. The Bangladesh Bank is sharing the risk by providing 100 per cent refinancing for loans to women entrepreneurs and must continue to do so. One way to induce the financial institutions to reach out to women entrepreneurs is to have a *differentiated discount rate* charged by the Bangladesh Bank for financial institutions lending to

women entrepreneurs. For example, reducing the bank rate to 2 per cent would encourage not only the financial institutions to provide such loans, but it would also encourage women entrepreneurs to demand such loans at bank rate +5 per cent i.e. 7 per cent rate of interest. Moreover CIB report needs to be waived for collateral free loans. The financial institutions were yet to set dedicated desk for women entrepreneurs. This is an important component to reduce the complexity in banking procedure and needs to be implemented.

4.5.5.3 MIDAS Database for Women's Refinancing Scheme

Midas has been a pioneer in providing loans to women owned enterprises under the refinancing scheme of Bangladesh Bank (Table 4.44). They maintain client level database for the refinancing scheme. Table 4.47 shows that MIDAS has financed 117 women owned enterprises under the refinance scheme of Bangladesh Bank. About 62.4 per cent of the entrepreneurs were in industry sector, 27.4 per cent in commerce/trading and 10.2 per cent in service sector. The loans varied widely between the sectors. The average loan size was Tk.3.5 lakh. Loans to industry sector were on average Tk. 4 lakh, while that of service sector was Tk.8.2 lakh. Commerce/Trading loans were on average Tk. 40,000. Most of the industry loans were for boutiques, garments, ladies dress, and consumer products, while in the service sector the enterprises were beauty parlour, diagnostic center, printing and publishing and dental services. Commerce/Trading enterprises included consumer products, garments, and general store. Table 4.48 shows that it is only since 2008 that women entrepreneurs were getting loans at 10 per cent rate of interest. Only 27 women entrepreneurs had received loan at 10 per cent and 14 women entrepreneurs had received loan at 9 per cent flat rate.

Sector	No of women owned enterprises	%	Disbursement	%	Average loan size
Industry	73	62.4	305,00,000	73.2	417,808
Service	12	10.2	99,00,000	23.8	825,000
Trading	32	27.4	12,75,000	3.0	39,843
Total	117	100	416,75,000	100	356,196

 TABLE 4.47

 MIDAS: DISTRIBUTION OF WOMEN OWNED ENTERPRISE

Source: Unpublished data obtained from MIDAS.

Year	Rate of Interest						Total	
	9 (flat rate)	10	15	16	16.78	17	18	
2004			2	4		11		17
2005			3	8		11		22
2006	7			8		1	1	17
2007	7				9		5	21
2008		17			4	3	3	27
2009		10			1			11
Total	14	27	5	20	14	26	9	115

TABLE 4.48 MIDAS: INTEREST RATE FOR WOMEN ENTREPRENEURS UNDER REFINANCING SCHEME

Source: Unpublished Information obtained from MIDAS.

The example suggests that all financial institutional could easily maintain client level database for women entrepreneurs. Bangladesh Bank may provide directives to the financial institutions to maintain gender segregated database for all loans and credit schemes.

4.5.5.4 Stakeholders Perspectives on the Refinancing Scheme

So far no evaluation study of the refinancing scheme of Bangladesh Bank for women entrepreneurs has been undertaken. However, a study on women entrepreneurs undertaken in October 2007 suggested that (BWCCI 2008):

- About two-thirds did not know about Bangladesh Bank circular on refinancing scheme for women entrepreneurs.
- Of those one-third who heard about the circular, about two-third did not know all the provisions.
- Bangladesh Bank and other banks did not disseminate the circular.
- Only 11 per cent had applied for the loan by October 2007. Reason for not applying was because local banks were not informed about the circular or have not started to implement it.

An on-going study by MIDAS on women entrepreneurs suggested that at the division level there were awareness about the scheme, but district were yet to be aware. Moreover, even at division level, all branches of the financial institutions were not aware about the scheme. Hence, there is a need for raising awareness among financial institutions and women entrepreneurs on refinancing scheme of Bangladesh Bank. The SME Foundation and women entrepreneurs associations could undertake such initiatives. Discussion with the financial institutions and women entrepreneurs suggested the following:

Defining a women SME entrepreneur: A major policy weakness is that there is no clear definition of SME women entrepreneurs by Bangladesh Bank. However, while mentioning personal guarantee of Tk. 25 lakh, the circular mentioned that it is applicable for SME women entrepreneurs who have majority share in the enterprise. This was interpreted by financial institutions as those who were sole proprietors, or have more than half share in partnership /private limited companies. The micro analysis showed that most of the women entrepreneurs were sole proprietors. In Bangladesh it has become a culture in partnership and private limited companies to have women (wife, mother or daughters) as partners or directors as a way to avoid taxes. In most cases, the financial institutions felt that in such cases the woman was not an active entrepreneur. Moreover, it was very difficult for the financial institutions to find the exact share of women in these businesses, excluding land and building. This could lead to "Women fronted Enterprises," where the loans would be in women's name but the enterprise being run by men. Hence, women entrepreneurs would not get the full benefit of the 10 per cent interest rate as financial institutions would be lending more to the private limited companies as they were bigger and easier to handle than sole proprietor.

Targeting women entrepreneurs: Though Bangladesh Bank instructed financial institutions to extend credit to women entrepreneurs, as noted earlier, only few banks have given emphasis on this target group. Bangladesh Bank ensured that they would refinance 100 per cent against loan given to women entrepreneur. But the situation was still not optimistic. The causes were multidimensional.

- *Difficult to find women entrepreneurs*: There is no database on women entrepreneurs. DCCI has recently published a database, but it is not available in the website. The need for a database was felt by all financial institutions.
- *Women fronted enterprises:* The survey of financial institutions suggested that after the loan is sanctioned, they faced problem as men managed these enterprises. It became difficult for women Relationship Managers to get installment of the loan from male enterprise managers.
- *Women enterprises were micro enterprises:* In the case of service sector like beauty parlour, it was noted that the fixed investment was small e.g. Tk. 3 lakh. It was therefore not possible to approve a loan of Tk.3 lakh. This shows that financial institutions give more emphasis to fixed asset rather than employment size.
- *Refinance scheme target group:* Some financial institutions were not sure whether the coverage of scheme included medium enterprises. But all confirmed that it was meant for small enterprise.

Maximum loan amount: In most of the financial institutions surveyed, the maximum collateral loan actually given was Tk. 5 lakh. The highest amount of

collateral free loan given by a bank has been Tk. 10 lakh. None of the banks and non-bank financial institutions surveyed has yet provided collateral free loans of Tk. 25 lakh to women entrepreneurs. Very recently, few have raised the limit to Tk. 25 lakh, but it was yet to be implemented.

Minimum loan amount: Although the Bangladesh Bank circular has set Tk. one lakh as the lower limit for collateral free loans, in none of the financial institutions surveyed it was found that they have provided such loans. Some have provided loans for Tk. 2 lakh. In most cases, it started from Tk.3 lakh. The bankers noted that according to the prudential guidelines, the financial institutions have to obtain a CIB report of Bangladesh Bank. For loans of Tk. one lakh, it would be a huge task for the Bangladesh Bank and hence it discouraged the financial institutions to provide such small loans.

Separate product for women: Table 4.49 suggested that different financial institutions had started to provide SME credit to women, but special products for women were still few. Many banks and non-bank financial institutions in response to the last circular of the Bangladesh Bank have recently taken these initiatives. This is because unless they disburse 10 per cent of the loans to women entrepreneurs, they would not get refinancing. But still the coverage was very small. In many cases, these loans were not available in all branches. Women entrepreneurs wanted special product with same features.

Financial Institution	Product	Loan size	Interest rate
BRAC	Prothoma Rin	BDT 3,00,000- 9,50,000	15%
One Bank Ltd	No specific product	BDT 1,00,000-25,00,000	10%
Eastern Bank Ltd.	Mukti	BDT 1,00,000- 25,00,000	10%
Mercantile Bank Ltd	No specific product	BDT 1,00,000-8,00,000	10%
National Bank Ltd	No specific product	BDT 1,00,000- 5,00,000	10%
Southeast Bank Ltd	No specific product	BDT 1,00,000-25,00,000	10%
Mutual Trust Bank Ltd	Bhagoboti	BDT 1,00,000-5,00,000	10%
City Bank	Nakshi	BDT 1,00,000- 8,00,000	10%
Arab Bangladesh Bank	Aparajita Reem	BDT 2,00,000- 25,00,000	10%
Phoenix Finance Ltd	No specific product	BDT 1,00,000- 7,00,000	10%
Midas Financing Ltd	No specific product	BDT 1,00,000-7,50,000	10%
IDLC	Women entrepreneur	BDT 3,00,000-10,00,000	10%

 TABLE 4.49

 PRIVATE SECTOR INITIATIVES FOR WOMEN ENTREPRENEURS

Source: Information obtained from selected financial institutions.

Rate of interest: In all the financial institutions surveyed, it was found that they charged 10 per cent rate of interest from women entrepreneurs. But very few women entrepreneurs have received such loans. The financial institutions surveyed reported that they had received 100 per cent refinancing from the Bangladesh Bank against such loans. However, the bankers opined that the spread does not cover the cost of administering and monitoring the loans. On the other hand the women entrepreneurs noted that the recent Bangladesh Bank circular⁵⁰ have reduced the rate of interest for the large and medium enterprise for working capital and term loans, which have been set to a maximum of 13 per cent. Hence, interest rate for women entrepreneurs needs to be reduced to 7 per cent. Only if the Development partners could provide grant for financing women entrepreneurs, then Bangladesh Bank could charge 2 per cent bank rate from financial institutions.

Dedicated desk for women: The guideline of Bangladesh Bank suggested that all banks and non-bank financial institutions shall have "women entrepreneurs dedicated desk," to provide suggestions for project proposal, implementation and loan process, application for loan and other banking formalities, etc. Most financial institutions were still to implement this guideline. Few have a women's desk at one branch or the head office. Most bank branches were not aware of the refinancing facilities for women entrepreneurs.

Narrow outreach: Banks and non-bank financial institutions having more than 10 per cent classified loans on their small loans portfolio would not be eligible for refinance under the scheme. Due to this clause the public sector banks and many private sector banks could not avail the facility under this scheme. It was noted earlier that women entrepreneurs usually have their personal accounts in a public sector bank. They would, therefore, prefer to seek loan from the same bank. Now due to corporatisation, some public sector banks such as Janata, have lower classified loan and hence would qualify for refinancing scheme. Public sector banks have large number of branches across the country and hence their outreach would be wide.

Separate business strategy: Some banks have set up SME centres where there were *Relationship Managers* who supervised 2-3 loan officers. The loan officers searched for the women SME entrepreneurs and provided loans at their doorstep. For example, in the Eastern Bank, there is "one women entrepreneur" cell where all loans were processed centrally for women. Some banks have introduced separate

⁵⁰ BRDP circular no. 04, dated April 19, 2009.

product for women entrepreneurs. There is no client database and most women entrepreneurs were not member of business associations.

Strong monitoring: The disbursement of quota for women as conditionality for receiving refinancing from Bangladesh Bank has been a unique example. But most of the financial institutions did not welcome the conditionality and opined that they may refuse to avail this incentive due to this conditionality. This is because it was difficult to find women entrepreneurs who were bankable.

In order to facilitate the growth of smaller size loans, the bank is free to determine security requirement usually for loans up to 10 lakh. In most cases, for loans amount exceeding Tk. 10 lakh, registered mortgage or cash collateral was also required for a loan. Cash collateral (partial or full) accepted were in the form of readily cashable Government bonds, mutual fund unit certificates and deposits/ fixed deposits of a bank. There was usually a processing fee of 1 per cent for all loans. In most cases the securities for collateral free loans were as follows:

Hypothecation: on inventory, receivable, advance payments, plants and machineries. Financial institutions need reliable information on the cash flow situation of the firm so that their ability to repay could be assessed. This was also needed for supervision and monitoring. Usually for women-led enterprises, financial transactions and books of accounts were not often well documented. The financial institutions have therefore started to take additional efforts and costs to assess track records of the enterprise and their credit worthiness. The main problem was that these entrepreneurs usually had cash transaction and did not keep bank account of the enterprise. This also raised the cost of loan administration.

Personal guarantee: The Bangladesh Bank circular indicated that personal guarantee could be provided for loan up to Tk. 15 lakh for women entrepreneurs. This was raised to Tk. 25 lakh in 2009. Financial institutions usually required two personal guarantors. The guarantor could be spouse/parents/brother(s)/sister(s) /other family members. In the case of women they preferred husband to be one of the guarantors. Some financial institutions also needed a third party guarantor other than family members.

Domestic factoring: The first circular for women entrepreneurs indicated that if needed domestic factoring could be utilised. Studies have shown that women entrepreneurs in boutiques use trade credit from the suppliers of raw material. On the eve of the Eid, all transactions in the supply chain were settled (Zohir 1994). For domestic factoring, the payment for the loan amount went directly to the supplier.

Banks and financial institutions had not started to use this facility for women entrepreneurs.

Post dated cheques: As security, SME entrepreneurs had to give post dated cheques for each installment and one undated cheque for full loan value including full interest payable thereon. This system provided the creditor the assurance that claims to the collateral upon default by the debtor could be realised fast. Bank statement was usually needed for six months, but women owned enterprises usually lacked bank account in the name of the enterprise.

Other charges: There was usually a risk fund charge of 1 per cent for the collateral free loans. This was needed as loopholes in the legal provisions and weaknesses of the court system made such lending more risk prone.

4.5.6 Technical Support for Capacity Building

In order to address SME access to finance there is a need for capacity building of the financial institutions and the women entrepreneurs. The following four projects have been important in fostering SME entrepreneurship in Bangladesh.

- (i) The Jobs Opportunities for Business Support (JOBS) project funded by United States Agency for International Development (USAID) to the amount of US\$12 million. It was in operation from 1997 to 2005. The project efforts were in policy reforms, loan facilitation, training, ICT human resources development, partnership formation and export marketing support. The programme has worked in 16 different sectors, including leather goods and footwear, home textiles, handicrafts, electronics, handmade paper, floor coverings, and personal protective equipment. The JOBS Loan Facilitation Unit worked with local banks and financial institutions since 1999 to increase awareness of SMEs' contribution to growth and their high loan repayment rates. JOBS provided bank loan officers training on simplified SME lending, assisted SME to understand loan procedure, and provided Loan Facilitation Handbook. Women entrepreneurs were also included in the training programmes and trade fairs.
- (ii) Katalyst was a five-year project of US dollar 25 million in funding between 2002 and 2007. Katalyst had focused on the development of some of the SME sectors in Bangladesh. Prior to interventions in the markets, their constraints and opportunities need to be understood and analysed with respect to the possible relevance for business services.

- (iii) South Asia Enterprise Development Fund (SEDF), funded by the IFC, has provided technical assistance programme for private financial institutions. SEDF organised study tour for senior management to best practice SME finance institutions in India and Sri Lanka, organised training programme on sales leadership, developed credit scoring modules on pilot basis, assisted in automation through implementation of a core banking software, developed a comprehensive risk grading framework, conducted IT diagnostic and HR policy for the private financial institutions (Miah 2007).
- (iv) The ADB also financed a capacity building programme in 2005 by assisting PFIs in establishing or strengthening their SME financing operations and training about 1,000 SME credit staff on SME financing, project appraisal and supervision, and credit and portfolio administration of small loans. Capacity building of SME credit staff would strengthen their abilities to assess SME credit applications as well as to facilitate Business Development Services (BDS) to SMEs. About 8,000 participants from SME, of which 2,000 would be women, would undergo training by the Small and Cottage Industries Training Institute in collaboration with FBCCI and its district chambers and line associations. It was expected that about 150,000 entrepreneurs interested in setting up an enterprise would take advantage of the services of the helpline outreach centres established as public-private partnerships under the programme (ADB 2004).

In all these projects there were training for bankers to address women entrepreneurs. Moreover, they also trained women associations and women entrepreneurs on formal access to finance.

4.6 ACCESS TO INSTITUTIONAL FINANCE: AN ANALYTICAL REVIEW

Various surveys and studies indicate that access to finance has been a key impediment to SME development in Bangladesh. The SMEs typically rely on their own savings and loans from friends and relatives, especially during the start-up phase. Institutional credits (mainly from the commercial banks) are available mostly when the firms become larger. Informal lenders and other similar sources traditionally also provide finance for the expansion of the SMEs. Reinvested earnings are also a major source of funds for the fixed capital (Ahmed 2004/1999, Reza 1992).

It is evident from enterprise survey finding in section 4.3 that for a number of reasons the small-sized enterprises run into many difficulties when they apply for a

bank loan or any sort of credit facility from the formal sector. The SMEs cannot even mobilise resources from the country's capital market. Still, the most common sources of capital, especially at start-up phases, are savings and loans from the family and friends. According to a SEDF survey (2006), 62 per cent SMEs did not approach to formal financial institutions to seek financing (see also Table 4.19).

Over the years, some development partners tried to assist the SME sector along with the government. The donor funds are mainly used to finance credit lines to SMEs accompanied with technical assistance. The credit line funds are taken from donors as soft loans and the government allocates them to Bangladesh Bank for refinancing banks' loans to SMEs without harming banking practice and the use of own bank capitals. Bangladesh Bank itself also contributes in refinancing the SME loans by commercial banks and non-bank financial institutions.

This section focuses mainly on various aspects of institutional finance for SMEs. In particular, it highlights various modes of alternative institutional financing, trend of credit disbursement towards SMEs (over the last five years), interest rates charged to SMEs, SME loan coverage, etc. This section also highlights various aspects of Bangladesh Bank's SME refinancing schemes.

4.6.1 Status of Institutional Financing for SMEs: An Overview

There are several sources of institutional financing. From the formal sector, the flow of credit to SMEs mainly comes from the Bangladesh Small and Cottage Industries Corporation (BSCIC), state-owned commercial banks (SOBs), specialised banks (SCBs), non-bank financial institutions (NBFIs), domestic private commercial banks (PCBs), foreign commercial banks (FCBs) and some government organisations. Although the share of SME loan in the loan portfolio of FCBs was very negligible until recently, their participation in providing credit to SMEs is gradually increasing.

Table 4.50 shows that there has been a tremendous growth of SME credit disbursement by financial institutions over the period 2003-2008. A rapid increase of SME loan is seen during 2008-09. Total SME loans increased by Tk. 13,441.85 crore (or 42.64 per cent) to Tk. 44,969.5 crore at the end of March, 2009, which was Tk. 31,527.65 crore at the end of March 2008. The loans increased in private banks by 41.88 per cent, state-owned banks by 62.03 per cent, NBFIs by 8.11 per cent and SCBs by 3.31 per cent during March 2008 to March 2009 (various Bangladesh Bank publications). However, the percentage share of SME loans to total loans remains almost stable for the last few years (Figure 4.1; also see section 4.4).

Institutions	Details	Outstanding SME loan	(Crore taka) 2008
		2003	(Dec, 2008)
SOBs	Sonali Bank, Janata Bank,	127	15,010
	Agrani Bank and Rupali Bank	(0.34)	(29.91)
PCBs	Almost all private banks	193	23,254
		(0.48)	(18.11)
NBFIs	21 NBFIS; MIDAS has the	112	1340
	highest SME credit disbursements		(12.64)
FCBs	Standard Chartered Bank,	0.0	764
	HSBC Bank		(5.06)
SCBs	BASIC, Karmasangsthan Bank,	Not available	3,071
	Bangladesh Krishi Bank,		(20.94)
	Rajshahi Krishi Unnayan Bank, Ansar-VDP Development Bank		
BSCIC		708	1,157
Government Organisations (GOs)	BRDB, BARD, Directorate of Youth Development, etc.	Not available	Not available
NGOs	BRAC, ASA, PROSHIKA, etc.	Not available	Not available

 TABLE 4.50

 CHANNELS OF INSTITUTIONAL FINANCING, 2003-2008

Source: Bangladesh Bank.

Note: Figures in parentheses represents percentage of SME loan to total loans.

Despite this huge surge in SME loan disbursements during the last five years by banks and NBFIs, the credit flow to SMEs by majority banks taken together still is not very significant compared to total loans. There are several reasons for such small share of institutional loans. *One*, the large industries' requirement for capital is far greater than that of SMEs. *Two*, SMEs occasionally approach to the financial institutions for financing as well as small amount of money is disbursed to the SMEs. *Three*, formal financial institutions prefer to extend credit facilities to bigger firms or to those firms which are gradually expanding and have a viable business record. Finally, the collateral-based SME loan process is complicated for which entrepreneurs often fail to get loan from banks.





Figure 4.1: Percentage Share of SME Loans to Total Loans, 2008-09

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Source: Agricultural Credit and Special Programmes Department, Bangladesh Bank.

From the survey of bankers as well as enterprises, it is observed that the collateral requirement for obtaining loans by SMEs is the biggest obstacle for the development of the SME sector. Most of the loans disbursed to SMEs are collateral based. Some banks provide collateral free loans up to a certain limit, such as 10-15 lakh, but they require at least two guarantors, which sometimes creates obstacle for many entrepreneurs to manage such guarantors. For the case of women entrepreneurs, husband must have to be guarantor (see sections 4.3 and 4.4). These issues need to be addressed properly in order to ensure smooth flow of funds to SMEs.

4.6.2 Alternative Modes of Institutional Financing

The growth of the SME sector is mainly constrained by lack of access to institutional finance. The government of Bangladesh has taken various initiatives for encouraging institutional financing for SMEs. Beside the financing of schedule banks and other non-bank financial institutions, various other alternative sources of financing, though small in nature, are available for SMEs. A brief discussion on some of the alternative modes of financing is given below.

4.6.2.1 Bangladesh Bank's Refinancing Scheme

In order to persuade banks and other financial institutions to provide credit facilities to the SME sector, the Bangladesh Bank has introduced refinance scheme

from May 2004 using three sources of funds: Taka 100 crore of Bangladesh Bank's own fund, which has now stood at Tk. 600 crore as a revolving fund, US\$ 20 million from International Development Association (IDA) and US\$ 30 million from the Asian Development Bank (ADB). As of March 2009, 15 banks and 20 non-bank financial institutions (NBFIs) have availed of this facility to support a total of 11,150 SMEs with an assistance of Taka 1,117.7 crore. Almost 80 per cent of the funds under these refinancing facilities channeled to small industries. Bangladesh Bank has recently given special emphasis on the refinancing facilities for women entrepreneurs by making it available for them at a comparatively lower rate, which is now 10 per cent (See Bangladesh Economic Review, various issues).

In addition to providing refinancing facilities to SMEs, Bangladesh Bank used to operate a venture capital fund for small enterprises, namely the Equity Entrepreneurship Fund (EEF). The EEF has been established in 2000 with Tk. 200 crore to provide equity to SMEs in agro-based industry and ICT sector through commercial banks. In the budget of FY2008, this EEF has been split into two funds, namely, Agriculture Equity Entrepreneurship Fund and IT Equity Entrepreneurship Fund, with an allocation of Taka 100 crore for each fund (Bangladesh Bank). Due to some problems faced with the EEF, Bangladesh Bank has now transferred the operation of the EEF to the Investment Corporation of Bangladesh (ICB).

4.6.2.2 SME Cell and SME Foundation Credit Schemes

Considering the importance of small enterprise financing, a SME cell has been created in 2003 in the Ministry of Industries (MOI). The cell has announced that 80 per cent of total resources available for SME would be allocated especially for small enterprises. The SME cell also decided that BASIC and BRAC bank will be working together as lead banks and will be responsible for distribution of credit and venture capital fund in the short run.

The SME Foundation (SMEF) is an independent organisation established in 2007 with a view to making it an Apex body for looking after the SME sector. The SMEF is capitalised by the Government of Bangladesh with a total endowment of Tk. 200 crore (Tk. 2 billion). In order to facilitate low cost credit to SMEs, the SME Foundation started credit wholesaling programme of Tk. 2.00 crore and it is being implemented by MIDAS Financing Ltd. and Shakti Foundation on a pilot basis. The Foundation developed guidelines for conducting its credit wholesaling programme so that SMEs can receive credit at a single digit interest rate (say, 9 per cent) under Programme through partner organisations. The SME Foundation expects that the SME credit wholesaling guidelines would enable it to reserve refinancing funds and
give it to banks and financial institutions at rates lower than that of the Bangladesh Bank.

4.6.2.3 BSCIC Credit Schemes

Bangladesh Small and Cottage Industries Corporation (BSCIC) has long been providing credit support to small and cottage industries for both fixed and working capital, though the size of the loan is relatively smaller. Some of the notable credit programmes of BSCIC are: self-employment programme, women entrepreneur development programme and poverty reduction through income generation programme. The loan amount that BSCIC offers ranges between Tk. 50,000 and Tk. 500,000.

Moreover, BSCIC has taken initiatives to create a Trust Fund for providing industrial loans to which the government has allocated Taka 23 crore (Budget FY2008).

4.6.2.4 Some Special Credit Programmes by GOs

Various government organisations including specialised banks are engaged in providing credit to the SME sector. A specialised bank, the BASIC Bank Limited (Bangladesh Small Industries and Commerce Bank Limited), was established in 1988 with the foremost objective of financing the small and cottage industries (SCI). The Memorandum of Articles of BASIC contains that at least 50 per cent of its loanable fund should be invested in small-scale industries. The bank also offers below market interest rates on SME lending compared to most other banks. In fact, BASIC bank provides 100 per cent of its loan to small enterprises.

Taka 150 crore has been allocated in the budget FY2008 for the development of agro-based industries. This credit will be channeled through Bangladesh Krishi Bank, Rajshahi Krishi Unnayan Bank, BASIC Bank and Karma Sangsthan Bank.

Earlier, the Karmasangsthan Bank took up programs to give loans to unemployed youth for setting up small enterprises. In FY2003, the bank disbursed a total of Tk. 28 crore to 9,486 borrowers and recovered Tk. 26 crore.

The Ansar VDP Unnayan bank used to provide loans to members of the Ansar and Village Defense Party for setting up small enterprises. The bank disbursed Tk. 82 crore in FY2003 and Tk. 67 crore in FY2002. The default loans accounted for 2.08 per cent of total outstanding loans in FY2003.

Moreover, some other SME financing initiatives were taken by various government organisations, such as the Directorate of Youth Development, BARD, BRDB, etc.

4.6.2.5 NGO Credit Programmes

Various non-government organisations (NGOs) in Bangladesh have been involved in providing credit to small business enterprises. Some of the notable credit programmes of three big NGOs, namely BRAC, ASA, and PROSHIKA are discussed here.

BRAC: BRAC is the largest NGO of Bangladesh with many programmes. It also runs some micro-credit programmes. One notable BRAC credit programme for small enterprises was the Micro Enterprise Lending and Assistance (MELA), which was launched in 1996. The objective of MELA programme is to generate income and new employment through enterprise development in the rural and semi-urban areas of Bangladesh by providing credit facilities and technical assistance to new and existing small business. Loan range is Taka 20,000–200,000 at a flat interest rate of 15 per cent.

ASA: ASA has different credit schemes for small businesses and enterprises. Small Entrepreneur Lending (SEL) accounts for 6.5 per cent of total loan portfolio. Under the SEL, initial maximum loan size is Tk. 400,000 with 12.5 per cent flat interest rate. Another credit programmeme is Small Business Loan that accounts for 12 per cent of total loan portfolio. The maximum size of the loan is Tk. 50,000 at an interest rate of 12.5 per cent.

PROSHIKA: Under the Small Enterprise Development Programme (SEED), up to December 2006, a total of Tk. 742 million loan had been disbursed among 13,441 entrepreneurs (40 per cent female). A total of 43,095 new employments (54 per cent full-time and 46 per cent casual) have already been created. Both formal and non-formal training have been imparted to around 2,000 entrepreneurs. Business counseling and technological and marketing extension supports have also been provided under the programme.

Besides the above NGOs, other NGOs also have some credit programmes for SMEs.

4.6.2.6 Supplier's Credit

Supplier's credit facility could be another source of financing for SMEs. In Bangladesh, suppliers' credit is available mainly for firms that are engaged in export-import business. A survey of MOI shows that some knitwear firms have taken supplier's credit. The survey findings reveal that Sweater and Jacket factories collect raw materials by back to back LCs getting the suppliers credit benefit (MOI 2007/08).

4.6.3 Capacity Building for Institutional Financing

Bankers often claim that SME loans are the riskiest among all types of loans and monitoring cost is very high for such loans. On the other hand, entrepreneurs claim that bankers create many obstacles in the name of risky loan, and thereby ask for collaterals. Those who are running small enterprises, they do not have enough assets to use as collateral. To make the SME loan less risky, several loan technologies can be applied. The following approaches are applied at a smaller scale to make the loan collateral free.

- Bangladesh Bank has introduced *factoring*⁵¹ to ease the working capital problem that will guarantee SMEs to enjoy consistent cash flow, lower administration costs and reduced credit risks.
- Besides the direct credit, the organisations such as South-Asia Enterprise Development Facility (SEDF) provides support to partner financial institutions (FIs) through a combination of technical assistance and policy related works so that the FIs are able to make financing more readily available for SMEs.
- Using the *Credit Scoring Model* based on available data from reliable sources, banks and financial institutions can provide loans to SMEs with growth potential and good track record.

4.6.4 Some Pertinent Aspects of Institutional Financing

Three aspects of institutional financing are examined in this section based on the findings of twenty industries survey by the Ministry of Industry in 2007/08: (i) the percentages of firms with at least one loan contract with either a schedule bank or a leasing company, (ii) the average size of loans across industries, and (iii) average interest rates charged by banks.

4.6.4.1 SME Loan Coverage

Table 4.51 shows that about 30 per cent firms of seven industries out of twenty industries (such as agro processing, electrical, motor vehicle parts, non-metallic

⁵¹Factoring is a financial transaction whereby a business sells its accounts receivable (i.e., invoices) to a third party (called a factor) at a discount in exchange for immediate money with which to finance continued business. Factoring differs from a bank loan in three main ways. First, the emphasis is on the value of the receivables (essentially a financial asset), not the firm's credit worthiness. Secondly, factoring is not a loan–it is the purchase of a financial asset (the receivable). Finally, a bank loan involves two parties, whereas factoring involves three parties.

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minerals, plastic, radio communications and television and wood cork and wood products) have access to institutional finance. This implies that a large number of SMEs, about 70 per cent, do not have access to institutional finance.

		1	1				
Thrust sectors	Micro	Small	Medium	Large	Mismall	MeLarge	All
Agro Processing	27.8	57.9	53.9	50.0	30.1	53.2	31.4
Basic metals	21.7	8.3	33.3	50.0	100.0	40.0	20.3
Electrical	28.5	61.1	50.0	50.0	31.0	50.0	31.4
Furniture making	14.4	50.0	50.0	0	15.0	50.0	15.1
Knitwear	16.8	36.5	37.5	30.0	21.8	36.8	25.8
Leather	20.7	43.3	21.7	40.0	24.3	25.0	24.3
Light engineering	14.0	31.0	16.7	0	16.6	12.5	16.5
Medical, optical equipment	14.3	0	0	0	11.0	0	11.0
Motor vehicle parts	25.0	66.7	0	0	36.4	0	33.3
Non-metalic minerals	34.1	47.0	0	100.0	39.4	75.0	39.8
Other transport	6.7	100.0	0	0	12.5	0	12.5
Paper and paper-based goods	3.3	13.3	100.0	0	6.7	100.0	8.7
Parts and components	10.6	47.1	40.0	0	14.3	33.3	14.9
Pharmaceuticals	10.5	57.1	22.2	50	17.8	33.3	21.7
Plastic	22.0	41.9	71.7	66.7	32.6	70.5	42.4
Printing & publishing	11.5	24.3	38.1	100.0	17.6	40.9	19.8
Radio comm., television	50.0	0	0	0	50.0	0	50.0
Tobacco	6.7	0	0	0	5.0	0	5.0
Wood cork & Wood products	28.2	100.0	0	0	30.0	0	30.0
Designer goods	10.3	17.4	16.7	100.0	11.9	16.1	12.2

TABLE 4.51 PER CENTAGE OF FIRMS THAT HAVE AT LEAST ONE LOAN FROM BANK OR LEASING COMPANY, 2007-08

Source: Ministry of Industries, Survey of Twenty Industries, 2007/08.

4.6.4.2 Average Size of Loan

Table 4.52 presents information on the average size of loans. On an average, the size of loan for small enterprises is 33 lakh taka, while the size of loan for medium enterprises is 1.5 crore taka. Overall, SMEs loan ranges between Tk. 10 thousand and Tk. 2.0 crore.

Thrust sectors	Micro	Small	Medium	Large	Mismall	MeLarge	All
Agro Processing	367.2	2589.5	5235.9	57593.8	532.8	14147.9	1320.8
Basic metals	540	500	10000	150000	536.36	80000	12761.5
Electrical	15.67	9.45	85321.55	5.00	14.72	42663.28	1167.39
Furniture making	99.09	1000	5000	0	111.03	5000	143.19
Knitwear	7120	6160	7389	8850	6878	7527	7050
Leather	3670.65	15966.67	108260.87	70000	5664.59	101428.57	18253.29
Light engineering	298.28	1509.52	250	0	481.94	187.50	473.67
Medical, optical equipments	114.29	0	0	0	88.89	0	88.89
Motor vehicle parts	78.81	1209.1	0	0	387.07	0	354.81
Non-metalic minerals	533.41	1394	0	221783	885.15	166338	2669
Other transport	76.67	20000	0	0	1321.88	0	1281.8
Paper and paper- based goods	2000	2500	50000	0	2333.3	50000	14250
Parts and components	36.05	4153.46	3202.6	0	452.69	2668.83	529.11
Pharmaceuticals	1513.16	4514.29	333.33	40000	1980	18000	5985
Plastic	218	919	8534	65560	590	22557	6268
Printing & publishing	766.1	315.5	1176.2	310000	551.25	15213.64	1906.6
Radio comm., television	750	0	0	0	750	0	750
Tobacco	33.33	0	0	0	25	0	23.81
Wood products	582.05	3250	0	0	648.75	0	648.75
Designer goods	41.48	90.87	0	0	52.4	0	47.67

 TABLE 4.52

 AVERAGE INSTITUTIONAL LOAN SIZE ACROSS SECTORS (TK. '000), 2007-08

Source: Ministry of Industries, Survey of Twenty Industries, 2007/08,

4.6.4.3 Average Interest Rates for Bank Loan

It is observed from Table 4.53 that the average interest rates charged for loans range between 10 and 19 per cent. No significant difference in interest rates across industries is observed. However, interest rates are relatively higher for plastic and knitwear industries.

Thrust sectors	Micro	Small	Medium	Large	Mismall	MeLarge	All
Agro Processing	14.7	13.4	16.7	16.3	14.5	16.6	14.7
Basic metals	14.7	14.0	16.0	15.5	14.6	15.8	14.8
Electrical	15.0	14.4	15.5	17.0	14.7	16.2	15.5
Furniture making	15.4	15.0	14.0	0	15.4	14.0	15.3
Knitwear	18.1	14.8	14.6	14.1	16.8	14.8	16.0
Leather	15.5	13.8	13.4	15.0	15.01	13.9	14.8
Light engineering	14.9	13.7	14.0	0	14.5	14.0	14.5
Medical, optical equipments	15.6	0	0	0	15.6	0	15.6
Motor vehicle parts	10.5	11.0	0	0	10.8	0	10.8
Non-metalic minerals	14.4	14.6	0	13.0	14.5	13.0	14.5
Other transport	15.5	15.0	0	0	15.3	0	15.3
Paper and paper- based goods	14.0	14.5	14.5	0	14.3	14.5	14.4
Parts and components	15.2	15.2	14.5	0	15.2	14.5	15.1
Pharmaceuticals	12.1	12.6	11.0	14.7	12.4	13.2	12.7
Plastic	18.2	17.6	15.3	15.1	18.0	15.2	17.0
Printing & publishing	15.2	15.6	16.9	16.0	15.5	16.7	15.6
Radio comm., television	13.3	0	0	0	13.3	0	13.3
Tobacco	10.0	0	0	0	10.0	0	10
Wood products	15.3	16.5	0	0	15.4	0	15.4
Designer goods	12.8	0	0	0	12.8	0	12.8

TABLE 4.53AVERAGE INTEREST RATE ACROSS FIRMS, 2007-08

Source: Ministry of Industries, Survey of Twenty Industries, 2007/08.

For entrepreneurs, although the supply of and access to finance is very important, the cost of fund is also a very important factor for their sustainability and expansion. It is often argued that the interest rate on SME loan is too high and needs to be lowered. Otherwise, the profitability of entrepreneurs, especially for those of the innovative projects, will be adversely affected. On the other hand, bankers argue that the monitoring cost of small enterprise borrowers is very high, which eventually contributed to high cost of fund (see section 4.4).

4.6.4.4 Loan Recovery Rate

As Table 4.54 shows, loan recovery rate for small and cottage industries is almost 100 per cent, but for medium enterprises the rate is between about 70 and 80 per cent.

TABLE 4.54LOAN RECOVERY RATE (PER CENT)

	LSI	MSI	SSCI
July-September, 2008	76.5	81	99
October-December, 2008	100	71.4	100
January-March, 2009	81.1	70.99	99.5

Source: Bangladesh Bank. LSI- Large scale industries; MSI-Medium scale industries; SSCI-Small scale and cottage industries.

Based on secondary data on institutional finance for SMEs, the findings are summarised as follows:

- SME Loan size is found to be very small ranging between Tk. 10,000 and Tk. 2 crore.
- Interest rate for SME loan remains very high, ranging between 10 and 19 per cent, particularly for small enterprises.
- Loan recovery rate is very high, especially for small enterprises ranging between 95 and 99 per cent.
- On an average, around 30 per cent SMEs have access to institutional loans.
- Private banks have special SME cells and SME banking section; however, it is necessary for SOBs to open up SME cells and SME banking section in each branch.
- Constant monitoring by banks for loan recovery helps improve the quality of businesses by SMEs, albeit high cost of monitoring.
- Women entrepreneurs receive loans from banks at somewhat lower interest rates.

It appears that the cost of SME finance is high, which creates impediment to access to finance at a greater extent by SMEs. Without having greater access to finance, it would be very difficult for the SME sector to grow at an expected level.

4.6.5 Review of Refinancing Schemes of Bangladesh Bank

In order to facilitate loans to SMEs, Bangladesh Bank has introduced a refinancing scheme for schedule banks and financial institutions against the loan given to SMEs from May 2004 using three sources of funds (see also section 4.4):

Tk. 100 crore of Bangladesh Bank's own fund, US\$ 20 million from International Development Association (IDA) and US\$ 30 million from the Asian Development Bank (ADB).

4.6.5.1 Modalities of Refinancing

The modalities of refinancing scheme are as follows.

- 1. Banks and financial institutions are given 100 per cent refinance against disbursement of both working capital and term loan to the small enterprise sectors. The amount for an individual borrower ranges from Tk. 2.0 lakh to Tk. 50.0 lakh. Refinance is available on first-come-first-serve basis.
- 2. Interest rate on Bangladesh Bank refinance is charged at prevailing bank rate. The lending banks or financial institutions can apply their own interest rate on the loans made to the ultimate borrowers.
- 3. Banks and financial institutions have to apply for refinance to Bangladesh bank in the prescribed forms against disbursement of loans on quarterly basis.
- 4. Banks and financial institutions interested in securing refinance facility under the scheme must have to submit a statement to Bangladesh Bank stating estimated fund requirement over a six-month period.
- 5. Refinance is available for short-term working capital loans as well as for medium and long term loans. Working capital loans must have a maximum maturity period of one year while medium and long term loans have maximum maturity of three years and five years respectively.

Repayment schemes under the refinancing programmes are defined as follows:

- 1. *Working capital loan*: Repayable within one year from the date of disbursement in two equal half yearly installments with interest.
- 2. *Medium term loan*: Repayable within three years including six months grace period in five equal half yearly installments with interest.
- 3. *Long term loans*: Repayable within five years including six months grace period in nine equal half yearly installments with interest.

The refinancing scheme of Bangladesh Bank worth Tk. 100 crore has now increased to Tk. 600 crore as a revolving fund. Up to March 2009, a total of 15 banks and 20 NBFIs have been given refinancing facilities to finance 6,236 firms. Under the Enterprise Growth and Bank Modernization Project (EGBMP), implemented by the Ministry of Finance, the World Bank has so far given Tk. 112.32 crore for refinancing banks and NBFIs against their loans to 2,341 SMEs.

Under the project, so far 14 schedule banks and 14 NBFIs have availed refinancing facilities. Under the Small and Medium Enterprises Sector Development Project (SMESDP), Asian Development Bank (ADB) has provided US\$ 30 million and up to March 2009 eight schedule banks and seven NBFIs took refinancing facilities. A total of 2573 SMEs are financed under the SMESDP project.

4.6.5.2 Growth of Refinancing Amount

Under the refinancing scheme, a total of Tk. 1,117.72 crore has been distributed to schedule banks for refinancing their loans to SMEs, of which Bangladesh Bank provided Tk. 645.75 crore, IDA provided Tk. 206.39 crore and ADB provided Tk. 265.58 crore (Table 4.55).

TABLE 4.55							
REFINANC	ING SCHEMES	ON SMES OVE	R 2006-09 (C	CRORE TAKA)			
	Up to June 2006	2006-07	2007-08	2008-09 (up to			

	Up to June 2006	2006-07	2007-08	2008-09 (up to March 2009)					
	Panel A: Bangladesh Bank's refinancing								
Working capital	23.05	22.70	33.46	65.32					
Mid-term Loan	76.71	49.12	80.92	99.25					
Long-term loan	36.32	43.35	43.78	71.76					
Total (Growth)	136.08	115.17	158.16	236.33					
		(-15.36%)	(37.2%)	(49.4%)					
	Panel B: I	DA's refinancing	on SMEs						
Working capital	17.94	17.04	7.67	13.13					
Mid-term Loan	37.52	15.61	18.36	20.21					
Long-term loan	15.45	21.72	12.15	9.59					
Total (Growth)	70.91	54.37	38.18	42.93					
		(-30.42%)	(-29.78%)	(12.44%)					
	Panel	C: ADB's refinan	cing						
Working capital	1.60	31.17	54.88	32.37					
Mid-term Loan	10.23	15.08	38.17	38.21					
Long-term loan	7.81	11.49	19.24	5.34					
Total (Growth)	19.70	57.74	112.29	75.92					
		(193.09%))	(94.48%)	(-32.38%)					

Source: Bangladesh Economic Review, 2009. Ministry of Finance.

4.6.5.3 Number of Beneficiaries under the Refinancing Schemes

Although the number of beneficiaries is increasing over time under various refinancing schemes, the trend of beneficiaries' participation in the programme is found to be declining. This may be due to the fact that the refinancing amount has not been increased substantially compared to huge SME credit demand in the market (Table 4.56).

	2005-06	2006-07	2007-08	2008-09					
Panel A. Beneficiaries of Bangladesh Bank's refinancing									
Industrial	343	672	1079	1447					
Commercial	1503	2015	2706	3702					
Service	318	586	827	1087					
Total	2164	3273	4612	6236					
(Growth)		(51.25%)	(40.91%)	(35.21%)					
	Panel B	. Beneficiaries of IDA	's refinancing						
Industrial	174	569	747	859					
Commercial	695	698	981	1159					
Service	61	179	234	323					
Total	930	1446	1962	2341					
(Growth)		(55.5%)	(35.7%)	(19.3%)					
	Panel C.	Beneficiaries of ADI	B's refinancing						
Industrial	40	199	452	640					
Commercial	88	333	1039	1620					
Service	59	160	273	313					
Total	187	692	1764	2573					
(Growth)		(270%)	(154.9%)	(45.86%)					

 TABLE 4.56

 NUMBER OF BENEFICIARIES OF THE REFINANCING SCHEMES, 2006-09

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Source: Bangladesh Economic Review, 2009, Ministry of Finance.

4.6.5.4 Number of institutions under the refinancing schemes

As of June 2009, a total of 18 schedule banks (out of 48 banks) and 21 NBFIs (out of 29 NBFIs) have participated in the refinancing schemes. However, yearly growth of institutions' participation in the refinancing scheme is not very much encouraging (Table 4.57).

TABLE 4.57

NUMBER OF INSTITUTIONS ENGAGED IN REFINANCING SCHEMES OVER THE YEARS, 2006-09

	2005-06	2006-07	2007-08	2008-09						
	Panel A. Bangladesh Bank's refinancing scheme									
Banks	7	11	11	15						
NBFIs	10	16	19	20						
	Panel B. IDA's refinancing scheme									
Banks	6	9	12	14						
NBFIs	4	11	12	14						
Panel C. ADB's refinancing scheme										
Banks	2	5	7	8						
NBFIs	5	6	7	7						

Source: Bangladesh Economic Review, 2009, Ministry of Finance.

4.6.5.5 Differences in Lending Modes between Banks and Leasing Companies

Table 4.58 shows that the private banks and leasing companies are sharply differentiated from one another in terms of the maturities of the loan products they sell. While banks ply 41.4 per cent of their disbursements into working capital loans, presumably in the way of trade credits, leasing companies allocate only 12 per cent of their disbursements for that purpose. On the other hand, leasing companies ply 44 per cent of their lending into long-term deals, the corresponding percentage for the private banks is only 14.5 per cent.

Note that banks are providing short to medium term loans at a larger amount, while NBFIs are providing long-term loans at a greater amount. This contrasting scenario in loan disbursement can be explained in terms of varied nature of these two types of institutions. Therefore, customer relationship and nature of institution may matter for loan disbursement to SMEs. From survey results in section 4.3 it is found that interest rates charged by NBFIs are somewhat higher than those of banks.

Financing channels	Working capital financing: % of	Medium-term financing: % of	Long-term financing: % of	Total financing (Tk. In crore)
	total	total	total	
Private banks	41.4	44.01	14.5	304.81
Private leasing companies	11.95	50.40	44.29	340.94
All	22.4	47.4	30.22	645.75

TABLE 4.58 DIFFERENCES IN LENDING MODES BETWEEN PRIVATE BANKS AND LEASING COMPANIES (2004-09)

Source: Bangladesh Economic Review, 2009.

4.6.6 Effectiveness of the Financing Facilities

As already discussed, various alternative financing modes are introduced by various public institutions including the Bangladesh Bank, SOBs, BSCIC, etc. to extend and facilitate loans to SMEs. The amount of SME loans has been increased substantially during the last five years, which can be seen as a positive impact of various alternative financing schemes introduced by the government. Despite this substantial increase of SME loan over the last few years, it is still unsatisfactory in terms of outreach, which is around 30 per cent.

The performance and effectiveness of such financing varies with features and terms of the financing facilities. Some of the facilities are targeted at certain industries or subject to limited geographic coverage. For example, the Bangladesh Bank's rural-based agro-processing industries refinancing facility, originally set up for Taka 150 crore, had a low utilisation rate mainly owing to the restriction on the use of funds to agro-processing industries located outside the major cities. Later on, the size of the facility was reduced to Taka 50 crore and the rest, Taka 100 crore, was reallocated to set up the Small Enterprise Fund (SEF).

Bangladesh Bank's refinancing schemes have also not gained its momentum because of lengthy administrative procedures for reimbursements. According to Bangladesh Bank's source, yearly reimbursement under the refinancing scheme is around 30-40 per cent of total claims. As is reported in section 4.4, bankers' often claim that for a small amount of refinance, they have to spend a substantial amount of money and time to meet up all the requirements set by Bangladesh Bank, which increase the cost of borrowing. Due to this cumbersome process, some banks have lost their interest on refinancing scheme.

Currently, Bangladesh Bank sets rules that commercial banks under the refinancing scheme must have to provide credits to women entrepreneurs at an interest rate of 10 per cent (bank rate plus 5 per cent). Considering insufficient refinancing amount, this categorisation has created problems for banks to segregate women customers—who will get at 10 per cent rate and who will not. Therefore, further policies are needed to make the refinancing schemes more effective and efficient.

The Equity Entrepreneurship Fund (EEF) was set up in 2000 as a venture capital fund to co-invest in projects in software, food processing and agro-based industries. Since its establishment, the utilisation rate has not been that much satisfactory, and some of the utilised funds became non-performed. Owing to this unsatisfactory performance of the EEF fund, Bangladesh Bank recently gave up its operational activities and transferred it to the Investment Corporation of Bangladesh (ICB).

Some credit facilities provided by SOBs impose ceiling on loans to subborrowers in certain sectors, such as agricultural credit, thus distorting interest rates and further exacerbating the vulnerable financial position of these entities. There is no indicator to measure the effectiveness, outreach, or impact of these financing facilities.

Earlier Sonali bank, Agrani Bank and Janata Bank jointly started a Credit Guarantee Scheme with assistance from the Bangladesh Bank. A substantial amount

of loan was disbursed under this scheme, but much of that loan went to non-viable projects and turned into bad debts.

Thus, an in-depth study needs to be conducted to identify ways to rationalise the existing government assistance and to ensure efficient and effective delivery mechanisms.

4.6.7 Conclusion

Financing SMEs is one of the key prerequisites for the achievement of growth of the sector. Evidence from around the world demonstrates that access to finance is a key problem that much of the private sector and, in particular, the smallest enterprises face in both developed and developing countries. In Bangladesh the small entrepreneurs-both entrants and existing entrepreneurs-also significantly face obstacles in relation to the cost and lack of access to investment capital in spite of the efforts that have been made to alleviate them. To maximise the benefits of financial structures, the provision of finance should be accompanied by parallel efforts to improve the investment climate and to develop other SME support services.

It is important to note that we are not proposing for generous assistance to be provided to the SMEs. Because various studies reveal that financial opportunities or higher effective rates of assistance provided earlier to the SMEs have contributed to the inefficiency in the sector (Robb 2002, Meagher 1998). Hence, a wellorchestrated financial mechanism supported by other support services such as promotional, human resources development and so forth is required to foster an enabling environment for the SME sector.

As also in many developing countries, informal financial institutions in Bangladesh still play an important role. In particular, in the rural areas their importance is higher. For the formal financial institutions, the market presence of different types of institutions and the competition among them have important effects on SME credit availability because institutions of different types may have comparative advantages in different lending technologies. On the other hand, the lending infrastructure—the information environment, the legal, the judicial and bankruptcy environment, and the tax and regulatory environments—may directly affect SME credit availability by affecting the extent to which the different lending technologies may be legally and profitably employed. The lending infrastructure may also restrict SME credit availability indirectly by constraining the potential financial institution structure through a restrictive regulatory environment. To conclude, although the financing mechanisms required by the SMEs do exist to some extent, there is still scope for more innovative and customised products.

4.7 POLICY RECOMMENDATIONS

Small and Medium Enterprises (SMEs) play a vital role in the economic growth and development of the country, especially in one like Bangladesh. The 2003 National Private Sector Survey of Enterprises in Bangladesh reveals that the MSME (Micro, Small and Medium enterprises) employ more than 31 million people and contribute 25 per cent to the GDP. SMEs create the majority of national income and employment, but they have the least access to institutional finance. Access to institutional finance for women entrepreneurs in SME is further marginalised.

Access to institutional finance for SMEs is still greatly limited as survey results show that less than 30 per cent SMEs have access to institutional loans. There is no denying that a greater access to finance by SMEs would enhance the development of SMEs. In this regard, it would be the most important policy challenge how to increase institutional loan coverage to more SMEs. Therefore, in order to increase the access to institutional finance by SMEs, the following targets can be set in the next Five Year Plan (2011-2015):

- To increase access to institutional finance by 50 per cent of SMEs, which is now around 30 per cent; and
- To motivate banks to increase SME loans by 50 per cent of their total loan portfolio, which is now around 20 per cent.

To achieve the above targets, some policies regarding interest rate, bank's risk management, increasing effectiveness of Bangladesh Bank's refinancing schemes, encouraging women entrepreneurs, etc. would be of great concern. Pragmatic policies are needed to make loans to SMEs collateral-free as well as risk-free for banks.

Some policies are recommended in this section in order to be incorporated in the Sixth Five Year Plan that can enhance better access to finance by SMEs and foster further development of the sector. The policies are drawn based on the findings in the preceding sections.

4.7.1 Simplified and Transparent Loan Process

4.7.1.1 Simplify SME Loan Process

The perception survey of Bank officials has revealed the fact that SME loan process takes longer time due to complexity of collateral requirements. In many banks, even the SME loan section has not been equipped with proper and sufficient manpower. Since SME loan seekers are relatively less educated, proper orientation about loan process is required for them to process the loan. Therefore, commercial banks should be directed to make the loan process easier and simplified and to equip

SME loan section with sufficient manpower. Every bank branch should have a SME loan section with a desk for women entrepreneurs. Bangladesh Bank can undertake some training programmes for SME banking officials on how to make SME loan service more efficient and client-friendly (See also section 4.4).

The interest rates charged for SMEs are not always found to be transparent. In most cases, 3-monthly interest rates are calculated, which is costlier than those are annual basis and often not disclosed to clients. Therefore, a code of conduct between banks/NBFIs and SMEs is necessary to make the loan process more transparent and accountable.

4.7.1.2 Developing a Code of Conduct between Banks/NBFIs and SMEs

A code of conduct between banks and NBFIs and SMEs can be devised in order to foster good working relations between credit institutions and SMEs by encouraging a greater mutual understanding of their respective roles and responsibilities. The code of conduct will outline a set of principles to ensure mutually beneficial, loyalty-based and rewarding relationship between credit institutions and SMEs. Bangladesh Bank can take the initiative through a consultation with bankers' association and SMEs' associations. In this regard, code of conduct developed by European Union for its member countries can be followed. The code of conduct should precisely include banks' transaction procedure, transparency and information, indiscriminate behaviour towards clients, procedures of credit and account opening, pricing, interest rates and charges, customer protection and customer complaints. This type of code of conduct would enable better access to finance by SMEs.

4.7.2 Institutional Development

4.7.2.1 Strengthening the SME Foundation

Currently, the SME Foundation is working with the government to formulate guidelines to bring down interest rates to a single digit for the SMEs. Once enacted, the SME credit wholesaling guidelines will help banks and financial institutions to channel low cost finance in small ventures. The SME Foundation expects that the proposed SME credit wholesaling guidelines would enable it to reserve refinancing funds and give it to banks and financial institutions at rates lower than that of the Bangladesh Bank.

Necessary initiatives are needed to strengthen the Foundation to work as an apex body, such as Palli Karma-Sahayak Foundation (PKSF) and channel funds into small businesses more prudently through a network of banks and NBFIs. Necessary skilled manpower and financial independence are needed for the Foundation to

work as a facilitator and supervisor of the sector (See also section 4.4). Some key areas of intervention by SMEF would be to:

- enhance credit wholesaling process to lower the market interest rates to a single digit level;
- create a nationwide database of SMEs and make it available in the website;
- conduct effective training programmes for SMEs as well as for bank officials on the issues like credit wholesaling, low cost financing, business strategies, market promotion and access to international market, bank borrowing procedures etc.;
- undertake special awareness building programme for women entrepreneurs;
- provide one stop service with credit, market, legal service and technology information for SME women entrepreneurs at SMEF;
- create portal for women entrepreneurs where a directory of women entrepreneurs will be available, as well as all information on access to finance; and
- facilitate linkages between formal and informal financial institutions in order for effective financial access by SMEs.

4.7.2.2 Strengthening the SOBs for SME Financing

State-owned banks (SOBs) have larger branch networks throughout Bangladesh. A section or cell dedicated to SME financing by scaling down commercial banking activities to SME financing can be set up in all branches of SOBs. In addition, it is necessary for SOBs to devise an efficient delivery mechanism for SME financing. Ensuring efficiency in the service delivery mechanisms of SOBs and opening up dedicated SME cells in all branches of SOBs can boost the SME development. Computerisation of SOB branches and proper training of SOB officials can help increase efficiency in the service delivery mechanism.

4.7.2.3 New SME Bank

As time goes, SMEs need more innovative financial products such as factoring, venture capital, etc. However, the SME entrepreneurs as well as the financial instruments providers should be well acquainted with such products. As evident in sections 4.3 and 4.4, both bankers and entrepreneurs have argued for a dedicated new financial institution for SME, which will also look after the SMEs to provide

sufficient, long-term, low-interest funds with liberal terms of collateral. Thus, a model of mixed finance, which is a combination of equity, quasi-equity and loan, can be considered. In this case, the model of the "Business Partners in South Africa" can be followed.

4.7.2.4 Scaling up Micro Finance to SME Finance

From sections 4.5 and 4.6, it is observed that many micro finance institutions (MFIs) and NGOs are engaged in providing micro-credit as well as small business credit. The government can take initiatives to scale up MFIs for SME financing. Bangladesh Bank can devise legal framework in this regard so that NGOs and MFIs can come up with more SME financing products.

4.7.3 Interest Rate Structure

Undoubtedly, the high cost of fund affects the growth of SMEs. Despite high loan recovery rate, banks and financial institutions are still reluctant to reduce interest rates as well as to reduce conditionality on collateral assets. Interest rates are not declining although many banks and financial institutions are opening up separate windows for the SME financing. Such high rates of interests force SMEs, especially those involve in manufacturing activities and especially smaller in size, to become sick and go out of business. Overseas funds at 2 per cent rate and the Bangladesh Bank fund at 5 per cent rate still could not help lower the lending rates for the small entrepreneurs. Entrepreneurs have to pay interest to retail bankers at rates 18-20 per cent which is three to four times higher than the rate offered by the Bangladesh Bank refinancing scheme.

Bankers' claim that monitoring and other administrative costs for SME loan are substantially high, for which they have to charge high interest rate for SME loan (see section 4.4). Despite high SME loan recovery rate (almost 100 per cent), charging higher interest rates for SMEs compared to other sectors where loan default rate is high is not properly justified. Therefore, policies must be devised to rationalise SME loan interest rate.

The credit wholesaling programme of the SME foundation is expected to make a positive impact on the market to reduce interest rate. Initiative towards bringing efficiency and competition in the financial sector could help reduce interest rate. This is important not only for SMEs but also for other industrial lending. Strengthening secondary bond market and capital market can open up avenues for low cost SME finance.

4.7.4 Collateral Free Loans

One of the key impediments for access to institutional finance by SMEs is the

lack of proper collateral assets (See also sections 3.3 and 3.4). In order to ensure collateral-free loans for SMEs, the following initiatives should be undertaken by the government.

4.7.4.1 Formal-informal Linkages

There has been considerable interest around the world in bridging the formal sector (banks) with the semi-formal sector (NGOs) exploiting the comparative advantages of each. The informal and semi-formal sectors have a comparative advantage over the banks in lending small loans without collateral or in "relending" to women and poor borrowers. NGOs mobilise savings from their members but not from non-members, which deny them access to large savers. They are therefore in a position to lend more than they can mobilise as deposits. Creating a link between NGOs and banks, therefore, ensures the comparative advantage of both sectors.

At least three different linkage patterns can be seen in operation. The first is a model in which NGOs function as intermediaries, taking on themselves the resulting loan losses. An example of this linkage is found in the IFAD-financed Oxbow Lakes Small Scale Fishermen Project with BKB on lending funds through BRAC. The Bangladesh Bank provides IFAD funds to BKB at 6 per cent and the ultimate borrower paying 15 per cent. The interest spread of 9 per cent is shared by BKB (2) per cent) and BRAC (7 per cent). There is not enough data to assess the adequacy of interest spread available to BRAC. The second is a model in which the bank lends directly to borrower groups. NGOs assist borrowers with paperwork, analysis of proposals and so forth. They also "retail" loans from banks to beneficiaries, either charging the borrower a fee or receiving a subsidy for this service from the government. Women's World Banking is a good example of this credit model, operating in some 50 countries, and extending loans to women through commercial banks with the use of a guarantee mechanism. Several governments in Latin America have also set up mediating agencies along these lines. The Institute for Development of the Informal Sector (IDESI) in Peru is a well-known example, which can be considered a *third model*.

In Bangladesh, linkage between formal and semi-formal is not a new idea. However, it needs to be strengthened and streamlined. Several new avenues can be explored under this kind of arrangement during the Sixth Five Year Plan period.

4.7.4.2 Credit Guarantee Schemes

It is generally recognised that guaranteed schemes in various forms are required by the SMEs along with customised financial products. The SMEs are in especial need for longer-term resources with flexibility in collateral terms. Government can provide credit guarantee schemes to SMEs, which is a common feature both in

developed and developing countries. Such guarantee ensures repayment of any default loan taken by an SME. In particular, such a guarantee scheme can be more effective for women owned enterprises as they are smaller in size and home-based. In providing credit guarantees, it is, however, necessary to be aware of the problems of moral hazard and asymmetry of information.

4.7.4.3 Special Credit Insurance Programme

SMEs operate in an environment whereby barriers to their establishment and growth are very evident. Strengthening the financial sector is one of the most important issues for enabling SMEs to perform successfully. Most of the commercial banks as well as other financial institutions are somewhat reluctant to provide loans from own funds to SMEs due to the high credit risk associated with such lending. To overcome this problem, a mechanism can be devised to set up a special insurance scheme with funds from the government, donors and, even may be contributions from local financial institutions. This fund can be used to cover credit risks to a certain extent. This kind of insurance programme can help reduce the need for collateral. Though there already exist various guaranteed financing mechanisms for the SMEs, their implementation needs to be enhanced for the desired level of success.

4.7.4.4 Domestic Factoring

As also explained in section 4.4, Domestic Factoring is a kind of financial transactions whereby a business can sell its accounts receivables (i.e., invoices) to a third party (called a Factor) at a discount in exchange for immediate money with which to finance continued business. Bangladesh Bank and commercial bank officials have opined that factoring could be an ideal financing solution for the country's SMEs due to the flexibility allowed under the scheme (See preceeding sections). This is a collateral free financing transaction. Moreover, a relationship based on trust is maintained in such financial transactions. Although similar financial transactions are already taking place informally, such a factoring scheme, if formalised, is expected to have positive effect on the SME sector development.

4.7.4.5 Special Credit Allocation

SMEs are afflicted with a number of built-in constraints resulting from entrepreneurial and managerial deficiencies. This has also inhibited their access to formal credit. Various studies revealed that lack of working capital has been the single most important cause, among all the external factors, that makes an industrial unit sick. The BIDS Sick Industries Study (1998) reveals that "small scale" industries is at the top (72.5 per cent) in terms of incidence of sickness, followed by

"medium" and "large" scale industries -19.7 per cent and 4.1 per cent respectively. In a bid to strengthen the SME sector of the country, the government can introduce special credit scheme and simplified credit policy, and make it obligatory for banks and NBFIs to retain at least 30 per cent of the total industrial credits for SMEs.

It is also necessary to make obligatory for banks and NBFIs to provide at least 10 per cent (or certain amount) of their SME credit to women enterprises as a part of availing the opportunity of refinancing.

4.7.5 Efficacy of the Bangladesh Bank's Refinancing Schemes

4.7.5.1 Make it Sector/Client-Specific

It is learnt from Bangladesh Bank (BB) that currently 30-40 per cent of total claims for reimbursements can be entertained under the refinancing scheme. One of the reasons is that BB reimburse commercial banks' loan for SME manufacturing only. BB does not entertain SME trade loan reimbursement because of shortage of fund as the amount of SME trade loans is substantially higher than other types of loans.

Given the fund constraints under the refinancing scheme, it could be made available only for certain sector(s) or clients so that the scheme can fulfill 100 per cent reimbursement claim. Bankers as well as entrepreneurs suggest that the refinancing scheme can be restricted to manufacturing sector only as the demand for loans in this sector is relatively low. Alternatively, this refinancing scheme can be made applicable only for women entrepreneurs.

Moreover, administrative procedures for refinancing schemes should be made easier and other bottlenecks should be identified and resolved through a consultation among Bangladesh Bank, commercial banks and NBFIs (See also section 4.4). Since the lending interest spread of commercial banks and NBFIs are more than 10 per cent for refinancing schemes, it is better for Bangladesh Bank to provide directives on interest rate and other necessary financial intermediation.

From the findings in section 4.5 it is observed that banks usually make it obligatory for women entrepreneurs to make "spouse as guarantor." This kind of guarantor requirement often creates obstacle for women entrepreneurs to have smooth access to finance. Therefore, Bangladesh Bank should outline a guideline for commercial banks and NBFIs to provide "spouse guarantor free" loans to women enterprises.

4.7.5.2 Increase of Refinancing Fund

As of June 2009, banks' and NBFIs' outstanding loans to SME sector stood at around 50,000 crore taka. However, Bangladesh Bank has refinanced only 1,118

crore taka, which is 2 per cent of total loans. Therefore, it is necessary to increase outreach of the refinancing scheme. To increase outreach, it is deemed necessary to increase the refinancing schemes' fund. It is seen from the section 4.6 that the growth of refinancing fund is not always positive. In 2009, the growth of refinancing fund accounted around 50 per cent; however, it was negative for ADB funded scheme. If we assume on an average 30 per cent growth of the fund each year during the Sixth Five Year Plan, the fund for refinancing scheme should be increased to 4,000 crore taka. However, possible fiscal and monetary policy implications of such increase in refinancing fund should be examined before hand.

4.7.6 Legal Frameworks

Lack of efficient interbank market to channel excess liquidity, lack of legal framework for development of alternatives for long-term financing, such as securitised debt securities, lack of term funds at reasonable interest rates, and high interest rates offered for government bonds often crowd out long-term borrowing for SMEs by Financial institutions. Therefore, necessary legal frameworks should be in place to enhance financing facilities to SMEs.

4.7.7 Some Specific Policies for Women Entrepreneurs 52

In spite of all the efforts of government and development partners over the last two decades, women entrepreneurs in SMEs were still mainly dependent on informal sources of funds for lack of access to institutional finance. The macro level policies need to adequately address the constraints faced at the micro level by women entrepreneurs in SMEs. Public policy needs to address the emerging challenges faced by women entrepreneurs in access to institutional finance. Thus, a comprehensive and pro-active policy package consisting of access to finance, skill development training, technological capacity building and market promotion services needs to be developed for accelerated and sustained growth of a modern and vibrant women owned SME sector in Bangladesh. Technical assistance is needed both for financing and for enhancing capabilities of women entrepreneurs in SMEs.

The stakeholder consultation suggested two broad strategies for the Sixth Five-Year Plan: Strengthen Financial Arrangement and Enhancing Capabilities. The specific interventions suggested are discussed below.

⁵² This section is largely drawn on section 4.5 of this paper.

4.7.7.1 Strengthening Financial Arrangement

Bangladesh Bank to provide prudential guidelines for women entrepreneurs: As most of the women enterprises fall in the category of micro and small enterprises, it was suggested to lump the "micro" and "small" enterprises together and reclassify the SMEs as "MSMEs." This would make the SME growth strategy intrinsically pro-poor, intensely private sector based and socially inclusive. The prudential guidance for women entrepreneurs needs to: clearly define women entrepreneurs; set a lower bank rate at 2 per cent for refinancing for women entrepreneurs and reduce interest rate to 7 per cent; ensure that all fund for women entrepreneurs access to institutional finance to be funded from grants ; introduce same product, for example, "Nari" for women entrepreneurs, with same features in all financial institutions; eliminate requirement of spouse guarantee; waive requirement of bank statement for collateral free loans; set mandatory grace period for three months; mainstream women's entrepreneurs issues in National Credit Policy; and use disbursement of quota for women as a conditionality for availing incentives.

Integrating gender in all instruments for financing: As envisaged in the Industrial Policy 2005 and 2009 (draft), there is a need to integrate women in all instrument for financing SME. Collateral free loans need to ensure separate allocation for women, lower rate of interest, smaller loan size and SME help desk. Strong monitoring by Bangladesh Bank is required as in the case of refinancing scheme.

• Credit guarantee scheme: Government could provide credit guarantee schemes to SMEs. Such guarantee ensures repayment of any default loan taken by an SME. As women owned enterprises were smaller in size and home-based, such schemes would encourage financial institutions to lend to women owned enterprises.

• **Direct Guarantee**: Government could directly guarantee loans up to a certain limit to small businesses to purchase land, buildings or equipment. Loans may be made through banks or other financial institutions to women owned enterprises.

• **Credit scoring:** By implementing analytical software like credit scoring model based on available data from reliable sources, banks and financial institutions could provide loans to SME with growth potential and good track record. Strengthening the capacity of financial institutions in order to facilitate SME access to finance through "credit scoring" also needs attention. The prudential guidelines for small enterprises have mandated credit

information from Bangladesh Bank for loans above Tk. one lakh. The limit needs to be set at Tk. 5 lakh, as smaller loans were usually collateral free.

- Refinancing Scheme: Government could use grants as a major ٠ instrument to support the SMEs financially, which could be a subsidy. The directives of the Bangladesh Bank regarding collateral free loans of Tk. 25 lakh, interest rate at 10 per cent, disbursement of 15 per cent fund for women entrepreneurs, setting up SME desk for women entrepreneurs and 100 per cent refinancing need to be strictly monitored and followed. As Bangladesh Bank has recently reduced interest rate for medium and large enterprises to 13 per cent, the interest rate for women entrepreneurs could be set at 7 per cent. Bangladesh Bank needs to: (i) Provide loans to the financial institutions at 2 per cent rate of interest; (ii) Ensure that 80 per cent of the fund for women entrepreneurs goes to manufacturing; (iii) Strictly monitor that if 10 per cent of the fund is not disbursed to women entrepreneurs the financial institutions could not avail refinancing from Bangladesh Bank. This threat must be credible and monitored. Financial institutions need to develop linkages with regional chambers, women's associations and other related bodies as "moral" guarantor. Financial institutions need to provide "spouse guarantor free" loans to women entrepreneurs. SME foundation and financial institutions need to disseminate information on credit facilities to women entrepreneurs through the use of media, web portal and workshops.
- Venture Capital Funding: Bangladesh Bank has liberalised the rules regarding venture capital investment. The government measure like the Entrepreneurship Equity Fund needs to address women entrepreneurs. Also, private sector could be encouraged to set up and operate Venture Capital Funds which could support innovative and emerging technology based industrial ventures in order to provide risk capital and stimulate growth of industries that were women owned and have higher growth potential.
- **Domestic Factoring:** There is also scope to develop pragmatic financial products, for example "factoring". Factoring assesses enterprise on the basis of receivables, and not on the basis of collateral or asset of the entrepreneurs. Some leasing company had started to use domestic factoring for SMEs, for example, IDLC and IIDLC. Use of domestic factoring needs to be encouraged for women owned

enterprises and transaction cost such as fees associated with factoring needs to be reduced.

• Credit Wholesaling: Credit wholesaling needs to be expanded to benefit women entrepreneurs in SME as done in the pilot phase for bank and non-bank financial institutions.

Develop SME banking department: SME lending should be viewed as a specialised lending activity, which required the creation of SME department within the bank's operations. Credit product needs to be tailored in the SME department to meet the needs of women entrepreneurs in SMEs. The strategy needs to bring the bank at the doorstep of the women entrepreneurs by these interventions: Relationship banking needs to be developed for providing services; Bangladesh Bank needs to provide guidelines to financial institutions; and Training programme needs to be developed for lending officers. Cluster based approach for financing SME sector offers possibilities of reduction in transaction costs and mitigation of risk. Such clusters could be for "Boutique," "sarees," "shalwar kamiz," "embroidery," "bakery," and "handicrafts" for women entrepreneurs.

Establish process for trade regulations: The intervention suggested were: establish a gender cell for trade license in local government bodies; simplify registration process and reduce fees; create awareness and training on regulations; engage women ward commissioner to facilitate women entrepreneurs to get trade license; exempt women entrepreneurs from requirement of trade license or tax identification number; provide loans based on individual security.

Develop database: SME credit bureaus: Instead of Bangladesh Bank providing credit information to the financial institutions, the banks and financial institutions could share credit information. Such a cooperative arrangement could be arranged by SEDF and may result in an SME Credit Bureau from where lenders could purchase information and borrowers could review their own information. There is a need to develop national database on women entrepreneurs' profile and develop "Strategic alliances" for transferring information, technology and credit to and among SMEs. For monitoring, Bangladesh Bank needs to ensure that all financial institutions provide gender based statistics on banking. The automation of the banking sector could solve this problem. The Bangladesh Bank needs to ensure the enforcement of directive regarding the recruitment of women in the NCBs to increase the share of women in banking. The challenges to entry and growth should be constantly monitored and addressed. Formation of Women Entrepreneurs Forum in the SME Foundation could be a platform to develop an enabling environment for women entrepreneurship development.

Establish linkages with financial institutions: The interventions suggested were: separate allocation for women entrepreneurs by the Ministry of Finance; provide one stop service with credit, market, legal service and technology information for SME women entrepreneurs at SME Foundation; and create portal for women entrepreneurs where a directory of women entrepreneurs would be available, as well as all information on access to finance.

Develop strategies to avail proper information: The interventions suggested were: develop easy loan process for women entrepreneurs; offer lower interest rate/service charges; make repayment schedule easier; build awareness about banking facilities; assist to develop proper documentation; provide advisory services to women entrepreneurs; offer financial advisory services and establish women cell, eg. EBL; provide legal and administrative support to women entrepreneurs; set stipulated period for sanctioning loans and hold bankers responsible for delays beyond that period; develop linkages by financial instituions with regional chambers, women's associations and other related bodies as "moral" guarantor; and establish data bank on women entrepreneurs which financial institutions could tap.

Develop financial institutions linkage with network of women entrepreneur: Networking with women entrepreneurs' organisations and the Women Entrepreneurship Forum at the SME Foundation could be a good source for financing women entrepreneurs. The Women Entrepreneurship Forum in collaboration with the SME Foundation was trying to facilitate access of potential and existing women entrepreneurs to business resources, services and information. The Women Entrepreneurship Forum has to ensure that the Gender Action Plan was implemented.

Increase capacity building: The interventions suggested were: all banks and nonbank financial institutions to create dedicated SME women entrepreneurs desk for creating more conducive environment for the women entrepreneurs; risk management capacity building for *Relationship Managers* of the banks; provide training to bankers on proper counseling, mentoring and guidance to women entrepreneurs; develop process and procedures to evaluate and monitor the women entrepreneurs financing programme; change mindset of the banks and non-bank financial institutions; and promote financial institutions Corporate Social Responsibility (CSR) as a tool for women entrepreneurs capacity building.

Discussion with bank officials suggested that bankers with experience in BRAC Bank were migrating to the SME department of the commercial banks. Moreover, the commercial banks considered the client to be bankable provided the women

entrepreneur had a credit history with MIDAS or BRAC Bank. Women entrepreneurs preferred to get loans from financial institutions that had grace period, for example, MIDAS had two month grace period, National Bank had one month grace period. Women entrepreneurs demanded that the commercial banks need to introduce three months grace period for their small enterprise finance.

4.7.7.2 Enhancing Capabilities

Ensure women's legal rights: The interventions suggested were: ensure equal rights in property and inheritance by amending the family and inheritance laws; ensure access to information and skill; ensure access to managerial training; ensure access to finance; ensure access to market; ensure access to technology; and ensure access to *khas* land.

Facilitate access to finance through awards and certificates: In recognition of the talent of women entrepreneurs, various women entrepreneur associations and SME Foundation had started to give crest and certificate to women entrepreneurs. Moreover, DHL Express and the Daily Star and DCCI also recognised entrepreneurship by giving Bangladesh Business Award. The financial institutions recognized these award certificates and provided credit to these individuals on a priority basis. Such events need to be taken more often and by various women's organisations, so that access to institutional finance is facilitated.

Increase women entrepreneurs' participation in decision-making: The intervention suggested were: include women entrepreneurs in Better Business Forum, Board of Directors of SME Foundation and various committees on SMEs.

Develop awareness raising programmes: The interventions suggested were: increase awareness about availability of loans among SMEs; create awareness about access to finance in media; organise workshop for improving women's access to finance; SME Foundation and business association needs to develop a database on women entrepreneurs; Bangladesh Bank needs to provide clear definition of women entrepreneurs and disseminate that to all financial institutions; develop directory of women entrepreneurs and share with the financial institutions; introduce entrepreneurial component at all levels of training programme and secondary education system; undertake advocacy programmes with banks and policymakers.

Establish business development centres (BDC) at district levels

• *Training institutes:* The interventions suggested were: establish training institutes for entrepreneurship of women SME; establish design and product

development training; establish business skill raining centres; establish financial management and bookkeeping training; establish business documentation centre; create awareness about trade regulations; create awareness about source of finance; and establish directory of women SME entrepreneurs.

• *Marketing centres:* The interventions suggested were: provide new technology; government to provide design centre and show rooms for women entrepreneurs; government initiative and active support was needed to penetrate international market; provide funding and information on trade fairs: national and international; ensure quota for women SME in trade fairs of Export Promotion Bureau; and provide information on export potentials and buyers.

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Chapter 5

Power and Energy Development and Management in Bangladesh: A Benchmark and Future Policies

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5.1 INTRODUCTION

Bangladesh is a low energy-consuming but an energy-starved country. Her energy consumption in 2006 had been 160 kg oil equivalent (kgoe) per capita (IEA 2008). Despite the low level of use of energy, the country is unable to meet even the present demand. Furthermore, the energy consumption is highly inegalitarian by income class.

Much of the energy in use is derived from biomass, at least in the rural areas where most people live. Apart from biomass, the main primary sources of energy are the so-called "commercial" ones such as natural gas, petroleum fuels and, to a limited extent, coal. Electricity which is extensively used in the urban areas is produced mainly from natural gas and to an extent oil. Renewable sources for electricity such as hydroelectricity and solar radiation are still limited. Electricity is the most versatile and thus electrification is thought to be the highest stage in energy transition.¹ The higher the electricity usage, the higher is the likelihood of the country being on the energy and development ladder.

¹ This refers to the idea of an energy ladder. As income of the people rises, they switch to more efficient and cleaner energy which, though costlier, becomes more affordable because of the higher income. Thus people move on to either modern energy carriers or more efficient conversion techniques. For cooking energy, the lowest form of energy in use is often dried animal residues and/or crop residues, often followed successively by firewood, various types of liquid fuels, natural gas, and finally electricity. Of course, in real life, the transition may seem less clear cut but generally with rising income and availability of supply the proportion of households using the non-solid fuels rise. Note that one of the indicators of progress under MDGs is the proportion of solid fuels in total energy use.

In Bangladesh, electricity is produced as stated above mainly from natural gas, but also using oil and hydropower and very recently from coal. Solar photovoltaics have also come into existence of late. However, there are serious question marks over the availability of the natural gas in the foreseeable future. As the debate continues over the availability of gas in future, the demand for electricity is rising fast while the supply of electricity has lagged behind and at worst has remained static over long stretches of time. There are thus two questions that arise. The first one is: what is apparent demand for electricity in the country in the foreseeable future, say 20 years from now? Secondly, can this be supplied with generation using natural gas, or one has to look for alternative sources of primary energy such as coal or renewables?

This paper tries to assess benchmark situation of Bangladesh energy sector. Moreover, the paper tries to analyse the relative performances of the public and private power generation enterprises and tries to estimate the demand for electricity for the near future. Finally it spells out the recommendations for improving the present power situation over the Sixth Five Year Plan period.

It may be noted here that electricity is a transformed source of energy from natural gas, coal and diesel and other primary sources. Therefore, to draw a fuller picture of energy situation in Bangladesh, we will discuss the present and future scenarios of natural gas, coal and renewable energy as well. However, as the main focus of the study is power sector, our main concern throughout shall be the power sector.

5.2 THE RELATIONSHIP BETWEEN ENERGY AND DEVELOPMENT

Historically as well as across the countries, the level of energy use has been positively related to the level of development i.e. higher levels of development are known to entail higher levels of energy use.

5.2.1 Long run Relationship between Energy and Development: The Global Picture

Long run income elasticity of energy demand has been estimated as 0.84 for India, 0.89 for Pakistan and 1.54 for Sri Lanka (Lee 2005). For more advanced countries in South-east Asia, the elasticity is much lower—as low as 0.44 for Singapore, but somewhat higher for the less advanced ones such as Indonesia (0.91) or Thailand (0.86). While these estimates show a positive relationship between energy consumption and national income, they do not by themselves say anything about causality, i.e. it is not immediately obvious whether high energy use leads to

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higher levels of development or higher level of development results in higher levels of energy use. Note that this is more than a matter of academic interest. If the former is true, the issue of energy supply becomes the major policy concern. However, if higher level of development leads to higher levels of energy use, demand management assumes importance. Both types of relationships have been reported in literature.

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5.2.2 Relationship between Energy and Development: Bangladesh Picture

In the context of Bangladesh, we have tried to investigate whether either or both types of causality exist between national income (proxied by GDP or GDP per capita) and consumption of electricity (measured in giga watt hour (GHW)). For this we have performed Granger causality tests. The present study uses annual timeseries data of electricity consumption from the Bangladesh Power Development Board's (BPDB's) Annual Report 2007-08 and of real GDP from *Economic Trends* of Bangladesh Bank. Real GDP is in domestic currencies deflated by the consumer price index. Furthermore, all of the series are transformed into natural logarithmic form.

For Granger causality test, for which one uses cointegration, it is essential to have prior test of a time series for stationarity. Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) tests have been performed to check the stationairty of the variables. The results of the ADF and PP tests at level and first differences are reported in Table 5AII.1 in Appendix 5AII, by taking into consideration of trend variable and without trend variable in the regression respectively. As Table 5AII.1 shows, the t-statistics for all series based on both ADF and PP tests are statistically insignificant to reject the null hypothesis of non-stationary at 5% significance level. This indicates that these series are non-stationary at their level form. Therefore, these variables are containing a unit root process or they share a common stochastic movement. When the ADF and PP test were conducted on first difference of each variable, the null hypothesis of non-stationary was easily rejected at 5%, as shown in Table 5AII.1. Therefore, we can conclude that the series are integrated of order one, and a higher order of differencing is not required.

Since stationarity testing suggests that all variables in our model are I (1), we proceed to the first step of Engle–Granger procedure. The long-run equations can be estimated and that would not be spurious as the variables are integrated of order 1.Three estimated long-run equations considering real GDP (GDP), real manufacturing GDP (MGDP) and gross electricity generation (GWH) have been presented below.

Ln GDP =
$$6.91 + 0.553$$
 Ln GWH; Adj R² = 0.9525 (1)
(31.64) (23.30)

Figures in parentheses are t-statistic.

Ln GWH =
$$-11.52 + 1.73$$
 Ln GDP; Adj R² = 0.9525 (2)
(-12.95) (23.30)

Figures in parentheses are t-statistic.

Ln MGDP =
$$2.94 + 0.77$$
 Ln GWH; Adj R² = 0.962 (3)
(10.87) (26.16)

Figures in parentheses are t-statistic.

To check whether these long-run/cointegrating relationships among the variables are valid, we need to test the stationarity of residuals (i.e. linear combination of variables) employing the ADF test. The result of the residual based test for cointegration is presented in Table 5AII.2 in Appendix 5AII. From Table 5AII.2 it may be seen that the estimated absolute ADF statistics in all the cointegrating regressions are less than the corresponding 95 per cent critical values, indicating that real GDP, real manufacturing GDP and electricity consumption are not cointegrated in Bangladesh. However, absolute ADF statistics of the fourth row imply that it is significant at 10 per cent level. This indicates that electricity consumption and real manufacturing GDP are coefficients of the cointegrating regressions; the signs of the slope coefficients are positive in all cases, indicating that the relationship between electricity consumption and real GDP or manufacturing GDP is positive.

Short-run causality is found to run from electricity consumption to real GDP. However, the reverse short-run causality does not exit. That is, there is unidirectional short-run Granger-causality from electricity consumption to economic growth. Considering the coefficient of the error correction term, it can be said that long-run Granger causality from real GDP to electricity consumption exists, but the reverse does not. When we have taken manufacturing GDP into account instead of total GDP, electricity consumption does not Granger cause manufacturing GDP neither in short run nor the long run. However, the reverse is true for both short-run and long run. The mixed nature of the results reported in this study is in line with the literature on the subject. Indeed, as we have noted, the earlier literature on the subject does not report any conclusive evidence in favour of electricity driven growth in Bangladesh or in general. However, these results indicate that both supply

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and demand in the immediate past are determinants of present supply of energy at present. The management of supply (more so in the short run) and demand (more so in the long run) are thus matters of policy and operational concern for the electricity sector.

5.3 NON-ELECTRIC ENERGY SITUATION IN BANGLADESH: NATURAL GAS, COAL AND RENEWABLES

Natural gas is the major primary fuel used for the generation of electricity in Bangladesh, but it has other uses too, e.g., feedstock in the fertiliser industry, heating, cooking, etc. As Figure 5.1 shows, in recent years, electricity generation has accounted for one-half of total consumption of natural gas, while fertiliser has accounted for about one-fifth. The two directly productive uses of gas thus account for three-quarters of its sale. The consumption of gas in other sectors is, however, rising fast and may in future account for a sizable part of total demand. Any analysis of the adequacy of natural gas for the purpose of meeting future electricity demand must, therefore, be based on two considerations-viz., (a) total demand for natural gas originating from different sources, and (b) the availability of gas.

Figure 5.2 indicates that the demand for gas for power generation has a rising trend all throughout the period under consideration while the trend for fertiliser was rising only up to the mid-1990s or so. Since that time the consumption of gas by the fertiliser industry has remained largely static. All other sectors experienced rising trends.



Figure 5.1: Sectoral Proportion of Sales of Natural Gas in FY2007

Source: PetroBangla (2008).
Background Papers: SFYP, Volume 2



Figure 5.2: Trends of Gas Consumption by Sector

Source: PetroBangla (2008).

Table 5.1 shows the rates of growth of various types of consumption of gas during 1990/91-2006/07. The fastest growth in demand of natural gas is from the industry sector, at an exponential rate of about 13 per cent or so, which means that demand is doubling in slightly more than seven years. The average rate of growth for the whole period for domestic use is around 12 per cent, and according to this pace, demand for natural gas for domestic use will be double within around eight years. The average rate of growth of natural gas demand is the lowest for fertiliser sector, which is due to the static consumption levels for the last few years.²

TABLE 5.1 AVERAGE ANNUAL GROWTH RATES OF SALES OF NATURAL GAS BY SECTOR, 1990/91-2006/07

Consuming Sector	Average Rate of Growth (%)
Power	8.16
Fertiliser	3.89
Industry	12.56
Domestic	11.96
Total	7.65

Source: Authors' estimates based on PetroBangla (2008).

 $^{^{2}}$ Note, however, that the Government is contemplating new fertiliser plants which, if established, shall raise the demand for gas for fertiliser production in future.

5.3.1 Present Situation of Natural Gas

Natural gas is a primary source for power generation. The country has 23 gas fields, of which 17 are producing wells while production has been suspended from 3 gas fields and 3 fields have not yet started production. The estimated recoverable proved and probable reserve of the 23 gas fields, according to recent and provisional estimates by Petrobangla, is 20.60 TCF. Out of this, as of December 2009, a total of 8.72 TCF of gas has already been produced and as such the left over proved and probable recoverable reserve is 11.88 TCF.

On the basis of these figures, and the demand scenario discussed earlier, the situation is extremely grave for the country. Bangladesh has already begun to face shortages of gas. Even in the case of the distant chance that all the probable, possible and yet to find reserves are proved, the peak of supply may be reached by 2024/25 or even before that. Note also that the rosiest scenario which is not rosy enough also implies that all the fields are in production. The situation obviously is too iffy.

There are prospects of finding more gas in the country. Some coal is there but mired in the controversy regarding their use on environmental and social grounds. Renewable energy situation is theoretically bright, but needs of major investments have so far precluded these being considered by the authorities.

5.4 BANGLADESH POWER SECTOR: PRESENT SITUATION

Bangladesh is a low energy-consuming country compared to the neighbouring countries e.g. India, Nepal, Pakistan, and Sri Lanka (World Bank 2008). While per capita energy uses³ are more than 300 kg of oil equivalent for the abovementioned countries, Bangladesh's per capita energy use is around 150 kg of oil equivalent.⁴ While recent national figures are not available, biomass for cooking appears to be the main energy carrier, at least in the rural areas which account for about 80 per cent of the total population. Survey-based information indicates that an average rural household uses 1049 kg oil equivalent of energy, of which 97 per cent is accounted for by various types of biomass including firewood, crop residues and animal residues (Asaduzzaman *et al.* 2007).

Electricity is considered as one of the scarce commodities. In a country of approximately 150 million people, electricity is used by only about 30 per cent of

³ Energy use refers to use of primary energy before transformation to other end-use fuels, which is equal to indigenous production plus imports and stock changes, minus exports and fuels supplied to ships and aircraft engaged in international transport. (World Bank 2008).

⁴ This figure appears different from the one quoted earlier due to differences in sources.

households and its share in total rural household energy consumption is only one per cent. In the case of electricity consumption, Bangladesh is also lagging behind all the neighbouring countries but Nepal (World Bank 2008). Those who have access of electricity to face several problems such as frequent load shedding, voltage variations, billing problems, etc. At the same time, system losses had been ubiquitous and far above the acceptable technical loss. Lack of reliable electricity supply is the major impediment to the investment expansion, especially foreign investment, and economic growth of the country.

Considering only the sales from the public generation and distribution outlets, at least 62 per cent of total sales went to urban areas and the rest to the rural. In fact, the proportion of urban consumption in the total may be much higher because of captive generation capacity in many of the industrial and commercial establishments as well as the fact that the Rural Electrification Board (REB) sells power to upazilla headquarters many of which are municipalities and thus should be considered as urban. The proportion of urban consumption is thus likely to be about 70 per cent or so. Much of the sales in both urban and rural areas go to either residential households or industrial firms in both urban and rural areas (Figure 5.3) and in each sector, the rural consumption is far lower than the urban.



Figure 5.3: Category of Electricity Consumers in Urban and Rural Areas

Source: Asaduzzaman (2006).

Natural gas, diesel oil, furnace oil, coal and hydro are the major types of fuel that are used in electricity generation in Bangladesh. Considering the types of generator, steam power station is the leading generator type in electricity generation and around 73 per cent of electricity under Bangladesh Power Development Board (BPDB) has been generated from such stations. System loss is about 7 per cent.

REB, Dhaka Electric Supply Authority (DESA) and Dhaka Electric Supply Company (DESCO) are the major distributing agencies in Bangladesh and they account for 72 per cent of total electricity supply.

Table 5.2 provides updated key statistics of electricity sector of Bangladesh. According to the BPDB, current installed capacity of electricity generation is around 5,453 MW, while the present generation capacity is about 4,931 MW. During the period from 1972 to 2007-08, gross electricity generation in the country has increased from less than one terawatt hours (TWH) to more than 25 TWH. Apparently the amount of electricity generation has grown at the exponential rate of 7.5 per cent per year, but in reality the growth may have been much lower—more likely 4-5 per cent over the 1975/76-2002/03 period (Asaduzzaman 2007).

 TABLE 5.2

 PRESENT STATUS OF POWER SECTOR IN BANGLADESH

Total Installed Capacity	5,928 MW	
BPDB	2,785 MW	
APSCL	724 MW	
EGCB	315 MW	
IPP	1,330 MW	
SIPP & Rental	548 MW	
SIPPs (REB)	226 MW	
Generation Capability (derated)	5,376 MW	
Maximum Demand served so far	4,604 MW	
Transmission Lines (230 KVAnd 132 KV)	8,300 Ckt. Km.	
Transmission Lines (132 KV)	3,166.8 Route Km	
Distribution Lines (33 KV & Below)	260,000 Km	
Consumer Number	11.5 Million	
Distribution Losses	14.6 %	
Per Capita Generation	220 kwh	
Access to Electricity	47 %	

Source: Power Division, May 2010.

A major structural change has been observed in the electricity sector. In the recent past, the pace of electricity generation received a boost due to the entry of private sector in this industry, in the shape of Independent Power Producers (IPPs). Total electricity generation by IPPs has increased from 578 GWH in 1998-99 (when IPPs first started their operation) to nearly 9137 GWH in 2007-08. In 2007-08, around 36 per cent of total electricity generation has come from IPPs (BPDB 2007-08). However, the growth in private sector generation occurred at the expense of the public sector, as analysed elsewhere (Asaduzzaman 2008). This was part of a reform process which is not analysed here. Interested readers may see Asaduzzaman (2008).

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5.5 GENERATION STATUS OF BANGLADESH POWER SECTOR: BPDB AND IPPS

Generation capacity has increased over the years, but only by fits and starts. The second half of the 1990s saw little or no addition to generation capacity. There was some progress at the turn of the century, but since then there has again been little or no addition to the capacity. What this means is that the increase in gross generation has been achieved increasingly by running the existing plants at close to their maximum capacity, causing unanticipated stress to the system, known of which the planned maintenance programmes could not be properly carried out in time. The recent increases in tripping of plants and outages are reflection of this failure to add to the capacity or maintenance schedule or both.

5.5.1 Current Technology for Power Generation

According to the current statistics, around 50 per cent of current installed plants are based on steam turbines, 23 per cent are combined cycle and 17 per cent are gas turbine (Figure 5.4).





5.5.2 Fuel Consumption in Power Generation

Natural gas is the major fuel used for power generation in the country (Figure 5.5). The share of renewable energy such as hydroelectricity is rather small. The rest is accounted for by oil (diesel and furnace oil) and coal. It may be pointed out, however, that since the use of non-gas fuels is costlier (except for hydroelectricity)

Source: BPDB (2008).



the proportion of actual generation with the help of gas is higher than what might be indicated by its share in installed capacity.



Figure 5.5: Installed Generation Capacity by Primary Fuel (2008)

Fuel costs of electricity generation by BPDB is gradually rising over time (Figure 5.6), as both generation capacity and fuel price are rising over time. However, the increase in fuel price in Bangladesh is more gradual. Prices of all types of diesel oil and furnace oil have more than tripled since 1998/99. Price of diesel per litre has increased from Taka 12.60 in 1998 to Taka 40 in 2007, while price of furnace oil per litre has increased from Taka 5.0 in 1998 to Taka 20.00 in 2007 (Table 5.3). However, the increase in gas price is relatively low, as on the same time gas price has increased per 1000 cft from Taka 54.66 to Taka 73.91.





Source: BPDB (2008).

Source: BPDB (2008).

Sl. Type of Petroleum		As on									
INO.	Products	1.12.98	16.08.00	27.12.01	01.01.02	06.01.03	08.06.04	01.01.05	04.09.05	26.06.06	02.04.07
1.	Kerosine (Tk/lit)	12.66	15.17	16.67	16.67	16.83	16.83	22.52	29.37	32.37	40.00
2.	High Speed Diesel (Tk/lit)	12.63	15.09	16.59	16.59	19.83	19.83	22.37	29.18	31.98	40.00
3.	Light Diesel (Tk/lit)	13.40	16.22	17.60	17.60	19.71	19.71	22.01	28.00	28.00	40.00
4.	Furnace Oil (Tk/lit)	5.00	6.50	12.50	12.50	10.00	12.00	12.00	14.00	14.00	20.00
5.	Natural Gas (Tk/1000 Cft)	54.66	62.87	62.87	65.99	70.00	70.00	73.91	73.91	73.91	73.91

TABLE 5.3 FUEL PRICE IN BANGLADESH

Source: BPDB (2008).

5.5.3 Generation Costs of Electricity

The provision of low cost electricity supply is critical for the growth and development of Bangladesh economy. The per unit supply cost of electricity is rising over time, but the rate of increase is rather small. If the supply cost is deflated considering usual price index, it would not be surprising to observe that the real per unit supply cost of electricity has actually declined to some extent over time. The supply cost of electricity was around 2.16 Taka per kwh in 1996-97. After a decade this cost had risen to only 2.91 taka per kwh.

Fuel and depreciation are the major components of BPDB's total generation cost. Fuel costs account for 66 per cent of BPDB's total generation cost, while depreciation accounts for 20 per cent.

5.5.4 Costs and Subsidies

BPDB was not in a sound financial position during more recent years (Figure 5.7). Government had to provide subsidy to BPDB to cover its operating costs. The revenue earned by BPDB does not cover its operating expenses and hence it is not in a position to service its debt and pay for wheeling services. In addition to that BPBD is squeezed between increased generating cost and fixed bulk supply tariffs to the distribution companies, which do not allow them to pass on cost increases due to inflation, fuel cost and exchange rate devaluation. The lack of cash flow does not only lead to a lack of maintenance in BPDB's distribution networks, it also affects the efficiency of power generation.



Figure 5.7: Net Profit/Loss of BPDB

Source: BPDB, Annual Rweport (various years).

5.5.5 Independent Power Producers (IPPs)

Following a shortage of electricity in the late 1990s, the government embarked on an aggressive campaign to encourage private sector participation in power generation. Consequently, BPDB signed many agreements with the Independent Power Producers (IPPs). These contracts generally had onerous take or pay provisions and BPDB to bear fuel price and exchange rate risks. However, the programme was successful in addressing generation shortage to an extent. Around 36 per cent of current electricity generations come from the IPPs although they have at most 26 per cent of the installed capacity (BPDB 2008), indicating better efficiency for the IPPs compared to BPDB (Figure 5.8).

Despite the successful introduction of IPPs in power generation, it has been a significant cause of the deterioration of BPDB's financial position, largely because of a substantial deterioration of Bangladesh taka against foreign currencies. Though about 36 per cent of total electricity generations come from IPPs, BPDB's expenses on electricity purchase from IPPs account for 53 per cent of its total spending on own generation and electricity purchase from IPPs in recent years (BPDB 2008).





Figure 5.8: Electricity Generation by IPPs and BPDB

Source: Based on BPDB (2008).

The average purchase cost of electricity from IPPs varies significantly (Figure 5.9). Purchase cost per kwh from KPCL is around 10 taka, while the average cost of BPDB's generation is Tk. 2.36. However, three companies namely AES Haripur, AES Meghna, and APSCL are providing electricity to BPDB at a lower rate compared to BPDB's per unit generation cost. Note, however, that the share of these three in total purchase from IPPs is about 25 per cent. So, an economy of scale is clear here and government should emphasise on large plants in private sector too. Furthermore, this also means that the purchase price of power from IPPs is above BPDB's cost of production per unit of electricity, which unfortunately may even become higher for the newly contracted rental power plants, indicating a run on the public exchequer.

Figure 5.9: Average Cost of Generation by BPDB and Purchase of Electricity from IPPs, 2007-08 (Tk/kWh)



Source: BPDB (2008).

5.6 EFFICIENCY OF POWER GENERATION IN BANGLADESH

The above comparative performance of the public sector power plants vis-à-vis those in the private sector indicates the importance of efficiency improvement in generation. If plants are efficient enough, higher amount of electricity can be generated from a smaller installed capacity of power plants. Efficiency of Bangladeshi power plants has remained almost unchanged over the past few years. Table A3.1 in Appendix provides us a picture of efficiency of public power plants in 1990-91 and Table A3.2 in Appendix gives a picture of efficiency of public power plants in 2007-8. This section of the paper assesses and analyses relative efficiency in the electricity generating sector with a cross-section stochastic frontier model, using the sample data of 22 power stations, during the financial year 2007-08.

The cost frontier represents the minimum attainable cost given certain output levels, input costs and technology. It also seeks to measure efficiency levels with respect to operational management or technological change. To estimate the cost efficiency of electricity generation, translogarithmic functional form has been used that achieves minimum costs. The stochastic frontier cost function frequently used in electricity cost literature can be written as (Hiebert 2002):

 $\ln vc_i =$

 $\beta_0 + \beta_k \ln k_i + \beta_f \ln f_i + \beta_w \ln w_i + \beta_{kk} (\ln k_i)^2 + \beta_{ff} (\ln f_i)^2 + \beta_{ww} (\ln w_i)^2 + \beta_{kf} \ln k_i \ln w_i + \beta_{fk} \ln f_i \ln k_i + U_i + V_i$ (1)

where

vci is average operation and maintenance expenses (expressed in Tk/kwh),

k_i is the plant capacity in MW,

 f_i is the average fuel costs expressed in Tk./kwh;

w_i is the per unit wages and salaries expressed in Tk./kwh.

The functional form divides the error in two terms: inefficiency as U_i and white noise as V_i . The white noises are assumed independent of U_i and identically and normally distributed $N(0, \sigma^2)$, while the term U_i has a half – normal distribution $N(\nu, \sigma^2)$. That is to say, it has a distribution equal to the upper half of the normal distribution $N(0, \sigma^2)$. The inefficiency (U_i) is therefore associated with increasing costs due to output levels, input prices and labour costs according to technology. The term V_i is a variable that captures random disturbance from factors beyond the control of the firm, such as favourable or unfavourable externalities. The technical

efficiency of a power station is between zero and one and is inversely related to the level of the technical inefficiency effect. The technical efficiency can be predicted using the Frontier function estimation process using STATA software (Battese and Coelli 1992).

The parameters (β s) of this model can be estimated using the maximum likelihood method. The data used in this estimation has been obtained from the annual report 2007-08 of BPDB. The sample used in the estimation includes a total of 22 observations. For comparability, both a translog and a Cobb-Douglas function have been estimated. The results of the estimation have been presented in Table 5.4.

	Translog	arithmic Func	tion	Cobb-Douglas Function		
	Coefficient	Std. Error	Z-stats	Coefficie nt	Std. Error	Z-stats
eta_0	0.7936	0.4201	1.89	0.2437	2.8208	0.09
eta_k	- 0. 2506	0.1214	2.06	-0.0016	0.0327	-0.05
β_{f}	0.8037	0.2070	3.88	0.9313	0.0450	20.69
β_w	-0.1380	0.1250	-1.10	0.0555	0.0356	1.56
β_{kk}	0.0224	0.0090	2.48			
$eta_{\!f\!f}$	0.0174	0.0357	0.49			
$eta_{\scriptscriptstyle ww}$	-0.0752	0.0148	-5.07			
$eta_{k\!f}$	0.0202	0.0264	0.77			
β_{kw}	-0.0032	0.0323	-0.10			
β_{fw}	0.0272	0.0330	0.82			
$\delta_{ heta}$	0.1989	0.0299	6.65	0.1764	0.0266	6.63
δ_{I}	0.0085	0.0893	0.01	0.0314	0.0352	0.89
σ^2	0.0396	0.0112	3.54	0.0311	0.0094	3.31
γ	2.2484	0.0299	75.19	0.0566	0.0035	16.17
Log-likelihood		19.554			6.9543	
function	Prob > cl	hi2 = 0.0	000	Pr	$\operatorname{cob} > \operatorname{chi2} = 0.$	0000
Likelihood-ratio test of sigma_u=0	chibar2 (01) = 13.22	Prob>=ch ibar2 = 0.000		chibar2(0 1) = 8.36	Prob>=chibar2 = 0.000	

TABLE 5.4**PRODUCTION FUNCTION FOR GENERATION OF ELECTRICITY**

Source: Estimated by authors'.

Table 5.4 shows that for both models the likelihood ratios exceed their critical values. Therefore, the null hypothesis of technical efficiency effects on electricity generating sector is rejected. For the translog function, the elasticity with respect to fuel costs per unit is positive and highly significant, while the coefficients with respect to installed capacity and wages per unit generation are negative and elasticity of installed capacity is just significant. The estimation of Cobb-Douglas function has also been carried out and coefficient only with respect to fuel costs per unit of electricity generation is significant. As δ_0 shows the significance of the inefficiency terms in the regression, it is clear from the result table that there are significant at one per cent level in both Translog and Cobb-Douglas regression. Note that both the estimates of inefficiency are pretty close to each other and in the region of 18-20 per cent.

Figures 5.10 and 5.11 use the production function estimates of the translog form to portray the picture of efficiency of each of the plants in the sample. The results show that the plants are a mixed bag in terms of efficiency. Quite a few plants are efficient while there are some with much lower levels of efficiency pulling the average down. In some cases, the scopes of improvement are quite large. We have, however, not tried to analyse how the inefficiency arises. This is a matter for future research. Similarly, as we had had no information on IPPs, we could not use them in the sample for a fuller analysis.



Figure 5.10: Efficiency of the Electricity Generating Firms

Source: Estimated by authors'.



Figure 5.11: Actual and Efficient Per Unit Variable Cost for Generation (Tk/kWh)

Source: Estimated by authors'.

5.7 NATURE OF DEMAND FOR ELECTRICITY AND FUTURE OUTLOOK

5.7.1 Present Nature of Demand for Electricity

The demand for energy services arises for various reasons. And these services may be satisfied in more than one ways. Electricity is the most versatile form of energy in the sense that it can satisfy almost any kind of desired energy service (heating, cooling, lighting, motive power for motors, transportation and amusement) although some of the required devices for the purpose are still not available in commercial basis, such as electric cars. Thus, it is a substitute for biomass for home cooking and for kerosene for lighting. Yet, there are others (amusement, for example) in which case electricity has no other practical substitute. Indeed, in the concept of energy ladder electricity occupies the top position although in developing country several types of energy sources are utilised at the same time.

A clear analytical understanding of the demand for electricity whether at any point in time or over time is rather complex because of the substitutability of electricity with respect to other forms of energy, as stated above. The econometric estimation of demand for electricity is also correspondingly quite difficult particularly as information on the consumption and prices of other types of energy services (or carriers) which are substitutes for electricity is often not readily available. While this type of estimation remains a matter for the future, we may note one or two characteristics of the supply of electricity which also affect its demand.

Electricity is generally obtained from the national grid which may be fed by both public and private generation plants. On top of this, there may be generators used by individual firms, households and other entities, which may be used for independent generation of power, by and large, at times of power outages. Electricity may also be available by using solar photovoltaics or batteries (including car batteries). All these non-grid sources are generally used either as back-ups at times of power outages or add only very little to the total supply and for the present purposes may, therefore, be safely ignored.

As large scale storage of electricity is not practical, whatever is produced and fed into the grid is consumed in real time. The growth in the net sales of electricity has been driven by demand from two sources, industry and households (Figure 5.12). Over 1994-2004, the sales to industries have risen from 2.8 Twh to 6.7 Twh and those to the residential sector from 2.3 Twh to 6.6 Twh. Among other types of consumption, only commercial demand had shown a rising, albeit a rather slow, trend.



Figure 5.12: Growth in Sales by Type of Consumer

Source: Asaduzzaman (2006).

Considering only the sales from public generation and distribution outlets, at least 62 per cent of total sales currently go to urban areas and the rest to the rural.⁵

⁵ In fact, the share of urban consumption in the total may be even higher because of captive generation capacity that exists in many industrial and commercial establishments, which is not accounted for here and also because the Rural Electrification Board (REB) sells power to upazila headquarters many of which are municipalities, and thus, should be considered as urban. The proportion of urban consumption is thus likely to be at least 70 per cent.

Much of the sales go to either residential households or industrial firms (BPDB 2008). Though, over time, electrification of villages, haats and pumps has increased, the growth in electrification in recent times has become stagnant.

5.7.2 Future Outlook for Electricity Demand

The sales of electricity as shown earlier may not actually indicate an equilibrium situation as part of the demand may remain unmet. Analyses of the factors that may influence such demand face severe data problems. Given that frequent power outages reflect the disequilibrium in the demand for electricity, we have tried to find out how or to what extent consumers may be adjusting to the deviation from the desired long-run equilibrium. For econometric estimations, we use only two variables. The dependent variable is gross generation of electricity in giga watt hours (GWH). The independent variable is real GDP at 1995-96 prices. The estimate has been described earlier in this paper.

From equation (2) of section 5.2, at the mean values of the GDP and the gross generation (GWH), the elasticity of generation (consumption) wrt GDP is 1.73. That means every 1 per cent rise in GDP may raise the demand for gross generation by 1.73 per cent. If the GDP is expected to grow at 7 per cent per annum on average, the gross generation should rise by 12-13 per cent to meet the demand.

For an effective Sixth Five Year Plan, it is required to project the future demand for gross electricity generation for the period under consideration. Projection about future electricity demand can be done in several ways. However, due to nonavailability of required data, we have estimated future demand of gross electricity generation using the simplest long run equation for estimation of the GWH given the level of GDP. The immediate job is therefore to have an idea regarding the future changes in GDP. For this we have used the same future rates of GDP growth as projected in the macroeconomic framework of Sixth Five Year Plan. The expected GDP growth rates and estimated gross generation of electricity in various years are shown in Table 5.5.

By 2015, the estimated gross generation may need to rise to 72801 GWH. Compared to all other previous estimates (Asaduzzaman 2006, Nexant 2005), the present estimate for the terminal year is much higher.

The growth of urbanisation, increased production and/or use of energy intensive goods and services, increased use of energy-efficient devices, lower prices of energy-using equipment, growth of energy-intensive infrastructures such as waterpurification systems, and increased rate of rural electrification and rising population all of them do raise the demand for electricity apart from the other factors such as income which has been represented by GDP. In Bangladesh, urbanisation has been fast while more and more households are using TVs, refrigerators and air



conditioners while mobile telephony has caught on like wild fire. We have been unable to take into account the consumption of electricity due to these factors. Hence, we would like to use the present projections as providing an absolute minimum demand that must be satisfied. The sixty four million dollar question is if this can be supplied. We turn to this question in the next section.

Fiscal Year	GDP Growth Rate	GWH
2005	5.3	24250
2006	6.0	27099
2007	6.4	30182
2008	6.2	33487
2009	5.9	36978
2010	5.5	40567
2011	6.0	44870
2012	6.5	50034
2013	7.0	56232
2014	7.5	63726
2015	8.0	72801

Table 5.5 FORECAST OF ELECTRICITY DEMAND

Source: Authors' own estimates.

5.8 FUTURE POWER SYSTEM DEVELOPMENT

As power generation requires huge capital investment and public sector is not in a position to secure such huge investment, private participation in power generation becomes a prime target. The policy of power generation through private sector had been formulated and adopted in 1996 with a view to attract foreign investment, competition in the sector, and to increase power supply to alleviate the acute power shortage. Several incentive schemes, such as corporate income tax exemption, exemption of customs duties on imports of plants and spare parts, etc. have been offered in the policy to attract investors in this sector. Government also adopted policy guidelines for small power plants in private sector for purchasing electricity to serve non-grid areas and pockets of continued power shortage and private opportunity for sale of excess power from captive generation to consumers in the neighbouring areas. Government has a vision to bring the entire country under electricity service by the year 2021 and to make electricity available for all. Government also has the vision to ensure reliable and quality supply of electricity at a reasonable price.

Achieving the vision, government as well as the private sector has to come up with huge new investment for power generation in the sector. According to Table 5.6, all existing plants will be under retirement condition by 2015, and days for scheduled maintenance will increase as these plants become older. Access to electricity was 47 per cent in FY2009. Only 2 per cent increase was not satisfactory to materialise the government vision of 100 per cent access by 2021. To face this challenge at the end of FY2009, government has changed its planning perspective and BPDB has started to revise the generation expansion plan. The new initiative to the generation expansion plan considers liquid fuel based peaking plant in the short-term to reduce pressure on natural gas.

TABLE 5.6 LIST OF PLANTS TO BE RETIRED DURING SIXTH FIVE YEAR PLAN (FY2011-FY2015)

	N. C.I. D. C. C.			DI ID
SI.	Name of the Power Station	Installed Capacity	Derated Capacity	Planned Retirement
No.		(MW)	(MW)	Year
1	Khulna Rental 3 Years	40	40	2013
2	Shahzibazar 3 Year Rental	50	50	2013
3	Kumargaon 3 Years Rental	48	48	2013
4	Bogra Rentals 3 Years	21	21	2013
5	Fenchuganj 3 Years Rental	50	50	2013
6	Bhola 3 Years Rental	33	33	2013
7	Sikalbaha 3 Years Rental	55	55	2013
8	Ashuganj 3 Years Rental	55	55	2013
9	Bheramara 3 Years Rental	100	100	2013
10	Thakurgaon 3 Years Rental	50	50	2013
11	Ashuganj	274	226	2014
12	Haripur	96	96	2014
13	Bheramara	60	56	2014
	Total	932	880	

Source: Power Division, May 2010.

In order to realise the vision, government has already taken several initiatives. The government has developed short-term (up to 2007), medium-term (up to 2012) and long-term (up to 2020) development plans. However, the deadline of achieving short-term goal has already passed, but in terms of generation capacity and peak demand serve, short-term goals have not been achieved. Even though generation from IPPs has increased significantly, the current installed capacity and peak demand served, as of December 2008, are about 5,453 MW and 4,931 MW respectively, while the short-term goal was to achieve the capacity and peak demand served of 6,441 MW and 5,368 MW respectively by 2007. Thus, government has to initiate crash programme to achieve its vision of providing reliable and quality electricity to all people by 2021.

Sl.	Item	Year					
No.	nem	2004-2005	2005-2007	2008-2012	2013-2020		
1.	Installed Capacity, MW	5,025	6.441	9,666	17,765		
2.	Peak Demand, MW	3,743	5,368	7,887	14,600		
3.	Net Generation, MKWh	20,932	26,651	39,157	76,545		
4.	Transmission Line, Km	4,038	4,898	7,180	8,396		
5.	Capacity of Grid S/S, MVA						
	(a) 230/132 KV	4,150	5,950	11,575	19,075		
	(b) 132/33 KV	7,644	9,642	17,920	27,367		
6.	Distribution Line, Km	2,42,832	2,66,375	3,45,530	4,77,558		
7.	No. of Consumers, million	8.84	9.03	12.75	20.76		
8.	No. of Village Electrified	47,848	52,071	69,571	84,000		
9.	per Capita Generation, kWh	158	190	260	450		
10.	Access to Electricity (%)	38	47	65	100		
11.	Investment Requirement (billion Tk)	0	115	307	575		

TABLE 5.7POWER SYSTEM DEVELOPMENT PLAN UPTO 2020

Source: www.powerdivision.gov.bd accessed on October 2009.

The Power System Master Plan Update of 2005 forecasts future electricity demand for Bangladesh. According to the base forecast, the maximum demand in 2009, 2012, and 2015 would be about 6,066 MW, 7,732 MW and 9,786 MW respectively. The demand is expected to be 13,993 MW by 2020. To meet the projected demand of electricity in the Sixth Five Year Plan together with achieving reliable reserve margin, the government has undertaken a comprehensive programme, depending on the private sector mostly, to build required number of power plants in phases. Table 5.8 provides us a picture of planned power generation projects up to 2015 in both public and private sectors. Even if, these projects are successfully implemented, due to retirement and increased maintenance, scheduled days of existing power plants, achieving the target of generation capacity will not be feasible. Government has to initiate several other projects of its own as well as in private sector to achieve this goal. Moreover, the source

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of fuel for newly established electricity generation plants will have to be a prime consideration.

S1.	Name of the Projects	Capacity (MW)	Expected date of
No.	Under Construction (Public)		commissioning
1	Fenchuganj 90 MW CC 2 nd Unit	90	Waiting to be
			commissioned
2	Siddirganj 2*120 MW Picking Power Plant	240	June 2009
3	Shikalbaha 150 MW Picking Power Plant	150	2009-10
	Planned Plants under Public Sector		
4	Khulna 150 MW Picking Power Plant	150	2009-10
5	Sirajganj 150 MW Picking Power Plant	150	2009-10
6	Sylhet 150 MW Gas Turbine Plant	150	2010-11
7	Chandpur 150 MW CC Power Plant	150	2011-12
8	Bhola 150 MW CC Power Plant	150	2011-12
9	Haripur 360 MW CC Power Plant	360	2011-12
10	Siddirganj 150*2 MW Gas Turbine Plant	300	2013-14
11	Barapukuria 125 MW Third Unit	125	2012-13
12	Kaptai Power Plant 6 th and 7 th Unit	100	2012-13
13	Bheramara 360 MW CC Power Plant	360	2013-14
	Committed Power Plants under Private		
	Sector		
14	Bibiana 450 MW CC Power Plant	450	2012-13
15	Sirajganj 450 MW CC Power Plant	450	2012-13
16	10-30 MW Capacity Small Power Plants	132	2008-09
17	Rental Power Plant (15 Years)	50	2008-09
18	Rental Power Plant (3 Years)	215	2008-09
	Total	3772	

 TABLE 5.8

 COMMITTED POWER GENERATION PROJECTS UPTO 2015

Source: MoF (2009).

5.9 TECHNOLOGY OF POWER GENERATION: FUTURE OPTIONS

The construction of highly efficient plants is critical. It should be stressed that the plant types for the same energy source vary widely from case to case depending on site specific conditions and requirements of the country. For example, coal-fired plants include a broad range of technologies from traditional combustion to integrated coal gasification plants with carbon sequestration. Also, coal-fired units use various solid mineral fuels including lignite as well as hard coal. Similarly, gasfired units include plants using liquefied natural gas (LNG) requiring different infrastructure for transport and delivery at the plant.

There are several factors affecting the economics of electricity generation using a range of technologies. Both public and private sectors need to evaluate in detail the financial as well as social viability of the plants that are going to be established. Moreover, the reform of electricity markets has changed the decision making process in the power sector and led investors to take into account the financial risks associated with alternative options as well as their economic performance. In view of the risks they are facing in competitive markets, investors may tend to favour less capital intensive and more flexible technologies. Investors now have additional risks to consider and manage. For example, generators are no longer guaranteed the ability to recover all costs from power consumers. Nor is the future power price level known. Investors now have to internalise these risks into their investment decision making. This adds to the required rates of return and shortens the time frame that investors require to recover the capital. Private investors' required real rates of return may be higher and the time required to recover the invested capital may be shorter. Environmental policy is also playing a more and more important role that is likely to significantly influence fossil fuel prices in the future.

International Energy Agency (IEA) and OECD Nuclear Energy Agency (NEA) jointly carried out a study on the "projected costs of generating electricity" in 2005. This study had been carried out based on cost data collected from 130 power plants, across the world, of which 27 were coal-fired power plants 23 gas-fired power plants, 13 nuclear power plants, 19 wind power plants, 6 solar power plants, 24 combined heat and power (CHP) plants using various fuels and 10 plants based on other fuels or technologies. The major findings of the study have been summarised in Table 5.9. It is clear from the table that gas-fired electricity generating technologies cost the lowest compared to any other alternative options for electricity generation. It also takes shorter time for construction compared to coal-based and nuclear power plants. Gas-fired power plants are built rapidly and in most cases expenditures are spread over two to three years. However, the generating cost per MWh is comparatively higher in the case of gas-based power plants. Moreover, structure of the generation cost is completely different in the case of gas-fired generating technologies in which fuel cost accounts for 73 per cent of total levelised generation cost, while investment costs account for 20 per cent only. In terms of construction cost, coal-fired generating technology is the second best alternative for electricity generation. Construction times are around four years for most plants. Using 10 per cent discount rate, the study has shown that levelised generation costs range between 35 and 60 USD/MWh for most coal-fired power plants, while for the gas-fired power plants the levelised costs of generating electricity vary between 40 and 63 USD/MWh.

Type of Generating Technologies	Constructio n Costs (USD/	Construction Times Required	Using 10 % discount rate Generation Costs Range	Using 10 % discount share in total levelised generation costs			
	kWe)	(year)	(USD/WWII)	Investment (%)	O&M (%)	Fuel Cost (%)	
Coal-Fired	1,000- 1,500	4	35-60	50	15	35	
Gas-Fired	400-800	2-3	40-63	20	7	73	
Nuclear	1,000- 2,000	5	30-50	70	20	10	
Wind	1,000- 2,000	1-2	45-140	87	13	-	

TABLE 5.9 COSTS STRUCTURE OF DIFFERENT ELECTRICITY GENERATING TECHNOLOGIES (2005)

Source: IEA/NEA (2005).

Even though the establishment of nuclear power plants requires huge investment cost, the fuel cost is the lowest compared to any other electricity generating technologies. The share of investment in total levelised generation cost is around 70 per cent, while the fuel costs represent on average 10 per cent only. Moreover, electricity generation through nuclear plant is free of carbon emissions that make it more attractive. However, the construction of nuclear power plants has socio-economic risks.

As construction cost is relatively higher in the case of wind based power plants and has no fuel cost, it requires one time large investment. Then only office and maintenance costs have to be maintained. Construction of wind power plants requires one to two years in most cases.

In the case of hydro power plants, at a 10 per cent discount rate, generation costs range between some 65 and 100 USD/MWh for most plants. The share of investment in total levelised generation costs is predominant in the case of hydro-power plants. For solar plants, at the higher capacity/availability factor the levelised costs of solar-generated electricity are reaching around 200 USD/MWh at a 10 per cent discount rate. With the lower availability/capacity factors the levelised costs of solar-generated electricity are approaching or well above 300 USD/MWh.

Coal, gas and nuclear levelised generation costs result from three main

components: investment, O&M and fuel. The shares of each cost component in the total vary from country to country and from plant to plant. However some generic driving factors may be identified for each option. Coal-fired power plants are more capital intensive than gas-fired power plants but less than nuclear power plants. On the other hand, nuclear power plants are carbon free which is attractive regarding environmental concern. The relative importance of investment and fuel in total levelised generation costs varies depending on the discount rate. Operation and maintenance cost is not a major contributor to total generation cost for nuclear power plants. None of the base-load technologies, coal, gas and nuclear, can be expected to be the cheapest in all situations. The preferred base-load technology will depend on the specific circumstances of each project.

To meet the demand for electricity in the near future, Bangladesh government relies on gas-fired generation technologies. Investments in large hydro or nuclear plants, by contrast, bear a larger investment risk. Even though renewable energy resources have immense potential in Bangladesh and government has adopted renewable energy policy as there is a potential of decline in availability of fossil fuel energy, government has to depend on natural gas and coal for electricity generation for the next decade. Technology of power generation varies depending on the fuel that will be used for electricity generation. It is clear that among primary fuels natural gas and coal may be used in most cases in the foreseeable future for generation of electricity.⁶ Thus, gas-fired generation technologies are discussed here first.

According to the current statistics, around 50 per cent of current installed plants are based on steam turbines. There are many power plants in private sector too which are based on steam turbines. Thus nearly 75 per cent of the present power generation technology relies on a rather inefficient technology. The technology in a given plant may not be changed over time. The retirement years after a useful life for various plants are different. There are many plants that are expected to be retired over the years 2009-2012, while those committed for putting on stream are expected to be retired only during 2020 or afterwards. What should be mandated is that the most efficient mature technology be used to replace them.

Among gas-fired based technologies, combined cycle (CC) technology is one of the most efficient ones as the heat rates per unit of electricity produced is among the lowest. It is, therefore, natural to expect that over time the move should be towards CC. Of the 17 plants that were supposed to come on stream over 2004-07, most are

⁶ Note that the Government has invited bids for rental power plants of various capacity from private entrepreneurs and some of these are too based on the use of oil.

either combined cycle or combustion turbine type. Only three (including Barapukuria) is of steam turbine type. One or two are peaking plants. Hence, the proposed technological change appears to be in the right direction. It is not possible at this stage, though, to pass judgment on if this is the best and most cost-effective combination that the country may plan for because of lack of resources, time and detailed information and analysis. This remains a matter for research in the future.

The above technological considerations apply to gas-based power generation. For coal, there are advanced and efficient technologies. Mature technologies such as PFBC (pressurized fluidized bed combustion) are almost 25 per cent more efficient compared to the conventional technology demanding consequently much lower amount of coal for generation of the same level of power. For the most efficient technology, the fuel demand is almost one-half of the existing conventional technology. As coal-fired plants are only coming up now, the advice to the power plant planners may be to adopt some of these technologies rather than outdated and inefficient ones as had been the case with Barapukuria plant.

It is only to be expected that the more advanced technology may be costlier, particularly their capital costs may be higher. It is thus the levelised cost that should matter in comparing costs of technology. Furthermore, there is also the necessity of carrying out not simply the financial cost-benefit but the social economic cost-benefit analysis factoring in the cost of missed growth that may happen if electricity supply can not be ensured. On a levelised cost basis, the total cost of generation of electricity from coal and gas is similar, but the cost structures are different. It is generally cheaper to establish a gas-fired plant than a coal-fired one. However, the cost of fuel in the case of the gas-fired ones is much higher. Other O&M costs are broadly similar.

To achieve the goal projected in the Sixth Five Year Plan, government thus has to depend on gas and coal in the short-term. But government may need to move forward establishing nuclear power plants that require much time and initial investment but levelised operational and maintenance cost is low. But it must take into account the very long generation period (at least 10 years) and safety issues.

Apart from technology and its financial and opportunity costs, there are also issues of financing as well as environmental concerns in developing the power sector.⁷

⁷ We have not analysed these here. The reader may look up the original version of the paper for some of these discussions.

5.10 POLICY RECOMMENDATION

Bangladesh government aims to provide cost-effective, affordable and secure access to electricity for all. Given the large rural population, rural electrification remains an important objective. In its pursuance of sustainable energy development, the government should identify, define and separate economic, social and environmental policy objectives. Promoting efficiency seems to be an obvious choice, but the implementation of a policy needs to be cognizant of the cost and operational sensitivity of the electricity industry. The following specific recommendations are suggested for providing electricity to all as stated in Vision 2021:

- Government action is urgently needed: to reduce regulatory uncertainty for investors, to establish effective competitive markets and to give firm policy directions in those areas where markets fall short, such as in taking environmental costs.
- Government can establish a Power Development Fund (PDF) with the assistance of multilateral and bilateral donor agencies. PDF will provide loan at market interest rate to private power producers for meeting capital cost with market interest rate.
- The private sector should be encouraged to participate at all levels of the supply chain (generation, transmission and distribution). Investment needs are too large to be met by public finances alone, and more competition is needed. An investment framework providing a secure, level playing field for private investors must be enforced.
- Balancing the interests of the consumers and the industry will guide the setting of tariffs. The process will progressively reflect the cost of supply of electricity at an adequate and improved level of efficiency. In designing the tariff structure and rates, issues such as the least cost development plan, efficient allocation of resources and legitimate and deserving socioeconomic considerations will be taken into account.
- Projects and programmes should be put in place to reduce technical loss, expand the scope for demand management and explore the possibility of innovative solutions like remote reading, computer networking, etc. These steps would ensure the viability of the industry, increase its attractiveness for investment and serve more customers with any given supply of electricity.

- The BPDB needs to have an entrepreneurial focus to improve its efficiency and financial leverage. Sound internal business practices and specific cost reduction goals should be introduced to guide the decision-making process.
- All the incentives provided to the IPPs are also applicable for the private renewable power generators. Moreover, an incentive tariff may be considered for electricity generated from renewable energy sources which may be 10 per cent higher than the highest purchase price of electricity by the utility from private generators.
- The government should control the effective implementation of the existing plans for reforming the electricity industry, including the use of financial rewards or penalties. Clear deadlines and strict monitoring of actions are required. New plans and measures should also be well-monitored.

5.11 CONCLUDING REMARKS

What needs to be done for ensuring energy security is in principle clear. What is not clear is, how to do that? Indeed, the governance of the various related systems and their sub-systems leave much to be desired. The various policies that exist or are being contemplated are at most sub-optimal and at worst do not conform with national interest and affect adversely the environment, livelihood of people, and the macroeconomic balances. Both the policy governance and regulatory governance need to be updated, made transparent and accountable. The implementation of policies and regulatory rules needs to be likewise made transparent and accountable. There are major allegations of corruption in the energy institutions and systems. These need to be investigated and corrective measures, both short and long term, need to be undertaken.

There is hardly any governance related investigation so far in the energy sector in general and into power sector in particular. A preliminary assessment of the situation shows that the blame lies on both the domestic policymakers and the development partners (Asaduzzaman 2006) as well as the civil society which hardly bothered about the causes behind the present problems of generation short-falls, and the roles of various actors in the scene. It is high time that these issues be taken up in earnest.

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Appendix

5A I. Test for Stationarity and Co-Integration

A time series is stationary (in the sense of weak stationarity) if its mean, variance and covariance remain constant over time. At a formal level, stationarity can be tested by determining whether the data contain a unit root. This can be done by the Dickey and Fuller (1979), Augmented Dickey-Fuller (ADF) and Phillips and Perron (1988) tests. The ADF test is used here for testing for stationarity as well as for the order of integration of a series. The logs of variables are taken so that the first differences can be interpreted as growth rates. If two variables LGDP (the log of real GDP) and LGWH (the log of total electricity consumption) are integrated to the order one, i.e. I(1), then the next step is to find whether they are cointegrated. This can be done by estimating the following cointegrating equations by OLS and testing their residuals for stationarity.

$$LGDP=\theta+\eta LGWH+u \tag{A1}$$

$$LGWH = \delta + \lambda LGDP + e \tag{A2}$$

If LGDP and LGWH are both I(1), then for them to be cointegrated u and e should be stationary or I(0). To check whether there is valid long-run/cointegrating relationship among the variables, we need to test the stationarity of residuals (i.e. linear combination of variables) employing the ADF test, which is given in (A.3). The ADF test statistics is the t-ratio on the term .The critical values for the test is given by McKinnon (1991).

$$\Delta E_t = \rho E_{t-1} + \gamma \Delta E_{t-1} + v_t \tag{A3}$$

Where Δ is the first difference, E_t is the residual from cointegrating regressions and v_t is the white noise.

Once it is established that two variables are cointegrated, the next issue is that of which variable "causes" the other. Before the advent of cointegration and error-correction modeling, the standard Granger tests were used widely to determine the direction of causality. However, as noted earlier, the standard Granger method is likely to be misleading if variables are cointegrated since the standard tests do not contain an error-correction term. The error-correction representation of the Granger causality model with two variables is formulated as follows:

$$\Delta LGDP_{t} = C_{1} + \sum_{m=1}^{p_{1}} \phi_{1m} \Delta LGWH_{t-m} + \sum_{m=1}^{q_{1}} \varphi_{1m} \Delta LGDP_{t-m} + \lambda_{1}u_{t-1}$$
(A4)

$$\Delta LGWH_{t} = C_{2} + \sum_{m=1}^{p_{21}} \phi_{2m} \Delta LGWH_{t-m} + \sum_{m=1}^{q_{21}} \varphi_{2m} \Delta LGDP_{t-m} + \lambda_{2}e_{t-1}$$
(A5)

Where the error-correction terms u_{t-1} and e_{t-1} are stationary residuals from the cointegrating equations. By introducing error-correction terms in the above equations, an additional channel is opened up through which causality is tested. For example, in equation (A4), growth of electricity consumption (Δ LGWH) is said to Granger cause real income growth (Δ LGDP) either when the coefficients of lagged Δ LGWH are positive and jointly significant through the F-test or if λ_1 is significant or both. If income growth causes electricity consumption growth, either the coefficients of the lagged Δ LGDP are positive or jointly significant (F-test) or λ_2 is significant or both (equation (A5)). Thus error-correction models allow for the fact that causality can manifest through the lagged changes of the independent variable or through the error-correction term or through both.

In the above analysis, the inclusion of the error-correction terms makes it possible to distinguish between short-term and long-term causality. The lagged changes in the independent variables represent the short-run causal impact, while the significance of the error-correction term gives the information on long-run causality.

Before implementing the Granger Causality test, one has to chose the order of lag (i.e. p_i and q_i , where i=1, 2) appropriately. There is evidence that the causality tests are often sensitive to the choice of the lag lengths. In the literature there exist a number of suggested methods for choosing the lag orders. Here "simple to general" recommended by Engle and Granger (1987) has been followed. They favoured starting with fewer lags and then testing for added lags. The idea is that if non-auto correlated residuals are achieved by smaller number of lags then that model is preferred to the one with larger number of lags in the interests of parsimony. Moreover, this method has the added advantages of not over parameterising the model and of preserving the degrees of freedom, particularly if the sample size is relatively small. Given these considerations, the third method of simple to general search is followed here.



5AII. Results of Unit-Root Test and Co integration

ADF and PP test for Unit Root							
Variables	ADF			РР			
	Levels (Including Trend)	First Differences (Without Trend)	Levels (Including Trend)	First Differences (Without Trend)	Period		
LGWH	-2.161	-3.359*	-2.149	-3.260*	1981- 2008		
LGDP	0.551	-3.257*	0.158	-3.225*	1981- 2008		
LMGDP	-1.893	-3.653*	-2.238	-4.090*			

Table 5AII.1: ADF and PP Tests for Unit Roots of the Variables

Source: Authors' estimates.

Note: 1. * denotes significant at 5 per cent level

Cointegrating Regression	\overline{R}^{2}	Slope	ADF of Residuals (without intercept)	95 per cent Critical value ¹
LGWH=f(LGDP)	0.9525	1.726	-1.253	-1.950
LGDP=f(LGWH)	0.9543	0.5526	-0.832	-1.950
LMGDP=f(LGWH)	0.9620	0.7678	-1.452	-1.950
LGWH= <i>f</i> (LMGDP)	0.9620	1.2546	-1.752*	-1.950

Table 5AII.2: Residual based Test for Cointegration

Source: Authors' estimates.

1. The critical values are calculated based on McKinnon (1991).

* indicates significance at 10 percent level.

Dependent	E(-1)	No. of lags	$F(LGWH \rightarrow LGDP)$	F(LGDP→LGWH)
Variable	P values in brackets			
DLGDP	-0.02293 (0.67)	3	3.34 (0.022)	
DLGWH	0.2445(0.03)	3		2.02 (0.12)
DLMGDP	- 0.078 (0.31)	3	2.00 (0.12)	
DLGWH	0.2508(0.01)	3		4.26(0.01)

Table 5AII.3: Granger Causality Test Results

Source: Authors' estimates.

Asaduzzaman & Ahmed: Power and Energy Development and Management	

SI. No.	Name of Power Plant	Type of Fuel	Installed Capacity	Generation Capability	Gross Energy	Fuel Consumed	Fuel Cost	Static	Station Use		tion Use Annual Plant		Fuel Consumed	Per Unit Gen. Cost	Net Heat rate (kcal/kWh)	Efficiency
			(MW)	(MW)	Generation (GWh)	(Mill. Cft/Mill. Litre)	(Million Taka)	(GWh)	% of Gross Genera tion	Factor (%)	per unit gen. (cu.ft./kWh, litre/kWh)	(TK./kWh)				
1	Kaptai 2*40+3*50 MW	Hydro	230	230	884.2076			4.0743	0.46	43.89						
	Ashuganj 2*64 MW	Gas	128	128	161.6434	2233.5397	73.3340	15.8514	9.81	14.42	13.82	0.45	3307.957	26.00		
2	Ashuganj 3*150 MW	Gas	450	450	2069.5500	19893.7550	653.2133	160.2700	7.74	52.50	9.61	0.32	2301.256	37.37		
2.	Ashuganj 1*90 MW	Gas	90	85	507.6157	6792.9681	223.0177	6.4440	1.27	68.17	13.38	0.44	3203.677	26.85		
	Ashuganj 1*56 MW	Gas	56	55	300.3264	4523.5699	148.6309	0.3400	0.11	62.33	15.06	0.49	3605.986	23.85		
2	Shahjibazar	Gas	96	45	79.8650	1586.4942	52.0874	4.8132	6.03	20.26	19.86	0.65	4755.609	18.09		
3	Sylhet 1*20 MW	Gas	20	20	36.4609	529.7801	17.3949	0.1129	0.31	20.81	14.53	0.48	3478.503	24.73		
	Ghorasal 2*55 MW	Gas	110	100	389.8480	4817.1016	168.0231	34.3092	8.80	44.50	12.36	0.43	2958.112	29.08		
4	Ghorasal 3*210 MW	Gas	420	420	1998.0765	19580.4001	642.9319	133.9106	6.70	65.17	9.80	0.32	2346.030	36.66		
-	Siddirganj 1*50 MW	Gas	50	50	75.1600	861.6228	28.3056	4.2667	5.68	17.16	11.46	0.38	2744.445	31.34		
5	Siddirganj 3*10 MW	Gas	30	21	40.3248	722.1087	23.7109	2.0152	5.00	26.30	17.91	0.59	4287.010	20.06		

5A III. Generation Efficiency of Power Plants in Bangladesh5AIII.1 Generation Efficiency of Power Plants in Bangladesh (Power Plant wise Yearly Summary Statistics) Year: 1989-90

(Cont. Table 5AIII.1)

Background	l Papers:	SFYP,	Vol	lume	2
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SI. No.	Name of Power Plant	Type of Fuel	Installed Capacity	Generation Capability	Gross Energy	Fuel Consumed	Fuel Cost	Statio	on Use	Annual Plant	Annual Fuel Plant Consumed	Fuel Per Unit onsumed Gen. Cost	Net Heat rate (kcal/kWh)	Efficiency
			(MW)	(MW)	Generation (GWh)	(Mill. Cft/Mill. Litre)	(Million Taka)	(GWh)	% of Gross Genera tion	Factor (%)	per unit gen. (cu.ft./kWh, litre/kWh)	(TK./kWh)		
6	Haripur 3*33 MW	Gas	99	99	452.7545	6088.3177	199.3912	2.2712	0.50	52.21	13.45	0.44	3219.279	
	Chittagong 1*60 MW	Gas	60	55	313.4306	3911.0765	128.7144	29.0657	9.27	65.06	12.48	0.41	2987.302	28.79
7	Chittagong 2*6.5 MW	Gas	13	9	5.4108	162.5589	5.3376	0.0468	0.86	6.86	30.04	0.99	7192.393	11.96
	Chittagong 2*28 MW	Gas	56	56	84.6903	858.2023	28.1754	3.3391	3.94	17.26	10.13	0.33	2425.940	35.45
	Khulna 1*110 MW	HFO	110	110	0.0000	0.0000	0.0000	0.6224		0.00				
	Khulna 1*60 MW	HFO	60	50	142.5987	52.4032	246.2951	18.4264	12.92	32.56	0.37	1.73	3504.914	24.54
8	Khulna 2*28 MW	SKO	56	23	41.8627	15.4800	103.8708	0.3732	0.89	20.78	0.37	2.48	3287.494	26.16
	Khulna 1*10.5	SKO	10.25	8	3.3521	1.5904	10.6268	0.0893	2.66	4.78	0.47	3.17	4218.040	20.39
	Khulna 1*110	HFO												
9	Bheramara 3*20 MW	HSD	58.74	36	18.7085	9.1188	61.1871	1.0096	5.40	5.93	0.49	3.27	4357.785	19.74
10	Thakurgaon 7*1.5 MW	LDO	10.5	3	4.0397	1.1730	7.4819	0.3424	8.48	15.37	0.29	1.85	2604.582	33.02
	Saidpur 3*3.75 MW	HFO	11.25	2.5	3.8155	1.0972	5.1567	0.3620	8.60	19.23	0.29	1.35	2742.644	31.36
11		LDO			0.3961	0.1161	0.7405				0.29	1.87	2629.158	32.71

(Cont. Table 5AIII.1)

Asaduzzaman	& Ahmed:	Power and	l Energy	Development	t and Management

SI. No.	Name of Power Plant	of Power Plant Type of Fuel		Generation Capability	Gross Energy	Fuel Consumed	Fuel Cost	Station Use		Annual Plant	Fuel Consumed	Per Unit Gen. Cost	Net Heat rate (kcal/kWh)	Efficiency
			(MW)	(MW)	Generation (GWh)	Generation (Mill. (M (GWh) Cft/Mill. T Litre)	(Million Taka)	(GWh)	% of Gross Genera tion	Factor (%)	per unit gen. (cu.ft./kWh, litre/kWh)	(TK./kWh)		
	Saidpur 1*20 MW	HSD	20	20	16.3155	7.3636	49.4098	0.2953	1.81	9.31	0.45	3.03	4033.106	21.31
12	Rajshahi 3*1.4 MW	HSD	4.7	1.8	1.6192	0.5938	3.9844	0.0692	4.27	10.27	0.37	2.46	3278.724	26.23
12	Bogra 4*1.3 MW	HSD	5.2	1.5	1.6964	0.5552	3.7251	0.1096	6.46	12.91	0.33	2.20	2926.081	29.39
15	Bogra 1*8 MW	HSD	8	0	0.0000	0.0000	0.0000	0.0000						
14	Barisal 2*20 MW	HSD	40	40	61.3518	27.2942	183.1439	2.1663	3.53	17.51	0.44	2.99	3977.482	21.62
14	Barisal 9*1.4 MW	HSD	12.54	2.25	6.4483	2.3483	15.7571	0.4558	7.07	32.72	0.36	2.44	3255.918	26.42
15	Rangpur 1*20 MW	HSD	20	20	15.3867	6.9807	46.8406	3.2126	20.88	8.78	0.45	3.04	4056.194	21.20
	Total (Grid)		2361.00	2141.05	7716.9557		3130.506	429.1374	5.56	41.14	0.00	0.41		

Source: BPDB (2008).

Background Papers

Sl.	Name of	Туре	Installed	Derated	Gross	Annual	Efficiency	Overall
No.	Power Plant	of Fuel	Capacity	Capacity	Energy	Plant	(%) (Net)	Thermal
			(As of	(As of	Generation	Factor		Efficiency
			June 08)	June 08)	(GWh)	(%)		(%) (N-4)
			(MW)	(MW)				(Net)
	Kaptai 2*40+3*50 MW	Hydro	230	230	953.46	47.32		31.81
	Ashuganj 2*64 MW	Gas	128	128	794.63	70.87	30.03	
	Ashuganj 3*150 MW	Gas	450	440	2324.30	60.30	31.98	
	Ashuganj 1*34 MW	Gas	34 56 (CC)	18	36.26	22.98	23.39	
	Ashuganj 1*56 MW	Gas	(CC)	30	213.84	81.37	23.39	
	Ashuganj 1*56 MW	Gas	56	30	216.73	82.47	20.20	
	Sikalbaha 1*60 MW	Gas	60	40	173.76	49.59	25.88	
	Sikalbaha 2*28MW	Gas	28	10	3.59	4.09	18.23	
	Shahjibazar 7 Units	Gas	60	38	228.11	68.53	16.44	
	Shahjibazar 1*60 MW	Gas	70	60	208.24	39.62	28.80	
	Sylhet 1*20 MW	Gas	20	20	105.44	60.18	24.70	
	Fenchuganj CC	Gas	96	88	588.18	76.30	40.42	
	Ghorasal 2*55 MW	Gas	110	85	336.73	45.22	23.89	
	Ghorasal 2*210 MW	Gas	420	370	2124.13	65.54	33.04	
	Ghorasal 2*210 MW	Gas	420	380	1956.72	58.78	32.93	
	Siddirganj 1*210 MW	Gas	210	190	1018.54	61.20	33.41	
	Haripur 3*33 MW	Gas	99	96	274.81	32.68	21.79	
	Haripur Tongi 1*100 MW	Gas	105	80	378.03	53.94	26.30	
	Chittagong 1*210 MW	Gas	210	180	689.20	43.71	27.54	
	Chittagong 1*210 MW	Gas	210	180	770.40	48.86	28.06	

5AIII.2 Generation Efficiency of Power Plants in Bangladesh (FY2008)

(Cont. Table 5AIII.2)

Asaduzzaman and Ahmed : Power and Enegy Development

Sl.	Name of	Туре	Installed	Derated	Gross	Annual	Efficiency	Overall
No.	Power Plant	of Fuel	Capacity	Capacity	Energy	Plant	(%) (Net)	Thermal
			(As of	(As of	Generation	Factor		Efficiency
			June'08)	June'08)	(GWh)	(%)		(%)
			(MW)	(MW)				(Net)
	Khulna 1*110 MW	HFO	110	60	420.94	80.09	25.04	
	Khulna 1*60 MW	HFO	60	35		0.00		
	Khulna 2*28 MW	SKO			13.15	15.01	21.20	
	Bheramara 3*20 MW	HSD	60	54	107.86	22.80	24.37	
	Thakurgaon 3*1.5 MW	LDO	3	3	1.29	4.91	24.48	
	Saidpur 1*20 MW	HSD	20	18	27.43	17.39	22.60	
	Baghabari 1*71 MW	Gas	71	71	237.70	38.22	27.83	
	Baghabari 1*100 MW	Gas	100	100	659.11	75.24	28.72	
	Bhola Diesel	HSD HFO	1.5	1.5	4.16 2.33	31.63	26.58	
	Bhola Old	HSD	1.5	1	0.07	0.75	18.89	
	Bhola New	HSD	2	2	1.45	8.30	35.37	
	Barisal 2*20 MW	HSD	40	35	84.58	27.59	20.43	
	Barisal 9*1.4 MW	HSD	3	2.5	2.67	12.19	18.16	
	Rangpur 1*20 MW	HSD	20	18	22.36	14.18	21.02	
	Barapukuria 2*125 MW	Coal	250	220	1172.37	60.83	32.26	
	Total (Grid)		3814	3314	16152.53	55.6396		

Source: BPDB (2008).