

**Issues in Employment and Poverty**

**Discussion Paper**

**6**

**Bangladesh: Bringing Poverty Focus in  
Rural Infrastructure Development**

by

**Mustafa K. Mujeri**

**Recovery and Reconstruction Department  
International Labour Office, Geneva**

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## Abbreviations

ADB	Asian Development Bank
BBS	Bangladesh Bureau of Statistics
BC	Bitumen Surface Road
BRDB	Bangladesh Rural Development Board
CBN	Cost of Basic Need
CDF	Credit and Development Forum
DDC	Development Design Consultants Limited
FEI	Food Energy Intake
FFE	Food for Education
FFW	Food for Works
FRA	Feeder Road Type A
FRB	Feeder Road Type B
GDP	Gross Domestic Product
GMC	Ghat Management Committee
GR	Gratuitious Relief
HBB/WBM	Herring Bone Brick/Water Bound Macadam
HES	Household Expenditure Survey
IFED	Integrated Food for Development
ILO	International Labour Organization
LCS	Labour Contracting Society
LFS	Labour Force Survey
LGD	Local Government Department
LGEB	Local Government Engineering Bureau
LGED	Local Government Engineering Department
LGI	Local Government Institution
MMC	Market Management Committee
MOF	Ministry of Finance
NCB	Nationalized Commercial Bank
NGO	Non Government Organization
NH	National Highway
PFDS	Public Food Distribution System
PIC	Project Implementation Committee
PKSF	Palli Karma Sahayak Foundation
PMS	Poverty Monitoring Survey

RD	Rural Development
RDP	Rural Development Programme
REP	Rural Electrification Programme
RH	Regional Highway
RHD	Roads and Highways Department
R1	Rural Road Class 1
R2	Rural Road Class 2
R3	Rural Road Class 3
RMA	Road Maintenance Association
RMP	Rural Maintenance Programme
RUC	Road User's Committee
RWP	Rural Works Programme
TIP	Thana Irrigation Project
TR	Test Relief
TTDC	Thana Training and Development Centre
UDCC	Upazila Development and Coordination Committee
UNDP	United Nations Development Programme
VGD	Vulnerable Group Development
VGf	Vulnerable Group Feeding
WFP	World Food Programme
WMCA	Water Management Cooperative Association
WPW	Works Programme Wing

## Average Exchange Rate

Year	Taka Per US \$
1971/72	7.30
1972/73	7.87
1973/74	7.96
1974/75	8.87
1975/76	15.05
1976/77	15.43
1977/78	15.12
1978/79	15.22
1979/80	15.49
1980/81	16.26
1981/82	20.07
1982/83	23.80
1983/84	24.94
1984/85	25.96
1985/86	29.89
1986/87	30.63
1987/88	31.24
1988/89	32.14
1989/90	32.92
1990/91	35.68
1991/92	38.15
1992/93	39.14
1993/94	40.00
1994/95	40.20
1995/96	40.84
1996/97	42.70
1997/98	45.46
1998/99	48.06
1999/2000	50.31

Source: MOF 2001.

## Preface

While high rates of economic growth are essential for poverty reduction, this is not sufficient. The pattern and sources of economic growth as well as the manner in which its benefits are distributed play an important role in poverty reduction. And in that context, employment plays a critical role.

The importance of infrastructure in catalyzing development is well-known. And given the range of technological options that are available for that sector, it is possible to use investments there as a means of generating much needed employment for the poor. At the same time, carefully-planned infrastructure can help growth of economic activities and services that would benefit the poor.

Public works programmes for infrastructure are often regarded as measures for income transfers and for providing safety nets for the poor. It is, however necessary to distinguish that kind of infrastructure programme from the ones that form part of a country's development programme. The latter of course contributes simultaneously to the objectives of economic growth and that of employment creation, and thus, to poverty reduction. The present paper examines the poverty reducing effects of both types of infrastructure programmes mentioned above, with particular reference to Bangladesh.

Public works programmes of the safety net variety essentially represent micro-level interventions to generate income and employment, especially among the target group population who remain vulnerable during seasons when employment opportunities become further limited due to the dominant agricultural production cycle in the rural economy. In offering short-term employment, the primary role of these programmes is to be seen as a counter-seasonal measure to help the hard-core poor.

Yet, the present paper points out a number of deficiencies of safety net type public works programmes, a few of which might be worth mentioning here. Firstly, due to their short-lived and relief-oriented character, the programmes do not provide the poor with any permanent source of income, thus limiting their possibility to move out of intergenerational poverty. Second, the infrastructure assets created are often poorly designed and implemented without much provision of maintenance for sustainability.

On the other hand, development oriented rural infrastructure programmes that link the creation of rural assets to employment for unskilled labour through the adoption of labour-based technologies, tend to create durable infrastructural assets of a kind that can benefit the poor both directly and through promoting growth and rural-urban linkages. These types of programmes highlight the provision of basic services aiming at sustained rural growth and longer-term development goals through productive use of infrastructure assets.

However, with respect to the poverty reduction impact of labour-based infrastructure programmes, the paper makes a few points. Firstly, the scale of operation of the programmes, both in terms of resource allocation and coverage of the target population, is rather small compared to the extent of the problem that exists in rural Bangladesh. Second, the poverty-alleviating role of the programmes in terms of adequacy and sustainability of income seems to be limited as against their success in simply reaching the hard-core poor.

The author points out that the fact that many rural infrastructure development programmes in Bangladesh have been criticized for their inability to provide expected benefits is certainly not an argument against such projects. On the contrary, it points to the need to devise and implement infrastructure projects that have better capacity to reach the poor, better ability to ensure both immediate and future benefits to the target groups, and can adopt better techniques and mechanisms to involve the beneficiaries and institutions in these programmes.

November 2002

Rizwanul Islam  
Director  
Recovery and Reconstruction Department

# Chapter 1

## Introduction

With a low level of per capita income (about US \$ 370 in 2001), one of every two persons in Bangladesh is poor and one of three lives below the income poverty line of \$ 1 a day. If the people who are deprived of adequate basic needs and those who live 'above' poverty but are vulnerable and in constant danger of income erosion below poverty, the number will be considerably larger. Such multidimensionality of the poor's deprivations requires attacking poverty through both income and non-income routes.<sup>1</sup> In Bangladesh, high economic growth is necessary for reducing both income and non-income poverty. In particular, a 'pro-poor' or 'broad-based' growth is necessary so that employment opportunities for the poor are generated.<sup>2</sup> Since the poor mostly live in rural areas, it is important for Bangladesh to accelerate rural growth, improve coverage and quality of social services, ensure well-functioning rural institutions, and expand rural infrastructure.

### 1.1 Background

With improvements in the quality of life of the population as the national goal, poverty alleviation remains the overarching development goal in Bangladesh. The Fifth Five Year Plan (1997-2002) aims at reducing poverty substantially through accelerating economic growth, creating gainful employment opportunities and increasing productivity. Over the years, poverty has, however, declined at a slow rate. A major factor has been low growth. Moreover, the rapid labour force growth contributed to imbalances in the labour market creating significant un- and under-employment problems.<sup>3</sup> Since the poor in Bangladesh have their own labour as the only major resource, access to employment is the best route for them to move out of poverty. A sustained process of pro-poor and employment-creating growth in Bangladesh requires a comprehensive approach that can provide better access to the poor to a wide set of asset framework: physical capital to increase productivity and primary income; human capital to enhance capabilities and take advantage of new opportunities; financial capital to undertake productive livelihood options; natural capital to ensure sustainability and diversity of income streams; social capital (e.g. through grassroots mobilization) to enhance networking capacity and facilitate management of extra-market activities; cultural capital to improve status and entitlements; and political capital (e.g. through empowerment and participation) to strengthen bargaining power and ensure a fair access to resources, public services and decision-making.

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<sup>1</sup> This indicates the importance of adopting a multi-strategy solution to poverty alleviation in Bangladesh entailing, in addition to purchasing power, other forms of deprivation e.g. capability and entitlement, participation, empowerment, vulnerability and crisis-coping capacity, networking capacity, intra-household and gender disparities, access to credit and resources, and other social concerns.

<sup>2</sup> There exist considerable differences in understanding of what such a form of growth is or how to promote it. A common interpretation is to refer to policies that promote labour-intensive growth accompanied by activities which enhance access by the poor to land, credit, infrastructure, and technology. Pro-poor growth increases the poor's share in national income with growth but the operational implications and measures needed to bring about such a growth may cover wide areas e.g. microcredit and microenterprises to enhance the poor's productivity; enabling environment with macroeconomic efficiency, better regulation, competition, transparency, and accountability; small and medium enterprises; agriculture and rural development. In this context, the importance of agriculture as an 'engine of growth' for poverty alleviation is often highlighted.

<sup>3</sup> There also exist large sectoral imbalances in the employment pattern. The employment scenario is characterized by predominance of agriculture: more than 60 per cent of the employed labour force are involved in agriculture although its contribution to GDP is around a quarter. Manufacturing accounts for less than 10 per cent of total employment of which only a fifth is accounted for by large and medium scale enterprises. Two disquieting features of the labour market may be highlighted: first, declining growth of employment in the formal manufacturing sector; and second, trend towards greater informalization of employment as a whole.

While poverty-alleviating public policies need to address all forms of capital to ensure sustained poverty reduction through the growth process, a special problem in a labour-surplus economy like Bangladesh is the persisting gap between the required and the actual rates of employment creation. The growth process, on its own, is unable to absorb the growing labour force. With a large pool of surplus labour, Bangladesh needs to provide additional efforts to create employment, particularly for those in rural areas with little alternative livelihood options. Over the years, Bangladesh has undertaken various interventions of direct employment creation through public works and other labour-based infrastructure development programmes. Along with creating employment opportunities for the poor, these programmes contribute to economic growth through development of infrastructure e.g. roads, irrigation infrastructure, markets, schools, health centres, and other facilities. The rationale of the programmes lies in the view that such investments are pro-poor since, in addition to creating employment for the poor, these provide much-needed infrastructure and services for rural growth. As a part of the poverty alleviation strategy, increasingly more resources have been allocated over the years to expand the scale and range of activities under such programmes in Bangladesh. It is important, therefore, to assess the contribution of these programmes to poverty reduction efforts in the country and explore how their poverty-reducing impact can be strengthened.

## **1.2 Issues and Scope**

In Bangladesh, the Government's intervention in poverty alleviation is centered around the key issue of employment creation. One of the major objectives of the Fifth Five Year Plan (1997-2002) is to generate 'substantial gainful employment opportunities with increase in productivity through an optimal choice of traditional labour intensive and new generation technologies' (Planning Commission 1998, p. 158). For this, while acceleration and restructuring of economic growth with focus on rural development is considered a priority, the pro-poor elements for employment creation emphasize self-employment opportunity for the rural poor, mainly through targeted production and employment programmes and wage employment through rural infrastructure building and maintenance.<sup>4</sup>

In order to accelerate economic growth and bring desirable changes in the economy, Bangladesh has been pursuing structural adjustment and other reform programmes since the 1980s. While the reforms have led to improved macroeconomic balances and created a more liberalized economy, the country is yet to achieve a sustained high growth path. During 1980-2000, the average rate of GDP growth has been about 4 per cent per year, although the growth rate has somewhat accelerated to around 5.5 per cent during the second half of the 1990s. Such a growth performance, however, is not rapid enough to make any significant impact on poverty. The emerging consensus emphasizes that the country needs to grow by at least 7-8 per cent per year over a protracted period in order to bring rapid poverty reduction. For this, along with economic and institutional reforms sustained through a process of broad societal consensus, comprehensive social development is a pre-requisite. The challenge of

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<sup>4</sup> The production and employment programmes under the Fifth Plan aim to increase production in both farm and non-farm sectors, generate self-employment opportunities, increase income through productive activities, and develop human resources mainly through training. The programmes are designed as a package consisting of organization/social mobilization of the targeted poor into formal or informal groups, dissemination of technology and training, microcredit for income-generating activities, capital formation through savings, and market information and promotional activities. The assetless/landless and functionally landless (owning not more than 0.5 acre of land) and small farmers (owning land upto 1.5 acres) are the target groups under these programmes. Moreover, the vulnerable non-poor are also targeted. See Planning Commission 1998, p. 159.

reducing poverty faster and more effectively through the growth channels requires actions covering both short and long-term horizons. For the purpose, Bangladesh needs to launch a scaled-up attack on poverty, building on the incremental possibilities of existing efforts and adopting new and more effective initiatives.

A major dilemma, however, is to strike a right balance between the comprehensive (and relatively long term) measures needed to pull the economy out of low growth-high underemployment syndrome through the 'normal' growth process and the provision of immediate employment opportunities to the poor to ensure their survival and access to basic needs. In order to address the latter concerns, Bangladesh has developed an elaborate network of public works and other labour-based methods of infrastructure development programmes, particularly targeted to the hard-core poor. While the general thrust of these programmes is to combine employment for the poor with provision of much-needed services (particularly in rural areas) in key areas of infrastructure (e.g. roads, irrigation structures, markets, growth centres, schools, health clinics), important distinctions can be made between two broad groups of such interventions. First, the conventional public works programmes (e.g. Food for Works Programme) with the primary objective of providing employment opportunities to the hard-core poor and vulnerable groups. For these programmes, the basic concern is to provide safety nets to these groups particularly during difficult times (e.g. lean seasons), although some development works like construction/maintenance of earthen roads or other infrastructure are involved. Second, selected labour-based infrastructure programmes e.g. rural physical and social infrastructure development programmes like rural roads, irrigation schemes, health centres, primary schools, water supply and similar other programmes implemented mostly by the Local Government Engineering Department (LGED). Two major characteristics of these programmes are noteworthy: first, the programmes combine employment generation and poverty alleviation focus in public infrastructure investments with economic rationale like cost-effectiveness and productivity; and second, the programmes emphasize a 'formal' work culture (e.g. quality of jobs, and conditions of work) and issues of sustainability (e.g. private sector or NGO participation in implementation of selected components, community contracting, and beneficiary participation). Within the common objective of employment generation during the construction phase in all infrastructure programmes, the latter category has a stronger focus on longer term benefits that the poor can derive from the productive assets created through these programmes. Such a blending of direct employment generation with infrastructural asset creation can generate significant poverty reducing impact from these programmes. It is important, therefore, to assess the contribution of public labour-based infrastructure programmes towards poverty reduction and explore how their poverty-reducing impact can be further strengthened.

The present study, attempts to examine three broad issues which are important in determining poverty reducing impact of these programmes: (i) targeting the poor; (ii) the scale of the programmes; and (iii) actual impact on the poor. Since the study has been planned largely to provide an overview and analyse the above issues based on available data from existing studies, in-depth analysis of all relevant issues has not been feasible. In particular, the assessment of actual impact on programme beneficiaries has been conditioned by limited availability of information from secondary sources. It is suggested that case studies of selected programmes should be undertaken as a follow-up of the present study to address unresolved issues identified in the study. Despite methodological limitations, the study identifies a set of policy-oriented conclusions that could lead to more effective contribution of these programmes to poverty reduction goals in the country.

### **1.3 Structure of the Report**

The report is organized as follows. Chapter 2 provides a brief overview of the poverty situation in the country and examines the developments in the labour market. The employment pattern is also examined in order to assess the importance of generating additional employment opportunities in the economy through specially designed labour-based programmes. Chapter 3 gives a brief overview of the significance of different types of interventions for alleviating poverty and the relative importance of conventional public works programmes vis-à-vis the development-oriented labour-based infrastructure programmes in the country. In Chapter 4, the rural infrastructure programmes are examined to see how these programmes attempt to bring poverty focus in their activities. Chapter 5 analyses several major issues including targeting mechanisms, scale and coverage, and impact of the programmes in relation to poverty and contribution to the development process as a whole. In the context, both direct and indirect impacts of infrastructure programmes are examined to assess their impact on employment and incomes of the poor. Finally, summary findings and major conclusions are presented in Chapter 6.

## Chapter 2

### Poverty, Labour Market and Employment: A Macro View

In a low-income country such as Bangladesh, the developments in the labour market are important determinants of poverty. The role basically derives from the limitations of the labour market in providing productive and gainful employment opportunities to the large majority of the labour force. With low skills and limited scope of employment in the formal sector, the vast majority subsists in low-productive informal activities with limited ability to provide decent incomes and move out of poverty.

#### 2.1 Recent Trends in Poverty

The inter-temporal estimates of poverty, based on data collected at the household level, show substantial variations due to differences in underlying assumptions and methodologies.<sup>5</sup> Nevertheless, some trends can be discerned with available estimates (Table 2.1). Since the mid-1980s, both rural and urban poverty declined although the incidence of

**Table 2.1**  
**Incidence of poverty in Bangladesh**

Year	Head-count ratio (per cent)			Number of poor (million)		
	Rural	Urban	Total	Rural	Urban	Total
1983/84	59.6	50.2	58.5	50.3	5.6	55.9
1988/89	59.2	43.9	57.1	54.1	6.2	60.3
1991/92	61.2	44.9	58.8	58.4	7.2	65.6
1995/96	56.7	35.0	53.1	57.8	7.1	64.9
1997	46.8	43.4	46.0	45.3	12.9	58.2
1999	44.9	43.3	44.7	42.4	15.4	57.8

Note: The figures for 1983/84 to 1995/96 are based on HES while those for 1997 and 1999 are taken from PMS. The poor in the HES are estimated using the cost of basic needs (CBN) method and are taken as those living below the poverty line which corresponds to an intake of 2122 kcal/person/day and a non-food allowance corresponding to non-food expenditure among households whose food expenditure equals the food poverty line. The poverty lines in the PMS use the food energy intake (FEI) method and refer to calorie intake of 2122 kcal/person/day in rural areas and 2112 kcal/person/day in urban areas. The number of the poor has been derived using estimated populations and its rural-urban distribution implicit in respective surveys.

Source: World Bank 1998, BBS 1998, 2001.

rural poverty remained higher than urban poverty. Over the 1984-1999 period, the absolute number of the poor increased to 58 million from 56 million – an increase of 2 million over a period of 15 years – when total population increased by about 34 million. During the period, the number of rural poor declined from 50 million to 42 million while the number of urban poor recorded an increase – from 6 million to 15 million.<sup>6</sup> Despite variations in the rate of poverty reduction across different sub-periods, the broad trends highlight the following:

<sup>5</sup> The typical household surveys, which are nationally representative, include the Household Expenditure Survey (HES) and the Poverty Monitoring Survey (PMS) of the Bangladesh Bureau of Statistics (BBS). Several alternative poverty estimates from the same data source are available which highlight important issues of measurement of poverty, aggregation of numbers, choice of calorie norms, and other dimensions. For an analysis of the implications of different methodologies on poverty estimates, see Ravallion 1990, Ravallion and Sen 1996.

<sup>6</sup> The increase in the number of urban poor vis-a-vis the declining number of the rural poor does not necessarily indicate migration of the poor from rural to urban areas. While rural-urban migration of the poor is a reality, the change in the definition of urban areas between the HES and the PMS appears to be a major contributory factor in increase in the number

- The overall incidence of poverty in the country has been declining though the rate of decline is slow at less than 2 per cent per year;
- Although incidence of rural poverty experienced some increase in the late 1980s, a faster decline has taken place in the 1990s. Changes in the definition of rural and urban areas, however, have significant implications on these rates;
- The incidence of urban poverty has been declining consistently since the 1980s. The rate of decline, however, slowed down in the late-1990s; and
- The absolute number of the poor started to decline since the mid-1990s.

The above trends, when contrasted with the growth performance, reveal some links between growth and poverty (Table 2.2). In particular, the incidence of poverty increased between mid-1980s and early 1990s when the growth rates of both GDP and per capita GDP were relatively low. The period also witnessed a relatively low rate of agricultural growth. The changes in the distribution of income also became more unequal over the entire period. In Bangladesh, the inequality in the distribution of consumption is lower than that of income which in turn is much lower than inequality in assets.<sup>7</sup> Over the years, relative inequality has increased in both rural and urban areas and the disparity between rural and urban areas has

**Table 2.2**

**Annual growth rates of GDP**

(Per cent at constant 1984/85 prices)

	1984-1999	1984-1992	1992-1996	1997-1999
<b>Total:</b>				
GDP	4.4	3.9	4.6	5.4
Agricultural GDP	2.3	2.0	1.2	4.8
Non-agricultural GDP	5.7	5.2	6.5	5.9
<b>Per capita:</b>				
GDP	2.5	1.9	2.6	3.8
Agricultural GDP	0.4	0.1	-1.1	2.4
Non-agricultural GDP	3.6	3.2	4.1	4.5

Source: Author's calculations.

widened (World Bank 1998). A significant potential of the growth process in reducing poverty is thus lost due to inequalising nature of growth. On the whole, although income distribution in Bangladesh is not as skewed as in many other developing countries, the

of urban poor in the PMS. This is revealed in the share of urban population in total population implicit in the two surveys. For instance, the share of urban population in 1995/96 HES is 16.5 per cent while the corresponding shares in 1997 and 1999 PMS are 23.5 per cent and 27.3 per cent respectively.

<sup>7</sup> Although information on inequality in assets is scanty, the ownership pattern of productive assets reveals marked variations across rural and urban areas as well as among poor and nonpoor households. The value of assets per urban households is estimated at around three times that of rural household on average. For nonpoor households, the average asset value is nearly 200 per cent higher in rural areas compared to that of the poor. In urban areas, the disparity is much higher: the average asset value of the nonpoor is five times that of the poor. One of the major factors that contributes to less inequality in consumption distribution compared to income distribution is the higher dependence of poor households on subsistence production and common property resources. See Mujeri 2000.

relatively low income inequality is more an indication of a generally low resource endowment rather than an egalitarian society. In general, the developmental gains in the past have been unevenly shared, both among various income groups and over different geographical regions, creating less than anticipated impact on poverty.

An important dimension of poverty in the context of the present study is the particular group of the poor who remains at the lower end of the poverty-scale and are termed as the 'hard-core poor'. Nearly half of the poor in Bangladesh constitutes the hard-core poor. There also exists substantial differentiation among the hard-core poor households. The poorest are those who have no homestead and live on houses built on other people's land; with aged and disabled heads; destitutes and beggars who mostly depend on charity and transfer. On the other hand, households with some land and/or non-land assets (e.g. livestock) and with members having capability to work as wage labour are relatively better off within the hard-core poor category. Female-headed households among the hard-core poor are more disadvantaged due to absence of male earning members and limited earning opportunities for themselves. Besides other basic needs, hard-core poor households are prone to severe and prolonged food insecurity. The important concern of the hard-core poor is income poverty for which the interventions need to combine two broad features: first, giving access to immediate sources of income e.g. through wage employment or transfer; and second, support to productive asset creation either through microcredit or other options within a flexible framework. It is important, therefore, to create employment opportunities especially targeted to the hard-core poor.

## **2.2 Developments in the Labour Market**

A significant aspect of the demographic development in Bangladesh is rapid changes in the labour market. The labour force in the country has grown at a much faster rate than the growth in population and the demand for labour. During 1961 to 1991, total population increased by nearly 120 per cent – from 50.8 million to 111.5 million – while the labour force grew from 16.9 million to 51.2 million – an increase of 203 per cent. The population of Bangladesh increased by about 17 million between 1989 and 1995/96 while the net entrants into the labour force was over 8 million. Although non-agricultural sectors have been the main engine of job creation during the 1990s, agriculture is still the largest sector of employment with more than 63 per cent of total employed labour of 54.6 million in 1995/96 (BBS 1998).

Despite overall increases in the level of employment, significant imbalances in the labour market persist. According to the Labour Force Survey, total civilian labour force increased from 50.7 million to 56.0 million between 1989 and 1995/96 (that is, by more than 10 per cent). Over the same period, the number of employed persons increased by about 9 per cent – from 50.1 million to 54.6 million. This indicates that the unemployment rate more than doubled during the period from 1.2 per cent to 2.5 per cent.<sup>8</sup> A more serious concern, however, is the high rate of underemployment.<sup>9</sup> The problem of underemployment reflects the fact that more than one-third of the employed work less than 35 hours a week, a low level for a developing country such as Bangladesh (Table 2.3). This, combined with the relatively low female participation rate (in 1995/96, as per the 'usual' definition, the female

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<sup>8</sup> The definition of unemployed persons in the LFS is, however, somewhat unrealistic. According to the LFS, any person in the civilian work force not doing any work at all (even an hour) and engaged as unpaid family helper and working less than 15 hours during the reference week is treated as unemployed.

<sup>9</sup> Any person working less than 35 hours during the reference week is considered as underemployed in the LFS.

participation rate for persons aged 10 and above was only 18.1 per cent compared to 77 per cent for males), suggests that there exists significant ‘surplus labour’ in the country.<sup>10</sup> Moreover, the situation seems to have deteriorated over time. During 1989, 43 per cent of the employed labour worked for less than 40 hours a week and the share increased to more than 49 per cent in 1995/96. Several other disquietening features of the labour market may also be noted e.g. disproportionately high unemployment rates for the youth; labour market discrimination against women; widespread existence of child labour; and low education and skill level of the labour force.<sup>11</sup>

**Table 2.3**

**Underemployment in Bangladesh, 1995/96**

(Persons aged 15 and over)

<b>Category</b>	<b>Bangladesh</b>	<b>Urban</b>	<b>Rural</b>
Absolute unemployed persons ('000)	1,266	401	865
Unemployed persons (unpaid workers < 15 hrs/week; '000)	1,802	163	1,639
Underemployed persons (<35 hrs/week; '000)	18,903	1,942	16,961
Total unemployed and underemployed ('000)	21,971	2,506	19,465
Underemployment rate (% of total labour force)	38.5	22.1	42.1
Male	13.7	10.9	14.5
Female	79.0	54.2	82.4
Unemployment and underemployment rate (% of total labour force)	39.2	24.6	42.5

Source: BBS 1998.

<sup>10</sup> The incidence of child labour is high in the country. According to 1995/96 Labour Force Survey, the child labour (aged 5-14) is nearly 6.6 million. The children's entry into the labour market is explained by a complex set of socioeconomic push and pull factors. The high participation rate of the children indicates severe poverty, limited access to the education system and reveals complex policy issues in enforcing a ban on child labour. The 1996 National Sample Survey of Child Labour shows that around 45 per cent of children aged 5 to 14 years report family problems as the main cause of discontinuing schooling while another 29 per cent report household obligations. The survey reports the proportion of working children with no education at 89 per cent. About 66 per cent of children are compelled to work because of parental difficulties. For 'usual' definition of employment, see note to Table 2.4.

<sup>11</sup> Some evidence from the 1995/96 Labour Force Survey may be cited. Around 80 per cent of women in the labour force are unpaid family workers compared to 20 per cent for men; almost 20 per cent of children (aged between 5 and 9) work sometimes in hazardous occupations and two-thirds of working children are engaged in agriculture, forestry and fishery mostly as unpaid family helpers or day/casual workers; and 51 per cent of the labour force (aged 15 and over) have no education and another 25 per cent have education at the primary level.

## 2.3 Pattern and Trends in Employment

The trends in employment, based on Population Census and Labour Force Surveys, are presented in Table 2.4.

**Table 2.4**  
**Employment trends in Bangladesh**  
(Persons aged 10 years and over in million)

	Population Census		Labour Force Survey			
	1981	1991	1985/86	1989	1990/91	1995/96
<b>A. Usual definition</b>						
Employed population	25.3	30.7	30.5	32.7	34.9	40.3
Male	23.9	28.4	27.4	29.4	30.4	33.2
Female	1.4	2.3	3.1	3.3	4.5	7.1
<b>B. Extended definition</b>						
Employed population	...	...	...	50.1	50.2	54.6
Male	...	...	...	29.4	30.5	33.8
Female	...	...	...	20.7	19.7	20.8

Note: Usual definition refers to any person aged 10 and over employed (worked at least one hour in a week) with/without pay or profit during the reference period excluding own household economic activities. The extended definition uses a similar concept but includes some household economic activities e.g. care of poultry and livestock; threshing, boiling, drying, processing and preservation of food; and the like.

Source: BBS 1998, 2001.

The figures indicate that, between 1989 and 1985/96, employment increased by between 7.6 million and 4.5 million depending on the statistical definition chosen. Moreover, non-agricultural sectors have been the main engine of job creation: of the total additional employment of 4.5 million over the period, nearly 60 per cent were contributed by the non-agricultural sectors (Table 2.5).

**Table 2.5**  
**Employment trends in major economic sectors**  
(Number in million)

	1989		1990/91		1995/96	
	No.	Per cent	No.	Per cent	No.	Per cent
Agriculture, Forestry, Fishing	32.6	65.0	33.3	66.4	34.5	63.3
Manufacturing	7.0	13.9	5.9	11.8	4.1	7.5
Trade, Hotel, Restaurants	4.1	8.2	4.3	8.5	6.1	11.1
Community, Personal Services	1.8	3.6	1.9	3.8	5.1	9.3
Finance, Business Services	0.2	0.5	0.3	0.6	0.2	0.4
Construction	0.6	1.3	0.5	1.1	1.0	1.9
Others <sup>a</sup>	1.4	2.7	1.7	3.3	2.4	4.4
Household Sector and Not Adequately Defined	2.4	4.8	2.3	4.5	1.2	2.1
Total	50.1	100	50.2	100	54.6	100

a Others include mining & quarrying; electricity, gas, water; transportation, storage & communication.

Source: BBS 1998, 2001.

Another feature of the pattern of employment relates to its growing informalization.<sup>12</sup> In spite of the conceptual difficulties, bulk of employment generation between 1989 and 1995/96 have taken place in the informal sector. Some estimates put informal sector employment at 59 per cent of urban and 73 per cent of rural employment outside agriculture (Mahmud 2001). Moreover, more than 79 per cent of those employed in the informal sector during 1995/96 are categorized as ‘unpaid family labour’ or ‘self-employed’. This indicates that increasing landlessness in rural areas has largely pushed the rural labour force out of agriculture into low productivity self-employment activities in the informal sector. In the event that such informal employment is a supplement to farm employment, even low returns from informal sector activities contribute to increased household incomes and consequent increase in welfare of labour households. However, if informal employment becomes the only source of income of the participants, which has largely been the case in Bangladesh, then expansion of informal sector employment dominated by traditional low productive activities provides only subsistence to the participants and become a source of ‘distress employment’ for the poor labour households.

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<sup>12</sup> There exist, however, problems in defining informal employment which relate to setting the formal-informal divide in the economy. The informal sector activities, as defined by the ILO, usually have several characteristics e.g. minimum capital requirement will low entry barriers; dominance of self-employment and employment of unpaid family workers; informal contractual arrangements for hired labour; labour-intensive technology requiring low skills; and operating mostly outside formal legal and institutional framework.

## **Chapter 3**

### **Poverty Alleviation in Bangladesh: All Routes Matter**

With many roots and multi-dimensional characteristics, all routes matter for poverty alleviation in the country. As a part of the strategy, these routes combine two elements: strategic measures to address underlying causes of poverty, and practical interventions to mitigate poverty. It is obvious that high economic growth that generates employment for the poor needs to be the key element of a successful anti-poverty strategy in the country.

#### **3.1 Approaches to Poverty Alleviation**

In Bangladesh, the approach to poverty alleviation, particularly reduction of income poverty, covers several channels. An important channel is economic growth. Although the impact of economic growth on poverty is somewhat indirect, high economic growth, along with measures to influence the ‘quality’ of growth such that its poverty alleviating capacity is increased, is an important element of a successful anti-poverty strategy in the country. In addition, direct efforts to reduce poverty cover several routes e.g. capability-raising of the poor by education, health and nutrition interventions; targeted employment, and safety nets programmes; and improvements in non-material dimensions of well-being including gender gaps, insecurity, powerlessness and social exclusion. In short, the approach sets three broad imperatives in the fight against poverty:

First, opportunities for employment and productivity growth must be created so that incomes rise and the poor are able to move out of poverty;

Second, measures must be put in place to ensure that access to basic services is equitable so that the poor can benefit; and

Third, special measures must be taken to reduce the vulnerability of the poor to unforeseen events and shocks.

Over the years, significant diversity has emerged among each of these broad channels. The growth enhancing interventions, along with economic sectors and infrastructure development, have covered elements of good governance and an enabling environment such that growth prospects are enhanced. Similarly, the direct approach to reducing poverty has been broadened to cover different programmes. Along with microcredit based employment programmes which rely more on self-employment generation, other types of income transfer programmes have been evolved. At present, the Government’s targeted programmes cover a broad range of activities: food aid to create safety-nets for the poor, building and maintenance of rural infrastructure, rural development programmes, primary and girls education programmes, microcredit and other specific welfare programmes. While the initial focus of most of these programmes was on ‘transfer elements’ to supplement consumption, create employment opportunities, and help the poor to acquire access to income generating assets, significant changes have taken place in their approach and design to strengthen the development impact of the programmes. While such diversity in targeted anti-poverty instruments serves the immediate needs of different poverty groups, this also raises a moot policy issue: What should be the relative priority of different instruments for ensuring accelerated poverty reduction? In view of significant complementarities among these programmes as well as observed differentials across different poverty groups, one probably

may not suggest an ‘either-or’ approach. But certainly it is desirable to identify relative impact of different approaches on the poverty reduction process and generate priorities in specific contexts, given the resource constraints. In short, this will help the policy makers to move towards a more ‘optimal mix’ of targeted anti-poverty programmes.

### 3.2 Targeted Programmes: Evolution and Types of Intervention

As a means of relieving poverty and famines, targeted programmes (e.g. provision of employment on public works) have a long history in the Indian Sub-continent. Even during the late nineteenth century, the Indian famine codes recommended such forms of ‘relief’.<sup>13</sup> Since then, various types of intervention have been experimented and, as we have noted earlier, different forms of targeted programmes exist at present in Bangladesh.

Within the targeted approach, four broad types of programmes can be distinguished: (i) food assisted programmes; (ii) rural infrastructure development programmes; (iii) microcredit programmes; and (iv) special transfer programmes.

#### 3.2.1 Food Assisted Programmes

Bangladesh has one of the largest systems of targeted food transfer programmes in the world through which, since 1993/94, more than 1 million metric tons of foodgrains are channelled to the target population. The food assisted programmes generally act as conduits of transfer to enhance household food security and, in many cases, as a means of promoting human development of the poor. During the 1990s, resources channelled through these programmes increased significantly (Table 3.1). The share of foodgrains distributed through food assisted programmes in the Public Food Distribution System (PFDS) also rose sharply in the 1990s: from less than 30 per cent in the early 1980s to over 80 per cent in the late 1990s.<sup>14</sup>

**Table 3.1**

**Resource use under safety-nets programmes**

	(million Tk.)							
Programme	1990/91	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Food-for-Works	4,248	7,517	5,585	8,108	8,360	7,156	8,060	9,340
Gratuitous Relief/Test Relief	...	3,465	4,008	2,561	2,587	2,102	2,720	1,930
Vulnerable Group Development	3,870	...	...	2,153	2,251	2,089	2,280	2,360
Vulnerable Group Feeding	...	...	...	...	762	5,848	2,290	2,170
Others	...	20	17	152	16	659	10	...
Total	8,118	11,002	9,610	12,974	13,976	17,854	15,360	15,800
Total as % of GDP	0.97	0.94	0.58	0.72	0.70	0.81	0.65	0.61

Source: MOF 2001.

<sup>13</sup> For useful discussions on the historical perspective, see Bhatia 1967, Aykroyd 1974.

<sup>14</sup> The remaining 20 per cent are distributed through ‘monetized’ channels e.g. Essential Priorities (subsidized foodgrain sales to members of armed and paramilitary forces, hospital and jail inmates), Other Priorities (subsidized sales to workers of government institutions, fire and civil defence department) and Open Market Sales (sales in open market to stabilize domestic process). For details, see del Ninno and Dorosh 1998.

The intention of all food assisted programmes is to help the poor. There are, however, differences in objectives. Some programmes aim at relief of immediate distress while others have varied development objectives (Table 3.2).

**Table 3.2**  
**A profile of food assisted programmes**

Programme	Main Objective(s)	Foodgrain Offtake (1999/00)	
		Volume (000 m tons)	%
Food for Work (FFW)	<ul style="list-style-type: none"> <li>● Generate employment for the poor, mainly in the slack (dry) season;</li> <li>● Develop and maintain rural infrastructure.</li> </ul>	754.8	46.9
Food for Education (FFE)	<ul style="list-style-type: none"> <li>● Promote primary school enrolment and attendance, reduce dropouts and improve quality of education.</li> </ul>	286.0	17.8
Vulnerable Group Development (VGD)	<ul style="list-style-type: none"> <li>● Assist disadvantaged women in rural areas, train in market-based income generating activities and provide functional education.</li> </ul>	216.7	13.5
Vulnerable Group Feeding (VGF)	<ul style="list-style-type: none"> <li>● Distribute food grain to needy families in periods of distress.</li> </ul>	149.1	9.3
Test Relief (TR)	<ul style="list-style-type: none"> <li>● Generate employment for the poor mainly in the rainy season (similar to FFW with lighter labour requirements)</li> </ul>	124.5	7.7
Gratuitous Relief (GR)	<ul style="list-style-type: none"> <li>● Provide disaster relief according to perceived needs</li> </ul>	20.3	1.3
Others	....	57.7	3.5
Total	....	1,609.1	100

Source: Food Assisted Programme Documents.

Under the Food-for-Works (FFW) programme, food grain is provided to generate seasonal employment for the extreme poor during the lean periods in exchange for work in rural infrastructure projects e.g. construction and maintenance of earthen roads, excavation of canals, and other work involving earth work. In the Vulnerable Group Development (VGD) programme, about 0.5 million women-headed households receive 31.25 kg of food grain for an 18-months period cycle. The VGD objective is to enable the poor and destitute rural women to overcome food insecurity and low social status through providing three major inputs: food aid, development package, and graduation into NGO programmes. The development package includes savings, group-based social awareness, functional education, skill training in income generating activities, and credit. The Vulnerable Group Feeding (VGF), Gratuitous Relief (GR) and Test Relief (TR) programmes are designed to address transitory food insecurity problems of the vulnerable poor during floods and other emergency situations.

The Food for Education (FFE) programme, which started in 1993/94, is designed to support poverty stricken households to send their children to schools by giving income entitlement through food. This enables the poor families to release their children from livelihood obligations and ensure regular primary school attendance. During 1999/00, the programme was operational in 1,247 unions of the country covering 17,403 schools with 2.3 million students from 2.2 million families.<sup>15</sup>

The safety-nets programmes largely attract the vulnerable poor and those who depend on daily wages for livelihood due to their self-targeting nature. The temporary and seasonal nature of the programmes, however, limit their ability to generate sustainable incomes and create significant poverty reduction impact.<sup>16</sup> Nevertheless, the weights of extreme poor households under the programmes relative to rural income distribution indicate that benefits accrue mostly to target groups (Table 3.3). The bottom four income groups, who account for 22 per cent of the poorest rural households, display their overwhelming presence in the programmes: 84 per cent in FFW, 93 per cent in VGD, and 75 per cent in TR.

**Table 3.3**  
**Targeting performance of selected food assisted programmes**

(Per cent)

Household income group (Tk./month)	Rural Population Share (1991/92 HES)	Population share in programmes		
		Food for Works (FFW)	Vulnerable Group Development (VGD)	Test Relief (TR)
Less than 750	3.2	31.9	54.4	27.6
750-999	4.1	22.1	22.9	20.2
1000-1249	7.2	19.4	10.8	17.0
1250-1499	7.6	10.7	5.3	10.5
1500-1999	16.4	9.4	3.7	13.5
2000-2499	13.0	3.8	2.1	6.7
2500-2999	10.3	1.7	0.6	3.1
More than 3000	38.2	1.0	0.2	1.4
Total	100	100	100	100

Source: BBS 1994.

### **3.2.2 Rural Infrastructure Development Programmes**

The rural infrastructure development programmes support building and maintenance of rural roads, bridges and culverts, small scale irrigation structures, development of trading facilities in rural markets, and creation of trading network. The Local Government Engineering Department (LGED), under the Ministry of Local Government, Rural Development and Cooperatives, is involved in the development of rural infrastructure including rural roads, growth centres, embankments and other physical facilities. An aggregated picture of the achievements of LGED can be seen in Table 3.4.

<sup>15</sup> Under FFE, the monthly entitlement is 15 kg of wheat (or 12 kg of rice) for one-child families and 20 kg of wheat (or 16 kg of rice) for more than one children.

<sup>16</sup> The efficiency of the programmes in terms of unit cost of transfer is also somewhat similar. The cost of transferring Tk. 1 in benefit is estimated at Tk. 1.59 for FFE, Tk. 1.56 for VGD and Tk. 2.06 for FFW. The lowest cost of Tk. 1.32 is estimated for the Rural Maintenance Programme (RMP) which employs women in labour intensive rural road maintenance work. See Ahmed and Billah 1994, Subbarao et.al 1997.

**Table 3.4****Rural infrastructure development by LGED**

<b>Programme</b>	<b>Cumulative till June 1997</b>	<b>1997/98</b>	<b>1998/99</b>	<b>1999/00</b>
Road (km)	7,370	3,900	6,018	7,667
Bridge/culvert (meter)	85,684	33,192	34,757	46,448
Growth Centres (No.)	480	143	213	176

Source: MOF 2001.

Another unique programme of 'cash for work' in rural infrastructure development is the Rural Maintenance Programme (RMP) which started in 1983. All the beneficiaries of RMP are women. The programme employs 41,000 destitute rural women (with land ownership of less than 0.5 acre) from 4,100 unions of 435 upazilas in 61 districts as RMP crews. They are employed on a daily wage basis for maintenance of 15 miles of rural earthen road throughout the year. The RMP crews maintain a total of 42,596 km of rural roads in the country and remain in the payroll for a period of four years after which they graduate from the programme. The crews are organized and provided with training on income generating activities during involvement with RMP to assist them in livelihood activities using their own savings.

### **3.2.3 Microcredit Programmes**

Over the years, Bangladesh has emerged as the pioneer in innovating and managing microcredit programmes for income/employment generation along with social programmes and support activities. Microcredit programmes have a wide network in the country involving both the Government agencies and the NGO sector. The Bangladesh Rural Development Board (BRDB) disbursed more than Tk. 17 billion as microcredit to 1.3 million beneficiaries during 1991-2000.<sup>17</sup> There exist many other institutions which are involved in microcredit including the NGOs. The Palli Karma Sahayak Foundation (PKSF) is a Government financed institution which disbursed nearly Tk. 8 billion through NGOs till December 2000. The Grameen Bank's cumulative disbursement of microcredit was Tk. 137 billion till December 2000. While comprehensive statistics are difficult to arrive at, available information show that different microfinance NGOs distributed more than Tk. 109 billion to 10 million borrowers till June 2000 (CDF 2001). The microcredit activities, in general, are economically efficient which generate a net surplus for the poor borrowers. These programmes also create positive impact on socioeconomic indicators including children's schooling, nutrition, and fertility (Khandker 1998). What is impressive about microcredit is

<sup>17</sup> A *Palli Bittaheen Foundation* has been established in 1999 for servicing the BRDB programme for the assetless poor. The Foundation provides financial support, skill training and other services for social and economic empowerment of the target group. Microcredit is also distributed by different Government ministries, departments and agencies, estimated at Tk. 20 billion till 1999/00. The emerging trend is to implement microcredit programmes by almost every ministry and their agencies. At present, the following ministries/agencies have some form of microcredit operations: Social Welfare; Women and Children Affairs; Labour and Employment; Fisheries and Livestock; Industry; Textiles; Agriculture; Local Government, Rural Development and Cooperatives; Land; Youth and Sports; Prime Minister's Office; Finance Division; and Cabinet Division. See MOF 2001. The Nationalized Commercial Banks (NCBs) also channel microcredit, the cumulative disbursement being more than Tk. 70 billion till December 2000.

its massive expansion in recent years covering nearly half of the target households (usually defined as those having half an acre of land).

### **3.2.4 Special Transfer Programmes**

The Government's targeted approach has expanded over the years to cover special transfer programmes for the hard-core poor and disadvantaged groups. The programmes combine different components to provide economic security and address specific constraints and vulnerability of the targeted population.<sup>18</sup> Despite the variety and multiplicity of these programmes, these are often not well-targeted, programme administration is complex and costly resulting in leakages and high delivery costs, objectives are multiple and ill-defined reducing quality and accountability, and monitoring is inadequate with indicators that distort programme objectives. The programmes need a re-examination of underlying strategies to devise a streamlined approach that makes a better use of resources and promotes desired goals. Along with reforms in programme design, increased effectiveness of special programmes requires their integration with broader social development efforts (e.g. delivery of critical services like basic health care, education and skill, water and sanitation) which are not usually included within these programmes.

The brief review of the targeted programmes, as presented above, points to several generic problems that constrain their effectiveness in contributing to rapid poverty reduction in the country.

First, the design of different targeted programmes needs to respond effectively to specific disadvantaged groups e.g. long term assistance to those who are unable to sustain themselves through productive work (like handicapped and disabled persons, orphans, widows); vulnerable poor whose incomes are low and irregular and need support to smooth consumption during difficult periods; and the poor constrained due to asset and human resource limitations. The existing programmes need restructuring in the light of their prime objectives and measures are needed to address many flaws: problem of screening and targeting, low degree of success, and limited coverage. The planning of these programmes should highlight the fact that these entail a high opportunity cost in terms of foregone public goods and services;

Second, food assisted programmes, in general, require streamlining in design and implementation for improved effectiveness and targeting;

Third, Increasing involvement of various Government ministries and departments in microcredit operations needs a careful review. This should examine budgetary implications of the loan fund and institutional capacity of the agencies to monitor and supervise microcredit operations with desired efficiency, impact, and viability. It may be a better option to keep involved only specialized Government agencies having mandate of microcredit activities (e.g. BRDB) with such operations; and

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<sup>18</sup> The Ministry of Social Welfare implements poverty alleviation, welfare and rehabilitation programmes for socio-economically and physically disadvantaged and distressed persons. The Ministry of Women and Children Affairs has programmes for assetless women and female headed households. The Ministry of Youth and Sports undertakes youth development programmes to encourage gainful self-employment. Several transfer programmes may also be cited: old age pension programme for distressed persons, allowances for distressed widows and poor women abandoned by their husbands, *asrayon* project for landless and homeless people, housing fund for loans/grants to homeless poor, employment banks, and *ekti bari ekti khamar* programme for development of poor rural households. See MOF 2001.

Fourth, special programmes for disadvantaged groups are severely underfunded. These programmes need review including *inter alia* eligibility criteria, and amount of entitlement. These programmes should acknowledge the family as the strong link in providing safety nets and aim to strengthen the family as a unit. The promotion of a strong family will ensure basic care to all its members and enable to satisfy basic household functions.

### **3.3 Direct Employment Creation Programmes: Linking the Poor with Development**

The mix of targeted programmes, as examined earlier, highlights two broad concerns:

First, the need for social assistance and protection as a matter of entitlement for those groups whose poverty arises from old age, disability, sickness, widowhood and similar contingencies. Poverty in such contingencies needs direct relief and these targeted programmes should be viewed in the overall framework of fiscal management. The problems inherent to such programmes are well-known: low coverage, inadequate targeting, high overheads, leakage, and low benefit-cost ratios coupled with information and agency problems. Nevertheless, reasonably high efficiency can be achieved in these programmes precisely because these are contingency related; and

Second, the need for creating special employment for the poor in the backdrop of slow growth and growing un- and underemployment in the labour market.<sup>19</sup>

The major concern of the present study is employment and hence we shall focus on direct employment creation programmes. It is clear, however, that the need for special employment programmes arises due to significant deficiency of the growth process to resolve economy-wide employment and labour market issues in the country. The mismatch between demand and supply in the labour market and constraints to expanding employment opportunities through 'formal' growth strategies have led to the quick appeal of such programmes as a strategy to address the pressing unemployment problems, at least as a short-run measure.

The employment creation capacity of the existing special programmes can be broadly categorized into three groups:

- **Self-employment**

The microcredit operations of both the Government and the NGOs promote self-employment and entrepreneurship. The dominant approach is the target group strategy under which the poor with similar socio-economic interests are organized into groups to promote their social and economic empowerment. A significant advantage of the approach is its apparent ability to bypass the distributional concerns

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<sup>19</sup> Apart from economic realities, political imperatives often work strongly behind such targeted employment programmes. The political leaders are more concerned with discontent and political unrest that a continuing high level of unemployment may generate and hence place high priority to demonstrate their direct actions to deal with the problem rather than general policy measures to accelerate growth-induced employment generation. In many cases, political demonstration effects have played more important roles in designing the programmes rather than considerations of their impact on unemployment and poverty.

by offering the poor access to collateral-free credit to generate employment and income;

- **Targeted and short-term wage employment**

The programmes mostly offer temporary and short-term employment to the poor, especially during slack seasons, to support income and nutritional security. These mostly involve public works programmes and mobilize local labour force primarily for small rural infrastructure development; and

- **Wage and community based employment**

These programmes are more recent in origin and form parts of overall sectoral interventions. Such programmes mostly involve labour-based infrastructure development (e.g. by LGED) in rural areas. A major characteristic of these programmes is that these provide wage-based or community-based employment which is linked to cost-effective and growth-oriented investments. Such public investments are executed either by the private sector (e.g. local contractors trained in labour-based construction techniques) or by local communities in the framework of community contracts sometimes based on cost-sharing arrangements between CBOs and local government (or other local agencies). Although such execution modalities are still evolving, the private sector execution of public works by labour-based contractors and by community-based works is an innovative feature in rural infrastructure development in the country which has substantial implications for ensuring effectiveness and sustainability.

While the special employment programmes consist of creating both self- and wage-employment, there are important differences in their underlying approaches and resulting impact, particularly on poverty in rural areas.

### **3.3.1 Self-Employment Generation**

The rapid expansion of microcredit along with its social development package has emerged as the cornerstone of self-employment generating strategy in the country. While the role of promoting self-employment through microcredit in poverty reduction has been widely recognized, its viability as a sustained poverty alleviation approach also has limitations.

First, self-employment programmes through microcredit, although by and large reach the target groups, are yet to cover the majority of the eligible households. In view of the vast number of the poor and limited availability of resources, the issue is: how feasible it is to expand the microcredit net to cover millions of poor households under poverty within a given time frame;

Second, self-employment under microcredit mostly relate to low-yield activities with feeble multiplier effects and limited vertical diffusion and linkages. As such, proliferation of such activities are not likely to be demand-sustained over time. Unless labour productivity can be raised, household-based production through self-employment will have limited ability to move the economy toward growth and sustained poverty reduction;

Third, microcredit based programmes do not, in practice, help keep the poor households 'self-sustaining' through a one-shot credit delivery rather repeat loans are necessary to help them maintain income flows and retain whatever

initial assets have been acquired through such loans. The number of cases of successful graduation from microcredit is few and continuing dependence on external resources is the reality;

Fourth, the existing microcredit-based self-employment generation strategy largely by passes specific poor groups, e.g. the hard-core poor, since the programme design and implementation approach hardly suits their needs and demands; and

Fifth, despite its satisfactory performance in the micro-domain, a broader perspective of self-employment strategy requires that several 'missing links' with the macro-level be addressed e.g. productivity and quality control, technology/skill upgradation, marketing and other missing elements.

In the context of mass poverty that exists in the country, the strategy of household asset creation through self-employment is in itself a major attack on poverty. The issue, however, is to recognize that this is not the only attack that is adequate. Self-employment generation is not a substitute for wage employment through sectoral expansion of employment opportunities and both should complement each other. So long as this perspective is maintained, the strategic differences between the approach to wage-based employment and self-employment promotion are not likely to lead to any undue shift in emphasis to household asset creation as the cost of public asset creation through growth-oriented public works programmes.

### **3.3.2 Wage Employment Generation: Major Routes**

The basic approach adopted under targeted programmes aims at employment creation through infrastructural investments and thereby help in alleviating poverty. In such programmes, two broad routes are adopted: first, the traditional public works programmes for providing employment for rural unskilled labour and use the labour for creation of a variety of communal assets: roads, canals, soil conservation and other minor works; and second, infrastructure works applying labour-based methods emphasizing cost-effective production of outputs with adequate quality standards and providing basic services to rural communities e.g. feeder roads, irrigation facilities, water supply and sanitation schemes, schools, market centres, and other economic and social facilities. Despite the fact that both attempt at infrastructural development, several analytical differences between the two may be noted.

A major concern of public works programmes is to link the creation of rural assets to providing supplementary employment to unskilled labour. From the poverty reduction point of view, their most important contribution, as we shall see, is the stabilization and ensuring of incomes in lean seasons or periods of distress, providing immediate relief as well as protection against destitution by selling whatever meagre assets the poor have. The aim is to improve exchange entitlements of the poor whose only endowment is labour power.<sup>20</sup> Compared to other modalities, such employment programmes have a wide appeal due to their property of self-selection which eases administrative problems and minimizes information requirements. Given the information and agency problems, the great advantage of public works programmes is their self-selecting nature largely due to lower participation costs of the poor in such programmes.<sup>21</sup>

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<sup>20</sup> For arguments favouring employment programmes, particularly in the context of famine prevention, see Dreze and Sen 1989.

<sup>21</sup> For an exposition on shifting of selection costs on to the participants, see Ravallion 1990.

In contrast to the household-focused nature of interventions of public works programmes, the labour-based infrastructure programmes aim to provide basic services at the community level. The focus of these programmes has two major elements: (i) employment generation through applying labour-based methods; and (ii) promote rural growth through productive use of assets created under the programmes. The rationale of the approach rests on two basic considerations:

First, labour-based methods represent a local resource-based approach and aims at maximizing the use of locally available resources (labour) and hence can be a cost-effective means of employment promotion in Bangladesh; and

Second, the adoption of labour-based methods in infrastructure development can generate significant multiplier effects in the country. Given that a large amount of public resources are devoted to infrastructure and the urgent need to develop basic infrastructure as a pre-requisite to socio-economic progress, infrastructure development using labour-based methods, both in construction and maintenance, is not only cost-effective but also has macro-implications (e.g. minimizes the use of imported capital goods and contributes to foreign exchange savings). Moreover, rural infrastructure development provides wide substitution possibilities between labour and other inputs so that the labour-intensity ratio may be determined to optimise the labour content through appropriate combination of labour and other inputs.<sup>22</sup>

Thus the approach of labour-based infrastructure programmes is holistic. It strives to bring a change in the investment pattern in rural infrastructure in favour of construction methods using labour-based techniques (appropriately supplemented with usually light equipment to ensure quality outputs) wherever these are technically feasible and economically cost-effective. The expected employment impact is two-fold: (i) additional employment creation during construction and maintenance due to adoption of a labour-based approach compared to the traditional approach; and (ii) indirect employment generation through use of a cost-effective technology and use of outputs/services ensuring adequate quality standards. The potential of the approach brings into forefront the multiplier impact that can be realized through creating effective linkages between direct and indirect as well as short and long term prospects of employment generation in rural infrastructure sector.

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<sup>22</sup> The issue here is to use working methods and systems that give priority to labour supported by other inputs (e.g. equipment) rather than to other inputs with support of labour.

## **Chapter 4**

### **Rural Infrastructure Programmes: Bringing Poverty Focus in Infrastructure Development**

The role of infrastructure in economic development is significant and often greater than that of investment in other forms of capital (World Bank 1994). In particular, roads and other rural infrastructure play an important role in socio-economic development of rural areas, both directly and indirectly. In direct terms, the development of infrastructure provides immediate cash incomes to the rural population, particularly the poor, through their participation in construction and maintenance works. Indirectly, improved infrastructure reduces the costs of transport and marketing of rural products, increases farmgate prices, facilitates access to modern inputs, and improves access to social and welfare services. Infrastructure development is an important avenue of raising rural incomes with significant poverty reduction impact.

In Bangladesh, with a predominantly rural economy, infrastructure plays a vital role in supporting socio-economic development of the country. There are many components of rural infrastructure e.g. irrigation, schools, health clinics, land development, afforestation, soil and water conservation, protection of the environment and the resource base, water supply and sanitation, and development of other facilities of which three important elements are: roads, markets, and electrification. Starting with only 4,000 km of primary and secondary highway networks in 1971, Bangladesh has now an extensive road network of nearly 223,000 km covering four broad categories of roads – national highway, regional highway, feeder road, and rural road. Similarly, 2,100 markets are being developed as growth centres covering the rural areas of the country. The rural electrification programme (REP), launched in 1977, at present covers more than 12,000 villages in 32 districts of the country.

#### **4.1 Public Works Programmes**

The major public works programme under which development and maintenance of rural infrastructure are undertaken is the Food for Works (FFW) programme. On a limited scale, such activities are also conducted through the Test Relief (TR) programme. Some rural road maintenance is also performed under the Rural Maintenance Programme (RMP).

The FFW is more of an umbrella of different programmes and projects implemented by several ministries with donor assistance. Over the years, donor support to FFW has been declining and, of the total foodgrains allocated under the programme in 1999/00, about 60 per cent was provided by the Government. While various FFW programmes have different methods of implementation and beneficiary selection, all programmes have common objectives of providing employment to the rural poor and developing rural infrastructure. The major infrastructure development activities include building and maintaining earthen (*'katcha'*) roads and roads connecting growth centres, digging canals, building embankments, developing ponds and planting trees.

The Government implements several FFW programmes with its own resources e.g. the Rural Infrastructure Reform programme of the Ministry of Disaster Management and Relief. The major donor supported FFW programmes are the Rural Development (RD) programme supported by the World Food Programme (WFP) and other donors, and the

Integrated Food for Development (IFFD) funded by food assistance from USAID through PL 480 Title 1 allocations to CARE. The RD programme supports forestry, water, roads and fisheries projects implemented by Forest Department, Water Development Board, Local Government Engineering Department (LGED) and Fisheries Department.<sup>23</sup>

Under FFW programmes, on-site work is usually carried out during January-April giving intermittent employment to the poor participants. Some exceptions also exist (e.g. for routine canal maintenance under RD programme) where the poor women receive food or cash transfer for an extended period along with training in income generating activities, nutrition and health awareness. The Test Relief programme is carried out during the rainy season (July-November) and is confined mainly to maintenance of schools, religious institutions, and activities with light labour requirements.

The criteria of regional allocation of resources of FFW are programme-specific although the Government-funded programmes mostly allocate resources to districts, upazilas and unions on the basis of population. The selection of beneficiaries follows a self-targeting mechanism with relatively low wages and physical labour requirement discouraging the non-poor to participate.

For each project, a Project Implementation Committee (PIC) comprising 7 to 9 community elites is formed with the Chairman of the Union Parishad as the head. The PIC assesses project priority, feasibility and benefits. The allocations are based on a notional basis assuming 1,000 cu. ft. of earth work requires 50 kg of wheat and workers will be paid a wage rate of 5-6 kg per day of work.

The Rural Maintenance Programme (RMP) is similar to FFW programmes and is implemented by Union Parishads with assistance of CARE-Bangladesh. With the dual objective of maintaining rural earthen roads and providing employment and training to destitute women, RMP covers about 4,100 union parishads in the country. In each union, 20 km of rural roads, built under IFFD-FFW programme, are maintained by a road maintenance association (RMA) comprising 10 destitute women. The RMA is responsible for maintaining the given stretch of road with quality monitoring done by a union parishad member. The union parishad and a Project Implementation Committee oversee the beneficiary selection process. The eligibility criteria include: being divorced, separated, or otherwise destitute; between 18 and 35 years of age; and physically fit to do the required physical work. The participating women are enrolled in a four-year programme of RMP work and training during which they are paid Tk. 43 per day as wages (about one-fourth per cent is retained as savings on their behalf). During the last year of the project cycle, the women are given more intensive training in basic business management to help them in pursuing gainful activities after graduation from the project.

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<sup>23</sup> The LGED is also responsible for implementation of IFFD which in 2000 has been changed to cash-for-work Integrated Food Security Programme. For bringing more emphasis on building human capital and community assets, WFP plans to integrate the RD programme with a new Integrated Food Security (IFS) programme and combine community infrastructure building activities with food-for-training activities that focus on improving nutrition and enhancing income-generation capabilities.

## 4.2 Rural Infrastructure System: Labour-based Programmes

The rural infrastructure system in Bangladesh has many components consisting of roads, markets, inland waterways, irrigation network, schools, health clinics and other facilities. With high population density and relatively compact geographical features, mobility and trading are important elements of the rural economy.

As early as 1984, Bangladesh's strategy for rural development emphasized three components: development of physical infrastructure including roads, storage, and markets; expansion of irrigated agriculture with emphasis on minor drainage and flood control works; and production and employment programmes for the poor (Planning Commission 1984). It was conceived that the implementation of the strategy would be facilitated by the 1982 decentralization policy that transferred responsibilities for most rural roads and markets, and parts of agriculture, primary education and health services to upazilas. The proposed decentralization efforts, however, were not fully realized and most of the physical rural infrastructure development targets set in the strategy remained unfulfilled.<sup>24</sup> Nevertheless, the first generation of the infrastructure projects was completed by 1996 for which several significant characteristics could be noted: these projects encouraged low-cost labour-based approaches to construction and maintenance; achieved improvements in planning, programming and budgeting in project cycle; implemented monitoring and evaluation system as well as maintenance system in project areas; and stimulated better coordination among involved stakeholders. In this Chapter, we shall focus on identifying labour-based programmes in two major areas of rural infrastructure – rural roads, and rural market network.

### 4.2.1 Rural Roads

The road system in Bangladesh is classified into seven categories with a total length of 222.6 thousand km (Table 4.1).<sup>25</sup> Two organizations are responsible for constructing and maintaining the road network. The Roads and Highways Department (RHD) under the Ministry of Communications is responsible for management of the main road network including national highway (NH), regional highway (RH) and feeder road type A (FRA). The Local Government Engineering Department (LGED) under the Ministry of Local Government, Rural Development and Cooperatives is responsible for construction and management of feeder road type B (FRB) and all other rural roads.

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<sup>24</sup> Overall, only about 39 per cent of physical targets were achieved in 1995. For details, see World Bank 1996.

<sup>25</sup> This shows a density of roads in relation to land area of 69.2 km. per 100 sq. km which is among the highest in developing countries of Asia. There are, however, significant differences in quality. For instance, more than 81 per cent of the road network are composed of rural roads with crest width less than 5 meters, a large proportion of which lack drainage structure and adequate compaction and hence not fully functional. If the lower category of roads (R2 and R3) are excluded and only RHD roads and Feeder Road B-type (which also include earth roads with gaps) are considered, then the road density in Bangladesh will be much lower.

**Table 4.1****Road network in Bangladesh**

<b>Category</b>	<b>Length (km)</b>	<b>Definition</b>
National Highway (NH)	3,144	Connecting national capital with divisional headquarters, old district headquarters, port cities, and international highways.
Regional Highway (RH)	1,746	Connecting different regions with each other which are not connected by national highways.
Feeder Road Type-A (FRA)	15,964	Connecting upazila headquarters and growth centers with the arterial road system.
Feeder Road Type-B (FRB)	19,490	Connecting important growth centres/markets, places of socio-economic importance and the upazila headquarters.
Rural Road Class 1 (R1)	65,222	Connecting union headquarters/local markets with upazila headquarters or road system.
Rural Road Class 2 (R2)	50,880	Connecting villages and farms to local markets/union headquarters.
Rural Road Class 3 (R3)	66,147	Roads within villages.
Total	222,593	...

Source: RHD and LGED 2001.

While the RHD roads provide important linkages, it is the extensive road network under the jurisdiction of LGED which plays a significant role in serving the vast rural areas in the country. They facilitate access to farms, social and other institutions, as well as trading facilities in inputs and outputs. Much of these rural roads were built employing labour-intensive technologies, but were not designed and implemented as cost-effective investments.<sup>26</sup>

<sup>26</sup> The length of rural roads changed very little since the mid-1980s. Most of these roads were built by the 1970s under Food-for-Works and other rural development programmes involving little engineering design. Similarly, most embankments were built with poor compaction and without structures. As a result, these impose a tremendous burden on maintenance. See World Bank 1996.

#### **4.2.2 Rural Markets and Growth Centres**

An extensive network of rural markets exists in Bangladesh which may be divided into three broad classes based on location and market participants:

- **Primary Markets**  
There are about 6,000 primary markets where primarily the farmers sell their surplus produce to local consumers and traders;
- **Local Assembly Markets**  
Nearly 1,500 local assembly markets exist where farmers and local traders exchange with intermediary traders to move up the produce to higher levels of the marketing system and trade in agricultural produce and inputs and other final goods; and
- **Secondary Markets**  
About 450 such markets operate, mostly at upazila level, for wholesale and retail/trade of agricultural and other goods.

Within this complex chain of the marketing system, more important markets are characterized by permanent and semi-permanent structures (e.g. shops, storage facilities, crop processing enterprises and service centres). In 1984, a policy was adopted to identify selected important markets as growth centres and concentrate investments in infrastructure in those centres to create rural linkages. For the purpose, a total of 1,408 rural assembly and secondary markets were designated as growth centres in 1984 to which another 700 were added in 1994 having potential for growth in rural areas.

The rural infrastructure development strategy, as the above suggests, identifies several areas where focus has been placed:

- Develop growth centre connecting roads (FRBs) which connect the identified growth centres to upazila headquarters and nearest all weather roads;
- Develop rural roads (R1 and R2) which connect villages with growth centres and feeder roads;
- Provide drainage structures (e.g. bridges and culverts) on rural roads; and
- Create market structures and facilities in growth centres.

The emphasis in the strategy is on minimal new construction and improving the existing facilities. Such emphasis seems to be well-placed in view of the existence of wide but poor infrastructure network in the rural areas.

### **4.3 Genesis of Rural Infrastructure Network**

#### **4.3.1 Public Works Programmes**

The public works programmes (e.g. Food-for-Works and other rural development programmes) played the key role in expanding the rural network in Bangladesh. This is

supported by the fact that most of the present length of rural roads were in place by the end of the 1970s (World Bank 1996). Despite providing important services to the rural communities, several problems of the road network are evident which impose a tremendous burden on road maintenance and significantly reduce the quality of services.

Under the rural works programmes, the roads involved little engineering design and the supporting embankments were built with poor compaction and without structures. As a result, most of the rural roads are of poor quality. A road condition survey in 1993 indicated that roads in 'good' condition accounted for only 17 per cent of FRB, 6 per cent of R1 and 3 per cent of R2 categories in the country (World Bank 1996).<sup>27</sup> The existing road network is also characterized by large gaps in drainage structures. Along with inadequate drainage structures for existing embankments, there exists a large number of gaps yet to be bridged.<sup>28</sup> In the absence of such structures, water levels on each side remain unbalanced during floods causing weakness and damage to the roads.<sup>29</sup> Moreover, the problems with the conditions of existing structures are also enormous due to poor quality of construction.<sup>30</sup> A major factor which contributed to poor conditions of the rural roads network is the relative neglect of proper engineering design and implementation quality during their construction under public works programmes. As a result, the road network provides poor quality services, generates unusually high burden of maintenance, and creates less than anticipated impact of infrastructure development.

#### ***4.3.2 Emergence of the Local Government Engineering Department***

There is a long history of evolution of the Local Government Engineering Department (LGED). The beginning of the Works Programme in the country dated back to the early 1960s for which a cell was established under the Local Government Division (LGD) in the 1970s.<sup>31</sup> This was first transformed into Works Programme Wing (WPW) in 1982 and later into Local Government Engineering Bureau (LGEB) in 1984. Finally, the Local Government Engineering Department (LGED) came into being in 1992 under the Ministry of Local Government, Rural Development and Cooperatives. Two of the major functions of LGED are to provide (i) technical support to rural and urban local government institutions; and (ii) plan, implement, maintain and monitor infrastructure development projects in both rural and urban areas.

Given its mandate, LGED is involved in implementing infrastructure development programmes in several sectors e.g. rural development and institutions; physical planning, water supply and housing; transport; agriculture including crops, fisheries and forestry; and water resources. In addition, it is involved in construction of government primary schools and community clinics. Under its rural infrastructure development programme, projects are implemented for development of growth centres and growth centre connecting roads, bridges

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<sup>27</sup> The survey used a descriptive system for classifying road condition: 'good' implying both formation and surface in good conditions and only routine maintenance needed; 'average' suggesting some periodical maintenance but no major construction work needed; and 'poor' indicating base and sub-base damaged and major maintenance needed in order to bring the road in a maintainable condition.

<sup>28</sup> The network needs to have numerous bridges and culvert due to relatively flat and low lying terrain along with heavy monsoon rains and high flood levels in the country.

<sup>29</sup> According to LGED, known gaps needing bridges or culverts at present are at 2,364 locations on FRBs and at 20,506 locations on R1. This implies that one structure is needed for every 8 km of FRB and for every 3 km of rural roads.

<sup>30</sup> A survey shows that only around 63 per cent of structures in FRB are in good condition. Structures in good condition are much lower in rural roads: 50 per cent in R1 and 46 per cent in R2. See World Bank 1996.

<sup>31</sup> The three elements of the 'Comilla Model' of the 1960s e.g. Rural Works Programme (RWP), Thana Irrigation Programme (TIP) and Thana Training and Development Centre (TTDC) came to be known as Works Programme.

and culverts, and small scale irrigation and flood control related infrastructure. The rural maintenance programmes, mostly for rural roads, are implemented through destitute women.

Over the years, the activities of LGED have expanded rapidly. For rural infrastructure development, LGED implements a series of rural development projects targeted to specific geographical locations. These projects typically involve several components e.g. feeder/rural road development, construction of bridges/culverts on feeder roads, development of growth centre connecting roads, tree plantation, rehabilitation and maintenance of feeder/earthen roads and bridges/culverts, growth centre/market development and other ancillary works. The investment in infrastructure development through LGED, in nominal terms, increased by more than six-fold between 1991/92 and 2000/01 (Table 4.2). Similarly, the scope of work undertaken by LGED shows its wide involvement in various

**Table 4.2**

**Infrastructure investment by LGED**

<b>Year</b>	<b>Investment (billion Tk.)</b>
1991/92	3.97
1992/93	5.35
1993/94	10.46
1994/95	11.42
1995/96	10.97
1996/97	13.98
1997/98	13.28
1998/99	18.48
1999/00	23.82
2000/01	24.27

Source: LGED 2001.

infrastructure development activities (Table 4.3). What is significant, however, is its emphasis on ‘quality’ infrastructure construction e.g. paved roads construction and maintenance, bridge/culvert construction and maintenance, growth centre development, construction and repairing of primary schools, small irrigation and flood control, Union Parishad building/community clinic/cyclone shelter/drain/community latrine construction, and market development. During 1997-2001, all these activities accounted for 60 per cent of total expenditure of LGED. As against, earthen road construction and maintenance expenditure was around 7 per cent of total expenditure. This shows a distinct bias in LGED activities towards bringing quality improvements in rural infrastructure stock in the country.

**Table 4.3****Various infrastructure development components of LGED**

(Cumulative for 1996/97 to 2000/01)

Components	Physical Achievement		Expenditure (million Tk.)
	Unit	Quantity	
Earthen road construction	Km	22,159	3,671.6
Paved road construction	Km	9,177	17,155.5
Bridge/culvert construction	M	161,662	18,970.0
Growth centre development	No.	728	1,041.8
Tree plantation	Km	5,078	224.0
Maintenance of earthen road/ flood rehabilitation	Km	253,884	2,667.7
Maintenance of paved roads/ flood rehabilitation	Km	9,718	4,374.9
Bridge/culvert maintenance/ flood rehabilitation	M	24,851	1,251.2
Construction/reconstruction/repairing of primary schools	No.	24,531	10,988.8
Small irrigation and flood control	Ha	108,048	824.3
Union Parishad building construction	No.	93	260.3
Community Clinic construction	No.	1,935	440.0
Cyclone shelter rehabilitation	No.	224	331.2
Drain construction	Km	344	586.7
Community latrine construction	No.	19,259	62.1
Slum development/rehabilitation	Family	32,154	219.2
Market development	Sq.m.	30,520	96.3
Installation of tubewells	No.	723	9.7
Landing stage construction	No.	26	13.0
Rubber dam installation	No.	1	90.0
Bio-gas plant construction	No.	1,383	13.2
Maintenance programmes	....	....	5,000.0
Others	....	....	25,536.2
<b>Total</b>	....	....	<b>93,827.7</b>

Source: LGED 2001.

Several institutional development measures and quality ensuring mechanisms have been adopted by LGED for its programmes.

- A Geographic Information System (GIS) unit has been established in the early 1990s for developing a nation-wide spatial database on rural infrastructure and

enhancing institutional capability of planning and monitoring of LGED's programmes. This has also helped in preparing Upazila and District Base Maps for the whole country;

- Union and Upazila Plan Books have been prepared for selection of priority infrastructure development projects containing criteria and scoring range for selection of schemes based on technical, socio-economic, environmental, participatory and other relevant aspects;
- Design manuals (e.g. earthwork manual, road structure manual, road pavement design manual, small scale water resource scheme design manual, standard specifications, items of work, schedule of rates and unit cost analysis) have been prepared and used to put emphasis on sound design practices for construction of high quality infrastructure;
- Several innovative features have been adopted by LGED in implementing infrastructure programmes. The mode of construction involves contractors and Project Implementation Committees (PICs). The PICs consist of 5-7 members consisting of Union Parishad Chairman and members, and community representatives including at least one woman member. In addition to contractors and PICs, Labour Contracting Societies (LCSs) are being used since early 1980s as a new and innovative mode of construction. The LCSs are used to directly involve and provide employment opportunities to the landless and destitute women in infrastructure construction and maintenance, eliminate intermediaries and ensure fair wages to the participants.<sup>32</sup> The labourers are given training by LGED prior to commencement of the work covering social awareness, technical and job related skill development and management;
- The implementation of infrastructure development activities by LGED is accompanied by material testing and quality control measures to ensure technically sound, durable and economic structures. For the purpose, a Central Material Testing Laboratory in Dhaka and Regional Laboratories in 64 districts have been established and a Quality Control Manual has been adopted;
- Maintenance, as an integral part of the life cycle of an infrastructure, is carried out by LGED both to keep the infrastructure in good condition and provide employment to the poor.<sup>33</sup>

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<sup>32</sup> The LCSs are formed with landless men and women organized by BRDB, NGOs, and other informal groups to implement construction and maintenance schemes on contract. One LCS comprises upto 30 members and its involvement may cover a wide range of activities e.g. earthwork, pipe casting, pipe culvert installation, tree plantation and caring, growth centre development and other activities. A contract is signed between LGED and LCS as per a model contract form and the affiliating agency (BRDB or NGO) acts as a guarantor.

<sup>33</sup> On an average, LGED has spent about Tk. 772 million per year during the 1990s for maintenance activities of rural infrastructure.

- As an important management function, LGED carries out progress monitoring as well as effect and impact monitoring and evaluation within the Logical Framework Analysis (LFA); and
- For efficient planning, implementation and operation/maintenance of infrastructure facilities, LGED uses the community participation process and involves Local Government Institutions (LGIs), NGOs, beneficiary groups, and the private sector. As a part of participatory process, user committees such as Labour Contracting Society (LCS), Market Management Committee (MMC), Ghat Management Committee (GMC), Road User's Committee (RUC), and Water Management Cooperative Association (WMCA) are formed and involved.

#### **4.4 Characteristics of Public Works and Labour-based Infrastructure Programmes**

The above review of public works and labour-based infrastructure programmes suggests several characteristics of the two groups of programmes. The public works programmes essentially represent micro-level interventions to generate income and employment, especially among the target group population who remain vulnerable during seasons when employment opportunities become further limited due to the dominant agricultural production cycle in the rural economy. These programmes offer mainly short-term employment entitlement through mobilizing labour for physical infrastructure development. The primary role of the programmes, therefore, is to be seen as a counter-seasonal measure to help the hard-core poor in stress management. Several deficiencies of the programmes may also be noted:

- The infrastructures are often poorly designed and implemented without much provision of maintenance;
- The programmes do not provide access to the poor to any permanent source of income due to their short-lived and relief-oriented character; and
- The infrastructural assets created through the programmes tend to provide more benefits to relatively rich peasants and trading classes with the poor's benefits largely confined in the short run through participation in construction and maintenance works.

Despite the limitations, public works programmes do serve a useful purpose through offering income and employment entitlements to the hard-core poor during a period when they are most disadvantaged. With recent attempts to incorporate social development inputs, though still on a limited scale, public works programmes have acquired a new dimension of building awareness among the poor and help them to pursue alternative options within current asset and production structures.

The labour-based rural infrastructure programmes have a great deal in their favour. These programmes link the creation of rural assets to providing supplementary employment for unskilled labour through adopting labour-based technologies. In addition, two features are noteworthy which tend to distinguish these programmes from infrastructure created under

public works programmes: (i) the infrastructure assets are durable (not like earthen roads that are washed away in the next rainy season); and (ii) the nature of the assets is such that these benefit the poor (at least along with the non-poor). The labour-based projects, being more permanent in nature, also have several advantages to withstand features that lead to deficiencies in non-durable infrastructure assets created under public works programmes e.g. adhoc dispersion of the works without effective linkages; tendency to economize on materials leading to low quality of created assets; undue submission to political pressures; abandoning incomplete work and starting new-ones elsewhere; and neglect of maintenance requirements.

Some broad conclusions can be drawn from the infrastructure development programmes carried out under different options. Given the extent of unemployment problem in Bangladesh, these programmes may have a small macro-impact, but their ability to capture the neediest and provide them access to employment even for a short period constitute important practical interventions to mitigate poverty in Bangladesh. More importantly, the assets created under labour-based programmes are durable in nature and of a kind that can benefit the poor both directly and through promoting growth and rural-urban linkages. The critical issues, however, relate to local-level prioritization, planning and optimal sequencing of the projects along with reducing corruption and leakages.

## **Chapter 5**

# **Major Issues and Poverty Perspectives in Rural Infrastructure Development**

In Bangladesh, the blending of poverty concerns and bringing a poverty focus in rural infrastructure development, to a large extent, reflect a glaring dichotomy in the availability of secured employment and livelihood options between the rural poor and the non-poor. Beginning with a limited ‘safety-nets’ role of public works programmes by providing some protection to the poor against identifiable forms of deprivation and seasonal stress, the scope of such programmes has widened over the years to focus more on developmental contribution of rural infrastructure by linking available labour of the poor and benefits of infrastructure facilities.

Several issues are important for examining the poverty reducing impact of infrastructure development programmes. In this Chapter, we shall address three major issues: targeting the poor, scale and programme coverage, and infrastructural development impact on the poor. It should be stressed here that many questions and issues raised in the analysis remain at best partially answered due to limited availability of information from secondary sources. For a more effective understanding of the issues, case studies of carefully selected programmes could be taken up as a follow up of the present review.

### **5.1 Targeting the Poor**

The issue of targeting is central to public works and similar programmes. In an ideal situation, mechanisms can be employed that achieve the widest coverage of the targeted poor by concentrating benefits on them (e.g. maximizes both horizontal and vertical efficiency). In practice, however, two types of trade-off are involved in view of budgetary constraints: first, between administrative costs involved in targeting and programme costs; and second, between administrative costs and vertical targeting efficiency. Reducing targeting costs may lower vertical efficiency but can conceivably improve horizontal efficiency. Moreover, political economy considerations often dictate wider coverage with a sacrifice of vertical efficiency.<sup>34</sup>

The targeting mechanisms adopted under the infrastructure programmes in Bangladesh aim to achieve efficiency and equity by both minimizing administrative overheads and maximizing horizontal efficiency. Under traditional public works programmes, as we have seen, the major focus is to bypass administrative selection by resorting towards self-targeting. In the case of labour-based infrastructure programmes, however, the approach is to tackle the information and agency problems in administrative selection so as to reduce such costs and improve efficiency. For the purpose, in addition to involving Local Government Institutions (e.g. Union Parishad), NGOs and other community based organizations and formation of groups (e.g. LCSs), efforts include at least partial resort to indicator targeting using a variety of surrogates for income testing e.g. landlessness, dependence on labour income, female-headed households, and others. For participation in these programmes, mean-testing itself is improved by excluding the obvious non-poor on the

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<sup>34</sup> For discussion on different aspects of targeting, see Kanbur and Besley 1990, Kumar and Stewart 1992, Lipton and Ravallion 1993.

basis of easily identifiable indicators, as indicated above, rather than aiming at a precise identification of the poor. Furthermore, agency problems are somewhat reduced through administrative decentralization and adoption of participatory approaches by LGED.

### **5.1.1 Targeting Issues of Public Works Programmes**

There are several aspects of targeting of infrastructure-related public works programmes. As we have noted earlier, self-targeting is the dominant means adopted by these programmes to ensure that the benefits are accrued to the target group. On the whole, the mechanism works well due to relatively low wages paid and the nature of work involved (e.g. physical labour). The programmes are designed such that only the poor (or at least very few of the non-poor) have incentives to participate. The targeting policy, moreover, is to involve the hard-core poor who mostly have low reservation wage rates.

As in other targeted programmes, leakages and mis-targeting in public works programmes are not uncommon.<sup>35</sup> In general, two types of problem are recognized: first, exclusion of the hard-core poor; and second, inclusion of the non-poor. While the first problem has its roots in limited scale of operation and low availability of resources for the programmes compounded by the fact that many hard-core poor groups are 'hard-to-reach', the second one emerges both from the practice of multiple criteria for selection and the compulsion of socio-political factors which make them 'hard-to-avoid'.<sup>36</sup>

While this is a difficult problem and requires appropriate balancing of efficiency and equity considerations, the problem may somewhat be reduced by adopting a more restricted targeting criteria. For instance, occupation (e.g. casual labour as the main occupation), household status (e.g. widow or abandoned women headed households), and housing condition (single room with fragile/low quality structure) may be considered for eligibility in participation in public works programmes. The hard-core poor can probably be better targeted by adopting an overlapping common set that satisfies the above (or similar) criteria.<sup>37</sup> In such a case, since the indicators are likely to involve 'mean-testing' (rather than 'self-targeting'), several well-known targeting problems could be relevant e.g. incentive problems (non-poor might have the incentives to include); measurement errors (distant possibility of perfect matching between indicators and real-life gradations in poverty); and adverse political economy (e.g. real danger of capture of benefits by local elites and pressure groups). These are practical problems and can only be overcome through institutionalizing participatory processes and greater information sharing at the local level. A strengthened and functioning participatory local government structure is a pre-condition for providing a sustained basis in reducing mis-targeting in public works programmes in the country.

Another important targeting issue of the public works programmes relates to regional (or geographic) targeting. In the case of RD programmes (under which most of rural infrastructure programmes are implemented), allocations to each upazila are made on the basis of the Resource Allocation Map developed by the Planning Commission and WFP in

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<sup>35</sup> Several studies are available which document the nature and extent of the problem. See Osmani and Chowdhury 1983, Chowdhury 1983, Hossain and Akash 1993.

<sup>36</sup> For instance, within the selection criteria, a widely accepted requirement is to have ownership of less than 0.5 acre of land. But the requirement may not be sensitive to hard-core poverty and may contain many moderate poor and even non-poor households as well.

<sup>37</sup> While the conventional landownership indicator (e.g. less than 0.5 acre) may not be very relevant to identify the hard-core poor, a two-stage procedure may be adopted where, in the first stage, landownership may be applied for preliminary screening. In the second stage, specific criteria (e.g. occupation, gender and housing condition) may be used to identify potential participants.

1995.<sup>38</sup> Under the Map, the upazilas in the country are classified into four categories in terms of food insecurity: very high, high, moderate and low, and geographic targeting explicitly allocates more resources in areas with greater need. A better geographic targeting of rural infrastructure programmes is necessary for which several avenues may be explored. Along with improving the proxy criteria currently used to identify regions with higher poverty, further disaggregation below the upazila level (e.g. unions) should be considered since evidence suggests considerable variations within upazilas in both poverty and infrastructural stock (Ravallion and Wodon 1997).<sup>39</sup> Public works programmes can be made more effective if more resources are directed to areas with low infrastructural facilities. Since assisting the poor is a central objective, the use of spatial poverty map in combination with GIS mapping of rural infrastructure can pay high pay-offs in improving geographic targeting of infrastructure programmes.

### ***5.1.2 Targeting Labour-based Infrastructure Programmes***

The labour-based infrastructure programmes are broad-based at the community level with prime objective of providing improved infrastructural facilities in rural communities. In the process, labour-based techniques are adopted to enhance their poverty reduction impact. While poverty reduction is not the principal objective of these programmes, it is worthwhile to examine how well the targeting criteria work in channeling benefits to the poor.

In targeting of labour-based infrastructure projects, the selection process plays a critical role. In case of infrastructure investments, the Upazila Development and Coordination Committee (UDCC) prepares the list of desired investments in each union and establishes the priorities. A major constraint, however, is the lack of trained local representatives in performing the required planning tasks.<sup>40</sup> For rural roads, the system is rather complex. The rehabilitation of feeder roads is planned centrally (FRAs by the RHD and FRBs by the LGED) while other rural roads come under the jurisdiction of local authorities. In the process, the responsibilities are not clearly delineated particularly since many roads cross boundaries of local units. Although the District Coordinating Committees (DCCs) and UDCCs are responsible for such coordination, it remains to be fully achieved. In order to demarcate clear responsibilities, some re-organization of the roles of different agencies may be considered. While RHD may be made responsible for construction and maintenance of national and regional highways, the construction and maintenance of FRAs, RFBs and R1 may be carried out by LGED. The remaining two categories (R2 and R3) may be transferred to the management of upazila and union parishads.

In contrast to the self-targeting mechanism of the conventional public works programmes, the means of targeting of labour-based infrastructure projects include different forms of community participation in the choice of beneficiaries. The formation of LCSs and similar other groups along with active involvement of local government institutions, NGOs and other community organizations, to a large extent, help achieve the targeting goals in these

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<sup>38</sup> A composite index is used based on several criteria e.g. incidence of natural disasters, foodgrain deficit/surplus, agricultural wage rate, proportion of households not owning land, proportion of unemployed persons, proportion of widowed/divorced/separated women, and proportion of literate women.

<sup>39</sup> Some recent evidence on targeting performance of FFE programme suggests that most of the overall pro-poor targeting of the programme has been due to pro-poor targeting within villages. Geographic targeting across unions contributed less to overall targeting performance than intra-village targeting. See Galasso and Ravallion 2000.

<sup>40</sup> Recently, LGED with the assistance of the Rural Employment Support Programme-Institutional Support Project (RESP-ISP) and a UNDP/ILO project has developed tools including maps and upazila/union plan books for use in training elected local representatives.

projects. Despite the fact that ‘fair’ wages are paid to the participants, involvement of the community organizations and adoption of objective criteria and a well-defined set of rules and procedures act as a satisfactory screening mechanism to exclude unintended beneficiaries. The experience of LGED, in the above context, brings out an important lesson: the adoption of a participatory process and active involvement of concerned stakeholders along with a transparent and pragmatic selection process can be effective in reaching direct benefits of infrastructure programmes to the poor even if no explicit targeting mechanism is adopted. The model of LGED highlights the gain that could be achieved by involving community-level stakeholders based on comparative advantage. The choice set includes several options e.g. NGOs, local government institutions, community organizations, private sector, support organizations (e.g. groups and cooperatives) and coalitions. The formation of a broad coalition at the community level, to a certain extent, counterbalance the conflicting claims of potential winners and losers of infrastructure interventions. This also has other spillover effects. The operations and maintenance of infrastructure facilities become easier to sustain through partnership with community organizations (e.g. road or water users associations). Under the system, local coordination role is generally assumed by the local government institutions which help them to emerge as change-agents at the grassroots level.

## **5.2 Scale and Programme Coverage**

According to the preliminary results of the 2000 Household Income and Expenditure Survey, nearly 50 per cent of the population in the country are poor and around 34 per cent are extremely poor. Given the estimated population of nearly 131 million in 2000, this translates into 65 million living in poverty out of which 44 million live in extreme poverty. The vast majority of both the poor and the extreme poor live in the rural areas.

Given such vast numbers, the level of coverage of the poor, despite rapid expansion of different targeted programmes, is necessarily low and inadequate. Although no precise estimates can be given, it is generally held that only about half of the poor in rural areas have so far been brought under the microcredit net. A related concern is the fact that most of the poor who remain excluded from the microcredit programmes are those who belong to extreme poor groups, known as hard-core poor. Three major factors of such exclusion may be identified:

- **Weak comprehension of the process of poverty**  
Despite recognition of the multi-dimensionality and heterogeneity of the poor, the microcredit programme design largely reflects a uniform understanding of poverty without much reflection of poverty contexts at the micro level and associated needs, aspirations, motivations, survival strategies and self-perceptions of the poor. These factors, however, are critical in designing development needs of the hard-core poor;
- **Self-exclusion due to mis-match between priorities and offered packages**  
A large part of the hard-core poor self-exclude themselves from microcredit services due to mix of programme components not commensurate with the hierarchy of their priorities and/or inconvenient terms at which these are provided; and

- **Deliberate exclusion by the providers**

Certain segments of the hard-core poor are deliberately not targeted by the microcredit providers because of their 'unattractiveness' in terms of service provision e.g. low absorptive capacity, a perception of their inability to manage microcredit services, difficulties in achieving measurable impact and meeting performance targets.

As a result, despite wider geographical coverage of the microcredit net, the hard-core poor generally remain un- and/or undercovered. This results in too thin an intensity of coverage in programme areas to generate effective community gains and macro-linkages.

In view of the limitations of the microcredit approach, rural infrastructure programmes (both public works and labour-based ones) provide a strategic focus in reaching the hard-core poor in rural areas. The approach of the programmes, whether through self-targeting or community-based methods of indicator targeting, provides avenues that combine current income generation (by giving wage employment) with opportunities of asset accumulation. Since the overwhelmingly important concern of the hard-core poor is income poverty for which they need immediate access to income to purchase food and other basic necessities, these programmes fit well with their strategic needs. The entry points of the programmes, particularly of the labour-based programmes, are also flexible to suit their priorities.<sup>41</sup> Further, what is important in these programmes to stress is their ability to bridge two 'missing links' at the meso-level: first, macro to micro transmission mechanisms (e.g. infrastructure benefits cannot percolate to the communities due to absence of networking of 'quality' rural roads); and second, constraints in scaling-up of micro-efforts (e.g. marketing and technology dissemination channels do not exist or benefit the poor to bring viability in micro-activities). In a major way, the role of labour-based infrastructure programmes is that of gap filler, capacity builder, balance maker and promoter generating significant multiplier impact of both macro and micro level interventions along with providing employment for the hard-core poor.

Despite such positive roles, the physical coverage of infrastructure programmes, as we have noted earlier, is yet to meet critical requirements as evidenced by existing large stock of 'poor' infrastructure facilities and strategic gaps in infrastructure network. This indicates the large potential that exists in the country for scaling-up such programmes.

One obvious reason for incomplete coverage is, of course, the limited availability of resources for rural infrastructure development. Unless more resources are allocated, programme efficiency is increased and leakages are addressed, it would be difficult to increase the scale of operation of the programmes. However, even if the scales are increased and targeting efficiency improved, a question arises as to whether the poverty reduction objective is best served by allowing the poor to participate in existing programmes. The issue here is the adequacy of return from participation in wage based activities of the infrastructure programmes. On principle, public works programmes (which are self-targeting) offer wage rates somewhat below the market wages and labour-based infrastructure programmes provide wages consistent with the market. There is evidence, however, that, in both cases, there are

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<sup>41</sup> It needs to be emphasized here that these programmes may not be suitable for all groups of hard-core poor. For instance, for those who are aged, infirm, and subject to specific disadvantages and vulnerability, coverage under income transfers and safety nets is necessary along with support services to promote selective skills appropriate to their conditions. Depending upon specific contexts, programmes that combine relief with credit (e.g. VGD) and guaranteed employment (e.g. RMP) are also needed to supplement infrastructure programmes.

substantial leakages and the participants do not receive their full entitlements.<sup>42</sup> In any case, the overall poverty status of the participants undergoes very little change from participation in such programmes although some amelioration of the extreme deprivation is achieved. The issue is a source of considerable debate as to whether it is better to maximize coverage at low wages or to guarantee that at least some of the targeted poor are provided with a socially acceptable income level. Although a case for wide coverage can be made, poverty measurement issues seem to play a major role in the choice of a particular option (Ravallion 1990). Given that the prevalence and severity of poverty amongst the landless wage labourers is a major problem, the argument in favour of wider coverage is probably more tenable in Bangladesh.

### **5.3 Infrastructural Development Impact on the Poor**

The rural infrastructural development in a country like Bangladesh, where infrastructure limitations severely restrict economic activities, has significant potential benefits. The impact of rural infrastructure (particularly of rural roads) is well-documented although the available studies do not provide enough information on impact of developing rural infrastructure on poverty reduction *per se*. Many of the important issues relating to poverty reducing role of rural infrastructure will, therefore, remain unanswered in the present review due to lack of information from secondary sources.

In general, the benefits of rural roads are many. In addition to direct employment, rural roads can influence poverty by creating new employment opportunities (especially in the non-farm sector) as well as changing input and output prices. Improved access can encourage the cultivation of value-added products thereby increasing crop employment and profitability and exerting favourable influence on crop diversification. Some early evidence suggests that there is a profound effect of infrastructure on the incomes of the poor (Ahmed and Hossain 1990). The poor (e.g. functionally landless and small farmers) gain a larger share of increased income from crops, wages, livestock and fisheries while the non-poor (e.g. large landowners) benefit mostly from business and rural industries. Similar results, indicating significant positive effect of all-weather roads and electricity are reported in the mid-1990s (Sen 1996, 1997). The message from these studies is clear: better infrastructure not only influence the level, but also the growth rate of rural incomes. The development of rural infrastructure is a key element in any poverty reduction strategy in Bangladesh and investments in rural roads is a catalyst of poverty reducing rural growth.

#### **5.3.1 Impact on Rural Wages**

An indirect way of capturing poverty impact of rural roads is to use rural wages as a proxy for poverty monitor. In household income, wages form the most important element for the poor and some evidence suggests that wage income constitutes about 35-40 per cent of annual income earned by the extreme poor households (Hossain 1995). A survey conducted

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<sup>42</sup> The issue of leakages in infrastructure programmes has been widely studied in Bangladesh. Two major sources of leakage have been highlighted: under-payment to the workers and padding of the volume of work to be done. In 1982, total leakage was estimated to range between 24 and 29 per cent. See Hossain and Akash 1993. A recent study of both LGED and FFW programmes indicate that leakage exists and it is sizeable. The main source of leakage is underestimation of the amount of work done and overestimation of the resources needed and used to carry out the work. The wage received by the worker and the amount of leakage depend on economic conditions of locations. In labour based projects, the workers are usually paid at prevailing wage rates in the area. The PICs and the Sardars do not pay the workers according to the wage rate specified in the work norm especially if the norms are expressed in kind and resulting wage rates deviate from local market conditions. See del Ninno 2000.

in 1998 shows that the wage impact of rural roads is positive with favourable effect on rural wage rate in roadside villages compared to interior ones: 13.3 per cent during *boro* paddy harvest, 10.2 per cent during *boro* paddy transplantation and 9.1 per cent during the week of field survey. This has been true for majority of the villages (ADB 2000).

### **5.3.2 Public Works Programmes**

The direct impact on income of the poor from public works programmes is given by two parameters: amount of employment available per person and the wage rate. As we have noted, reliable estimates on both are not available. The available estimates of total number of beneficiaries rely primarily on macro data on total disbursement in conjunction with entitlement per beneficiary under programme guidelines. According to the 2000 Household Income and Expenditure Survey, nearly 68 per cent of the villages are covered under the Food for Works Programme. Disaggregated information on extent of employment are not available though one gets an estimated employment of 110 million person-days during 1997/98 and 1998/99 under the Infrastructure Development Programme of the Ministry of Local Government, Rural Development and Cooperatives (Planning Commission 2000).

A related, but probably more important from the poverty reduction point of view, issue is the sustainability of the incomes generated through infrastructure programmes. This has several elements e.g. do the programmes combine any skill development efforts so that the poor can pursue profitable activities after the programme is over; do the programmes create assets to which the poor have access; do the infrastructure (e.g. rural roads) contribute to a pro-poor growth process; and similar concerns. The available evidence, however, is too scanty to draw any specific conclusions. No doubt, compared to other targeted programmes, public works programmes have less social development inputs but the indirect benefits of infrastructure development could be large. A major contribution is its impact on the labour market as a whole. Given the high rates of un- and underemployment, these programmes create some stabilizing impact on the local labour market and contribute to ensuring a 'floor' to the wage rates of unskilled labour. The public works programmes in lean seasons have a positive effect on stabilizing rural wages and reducing seasonal fluctuations due to variations in labour demand in the rural economy. This is particularly evident in short-term relief and safety-nets role of the programmes in response to variations in food prices and employment opportunities in rural areas. Traditionally, two lean seasons exist in Bangladesh: the January-March period and the September-October period which are related to the agricultural crop cycle in the country. The FFW programme provide employment opportunities and wages in kind (mostly wheat) precisely to help the poor households cope with the first lean period. And some empirical studies suggest that FFW wages do contribute to increased foodgrain consumption among the beneficiaries (Osmani and Chowdhury 1983). It may, however, be pointed out that the stress of the first lean period has somewhat dissipated over the last two decades due to rapid increase in *boro* rice and wheat cultivation (Dorosh and Haggblade 1995). This has lowered food price fluctuations and created employment opportunities thereby reducing the stabilization role of FFW to a certain extent. The second lean season, however, is still acute and infrastructure programmes during the period contribute considerably to mitigating the food insecurity and unemployment problems of the extreme poor. This re-emphasizes that public works programmes – duly targeted to specific regions, in particular months, and towards particular vulnerable groups – can contribute significantly towards helping the poor in getting access to food and income.

### 5.3.3 *Labour-based Infrastructure Programmes*

At the project level, several impacts of LGED's infrastructure development have been noted.<sup>43</sup> A significant direct impact is, of course, the immediate cash income from participation in project activities. Although it is difficult to quantify the extent of income of wage labour from rural infrastructure projects, this may well be in the range of 12 to 18 per cent of total project cost.<sup>44</sup> This indicates the existence of a wide scope for increasing the labour intensity (and hence the wage bill) through adjustments in technologies without compromising on quality and efficiency. In addition, improvement in infrastructure reduces cost and effort of transport and marketing, increases farm gate prices, facilitates access to modern inputs and services. Several studies are available which indicate strong links between rural infrastructure expenditure (or stock of infrastructure) and changes in income and quality of living in rural areas.<sup>45</sup> We shall highlight here only few of them. The study by Ahmed and Hossain (1990), based on a pilot survey of 129 villages, reports that 'developed' villages with respect to transport infrastructure have several benefits over 'underdeveloped' villages:

#### **A. Agricultural Benefits**

- ♣ Fertilizer prices lower by 14 per cent;
- ♣ Wage rate higher by 12 per cent;
- ♣ Land under irrigation more by 105 per cent;
- ♣ Fertilizer use higher by 92 per cent;
- ♣ Agricultural labour use higher by 4 per cent;
- ♣ Technical efficiency in input use higher by 24 per cent.

#### **B. Income and Employment Benefits**

- ♣ Agricultural labour by landowners lower by 3-13 per cent;
- ♣ Agricultural labour by landless increases by 33 per cent;
- ♣ Supply of non-agricultural labour higher by 30 per cent;
- ♣ Landless women in labour force more by 100 per cent;
- ♣ Household income from crops higher by 24 per cent;
- ♣ Household income from livestock and fisheries higher by 78 per cent;
- ♣ Household income from business higher by 17 per cent.

Socio-economic impact studies of specific road infrastructure development projects of LGED (e.g. RDP-14, RDP-13, RDP-7) indicate significant effect on employment and income, prices of agricultural products, transport charges, volume of traffic as well as land prices (World Bank 1996). Similarly, development of rural markets and growth centres reveals positive

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<sup>43</sup> The available studies on LGED's labour-based infrastructure programmes mostly deal with impacts of rural roads although other infrastructure programmes e.g. irrigation, rural schools and other construction works also have substantial impact on rural poverty. The performance of small irrigation projects, implemented by LGED, is better than the large surface water irrigation systems. These provide better access for the poor farmers to improved water regimes to increase their productivity and incomes and generate pro-poor irrigation interventions.

<sup>44</sup> An adequate analysis requires detailed examination of specific project costs which would vary significantly with types of project. Some indicative analysis of LGED data reveals that about 20 to 25 per cent of civil work costs constitute wages to local unskilled labour. With civil engineering cost accounting for 60 to 70 per cent of total project cost on an average, one may come up with a figure of 12 to 18 per cent as the share of local wage payments in total project cost. This indicates that for every Tk. 1 expenditure in LGED's rural infrastructure, about Tk. 0.12 to Tk. 0.18 accrues as income to local labour. While the above share is for LGED project portfolio as a whole, on rural roads, the wage share could be somewhere between 35 and 50 per cent. It is generally lowest on buildings (about 20 per cent) and highest on soil and water conservation and afforestation (upto 80 per cent).

<sup>45</sup> For details on available studies, see World Bank 1996.

benefits e.g. increase in number of transactions, and permanent and temporary shops; higher market lease value and toll collection; reduction in spoilage; and increase in market turnover.

### **Growth in Rural Traffic**

In Bangladesh, although length of rural roads has not increased much, road traffic has increased at a fast rate in recent years. This is particularly true for non-mechanized transport modes (e.g. bicycle, bullock-cart, rickshaw, rickshaw-van) which are more adaptable to rural road conditions.<sup>46</sup> These provide considerable employment in rural transport services and investments in these vehicles have emerged as attractive with good returns. The emerging trend has been to switch from bullock carts and head-loading to rickshaw vans and mechanized transport modes as a road is transformed from earth to paved surface.

Some available evidence may be cited to show the extent of changes in different modes of transport due to road improvement. The average daily traffic in number of vehicles and pedestrians on typical FRB roads before and one-year after improvement (for a sample of 12 project roads under RDP-7) indicates considerable increase in both motorized and non-motorized modes, but more significantly for motorized ones (Table 5.1). The same sample of 12 roads also revealed substantial increase in average volume of traffic in passenger kilometer and ton kilometer before and after road improvements: 71 per cent in freight and 174 per cent in passengers. A more significant change, however, was the shift between motorized and non-motorized modes. On earth road, the share of motorized modes was 45 per cent for freight and 12 per cent for passengers which increased to 73 per cent and 39 per cent respectively after these were developed into paved roads. Similar results have also been reported in other projects (e.g. traffic increase of about 200 per cent for goods and 100 per cent for passengers in RDP-6 in Manikganj). In short, the development of paved roads is akin to a major social event in rural areas leading to increased communication, economic activities, and opening up of new opportunities.

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<sup>46</sup> In particular, the rickshaw-van (a variation of cycle-rickshaw adapted to carry small loads up to 400kg and frequently passengers) is a very flexible form of transport and has become very popular in rural areas due to expansion of road network.

**Table 5.1****Annual average daily traffic on FRB road**

(No. of vehicles/pedestrians)

<b>Type of Vehicle</b>	<b>Before Development (Earth Road)</b>	<b>After Development (Paved Road)</b>	<b>% change</b>
<b>A. Motorized</b>			
Auto rickshaw	4	9	125
Jeep	2	3	50
Motor cycle	32	84	163
Pickup- van	2	5	150
Bus	0	15	...
Truck	11	19	73
<b>B. Non-motorized</b>			
Bicycle	404	1046	159
Bullock cart	91	33	-64
Rickshaw	49	226	361
Rickshaw-van	114	314	175
<b>C. On-foot</b>			
Pedestrians with head - load	410	592	44
Pedestrians without head- load	736	1530	108

Source: World Bank 1996.

**Variations in Transport Charges**

The economic benefits of road improvements are evident in large variations in transport charges by road surface: average road charges per unit movement are the lowest for bitumen surface (BC) roads and highest for earth roads (Table 5.2). The benefits become more evident with the usual shift from bullock carts and head loading to rickshaw vans and trucks following road improvements. It is also significant to note that, for the same mode, transport charges decline with smoother road surfaces. On earth roads, average per unit charges are the highest for all modes indicating low efficiency of transport services.

**Table 5.2**  
**Average transport charges by surface type**

Type of Vehicle	BC		HBB/WBM		Earth	
	Range	Mean	Range	Mean	Range	Mean
<b>A. Goods: Tk./ton km</b>						
Truck	2.04-7.33	4.66	4.16-13.41	7.09	7.68-20.00	13.84
Rickshaw/van	8.24-30.00	17.62	12.66-35.84	20.91	21.27-30.09	25.68
Bullock cart	17.09-29.90	22.46	16.87-50.00	26.07	17.16-42.18	32.30
<b>B. Passenger: Tk./passenger km</b>						
Bus	0.31-0.55	0.43	0.41-0.72	0.54	1.25	1.25
Auto-tempo	0.28-1.20	0.75	1.87-2.78	2.32	-	-
Rickshaw/van	0.54-1.11	0.80	0.69-1.66	1.06	1.21-2.79	1.62

Note: BC – bitumen surface road, HBB/WBM – herring bone brick/water bound macadam road, Earth – earth surface road.

Source: DDC 1995.

### **Employment Generation under LGED Projects**

The available evidence indicates significant employment generation capacity of LGED's infrastructure development programmes. In particular, two major types of direct employment opportunities for the rural poor and destitute women are generated:

- **Employment in construction activities**  
During construction of infrastructure, the majority of employment is created for unskilled and/or semi-skilled labour (both male and female) who are usually poor.
- **Employment in maintenance and tree plantation**  
A somewhat more stable employment is generated for groups of destitute/disadvantaged women who are engaged in carrying out routine maintenance of embankment slopes and earth shoulders of roads and plantation/caring of trees. Moreover, these women are given training and social development inputs for undertaking income generating activities.

According to LGED, 63 million person-days of employment were generated from its programmes in 1995/96 which increased to 110 million in 2000/01 (Table 5.3).<sup>47</sup> In addition to direct employment, indirect employment generation in several areas is likely e.g. road

<sup>47</sup> Although the yearly data on person-days of employment generated by LGED programmes provide some indication of the growth in coverage, the figures do not reveal the coverage in relation to the extent of the problem of poverty. Some crude indications may, however, be given. During 1999, the total number of rural poor is estimated at 42.4 million which translate into around 8.5 million households assuming an average household size of five. With 102 million person-days of employment created by LGED, the average employment per rural poor household comes to 12 days during the year. If one could have the information on the number of poor households in the regions covered by the LGED programmes, the average would be higher and perhaps closer to real average employment per household generated under LGED programmes. Although there are other targeted employment programmes for the poor, this points to the extremely limited availability of employment opportunities for the poor in the country.

transport, trading activities in growth centres, farm and non-farm activities for which quantitative estimates are difficult to arrive at.

**Table 5.3**  
**Estimated employment generation by LGED**

(million person-days)

Year	Rural Infrastructure Development			Urban Infrastructure Development	Infrastructure Development of other Ministries	Total
	Construction	Maintenance	Total			
1995/96	51.2	7.8	59.0	3.8	...	62.8
1996/97	60.3	11.0	71.4	5.7	...	77.1
1997/98	56.1	7.6	63.7	5.0	10.0	78.7
1998/99	57.6	15.9	73.5	5.5	12.5	91.5
1999/00	63.5	17.5	81.5	6.0	15.0	102.0
2000/01	65.0	20.0	85.0	7.5	17.5	110.0

Source: (LGED 2001.)

While the above indicates substantial socio-economic impact of infrastructure, that the quality of rural infrastructure is important can be assessed from a recent study (World Bank 1996). The study examines the association between agricultural productivity and rural infrastructure supply at the macro-level using a regression model. The study reports positive and significant correlation of the percentage of paved roads and roads in good condition with agricultural production. The regression model suggests that a 10 per cent increase in the density of paved rural road is associated with a 0.5 per cent increase in agricultural productivity while a 10 per cent increase in the density of good roads with almost 1 per cent increase in agricultural productivity. The link of rural infrastructure to agricultural productivity is significant for Bangladesh since at the present stage of development of Bangladesh agriculture and, given the resource availability, the priority is to ensure agricultural productivity growth which is a key factor for poverty reduction and food security. With higher productivity, real food prices will decline thereby addressing one of the major concerns of the poor. The decline of rural poverty in the 1990s appears to owe a great deal to higher agricultural growth achieved during the period. The important message is that, with a large rural road network in Bangladesh, it is the condition of roads and not its stock that is more relevant in increasing rural productivity in the country. What is important is to maintain and upgrade the existing network and its selective expansion to fill the critical gaps.

## **Chapter 6**

### **Summary Findings and Conclusions**

A significant aspect of Bangladesh's growth process which needs greater attention in poverty alleviation is the continuing failure of employment creation to keep pace with increase in labour supply. As a result, a large share of the labour force, mostly rural and unskilled, is forced to subsist in the informal sector, remain underemployed, and live in absolute poverty. While anti-poverty and employment-oriented growth that increases income opportunities for the poor in both rural and urban areas needs acceleration, several direct interventions can make the process more employment friendly in the short run. One such intervention is public works and other labour-based rural infrastructure development programmes. Although the objective of short-term relief is strong in public works programmes, measures of sustained development for the poor are emerging as important elements in these programmes. The labour-based infrastructure programmes, on the other hand, represent cost-effective investments which highlight several economic characteristics e.g. appropriate employment practices and standards in hitherto unorganized rural infrastructure works, economize on wasteful use of scarce resources, enhance poverty alleviating role of physical infrastructure, promote better management and use of locally available resources, and increase employment opportunities for the poorest segments of the rural population.

#### **6.1 Labour-based Rural Infrastructure Programmes: Issues and Challenges**

The labour-based rural infrastructure programmes have a long tradition in Bangladesh. These programmes are well-known for being appropriate methods of building rural infrastructure and creating essential physical assets for the rural communities. Moreover, as opposed to the public works programmes which focus more on creation of seasonal employment and certain welfare facilities for the rural poor along with expansion of rural production and marketing through small infrastructure construction, a new generation of labour-based infrastructure programmes has emerged which highlight provision of basic services aiming at sustained rural growth through productive use of infrastructure assets.<sup>48</sup> While these are laudable attempts and evidence from evaluation studies points to their positive impact on targeted beneficiaries, some broad inferences with respect to their poverty reduction impact can be drawn. First, the scale of operations of the programmes, both in terms of resource allocation and coverage of the target population, is rather small compared to the extent of the problem that exists in rural Bangladesh. Second, the poverty alleviating role of the programmes in terms of adequacy and sustainability of income seems to be limited as against their success in simply reaching the hard-core poor. It may be pointed out, however, that such limitations of the programmes arise not due to their overall design rather due to their inadequate depth in relation to the sheer magnitude of hard-core poverty in the rural areas.

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<sup>48</sup> Similar cost-effective methods of employment promotion in urban areas, particularly through rehabilitation works in essential areas e.g. road improvement, drainage, solid waste management, repairs of water supply systems and other community work, can be effective in contributing towards improved living standards of the urban poor.

A major issue which remains somewhat less addressed in these programmes is their cost-effectiveness. While the urgent compulsion of employment creation has significant social benefits, the expansion in scale and viability of these programmes needs to be judged against opportunity costs of the resources in alternative employment generation. This requires systematic cost-benefit evaluation although such evaluation is difficult to arrive at due to indirect nature of many elements of costs and benefits of these projects. Nevertheless, despite the relatively less capital-intensive nature, a comparative analysis of alternative approaches to rural employment creation is necessary to identify desirable options. Along with less capital-intensity of job creation, one needs to weigh the level and transitory nature of income/employment generation through labour-based infrastructure programmes vis-à-vis other options.

## **6.2 Some Concluding Remarks**

Within the challenge of achieving high and equitable growth that Bangladesh faces, employment creation with a decent level of income for the growing labour force is a major component. In the rural areas, labour-based infrastructure programmes have over the years emerged as important element of providing employment to the poor in difficult times along with creating growth-enhancing rural assets. It is evident, however, that the need for such programmes emanate largely from the failure of the growth process to address critical needs of the poor and the political expediency to bypass the causal issues and mitigate the symptoms of poverty. Despite such roots, the labour-based infrastructure programmes have undergone significant evolution over time to establish considerable merit as growth-enhancing and poverty reducing actions in rural areas. A wide consensus now exists that well-designed, well-executed and well-targeted infrastructure development programmes can significantly improve the welfare of the poor.

In order to exploit the potential, it is important, however, to emphasize macro and micro-level interactions and scope of maximizing direct and indirect employment multipliers of infrastructure development. In the process, several operational issues are involved and it is important to address them in planning and implementation of rural infrastructure programmes. One significant element in implementing labour-based infrastructure programmes is the close interactions that are needed between the central and local government institutions. As we have noted, a proper decentralization of the design and management of rural infrastructure schemes has far-reaching implications on cost-effectiveness, maintenance, and sustainable generation of expected outcomes. In this context, the labour-based infrastructure programmes may adopt a strategic difference between two types of infrastructure in rural communities. The rural infrastructure programme (e.g. those implemented by LGED) could focus on provision of basic economic and social services at local administrative levels within the 'formal' channel. The collaboration of different agencies, as is currently practised, could be expanded for which the institutional framework and sharing of responsibilities could be further sharpened based on experience and examples of 'good practice'. The infrastructure under public works programmes, on the other hand, could be directed to creating community assets in response to demand by, and for the benefit of, local communities. The overall responsibility of local level institutions could be strengthened along with inclusion of elements of self-help by the communities.

The issue of sustainability of rural infrastructure programmes needs to be viewed from several dimensions. As we have noted, socio-economic, institutional, technological,

environmental and other related considerations have significant implications in ensuring sustainability of both employment promotion and flow of benefits of created structures. It is important, however, to adopt a clear distinction between public works programmes which aim primarily to generate short-term employment (e.g. FFW) from the LGED's programmes with longer-term development goals. In the former, the priority is to provide short-term employment for the poor. As a result, the creation of productive assets and concerns of sustainability and related issues remain relatively low on the programme agenda. Moreover, the provision of lean-season employment, in most cases, does not transcend beyond the concept of palliative relief with limited contribution to help the poor to move out of intergenerational poverty. The latter approach, on the other hand, represents a concern to adopt labour-based technology in a situation where it is cost-effective, efficient and can be used while ensuring output standards. The implementation of labour-based programmes, moreover, requires adoption of new technical and innovative managerial capacities. Such characteristics differentiate LGED, for example, from other public sector agencies. These programmes also point the way to more sustainable systems and working methods for adoption in other sectors as well.

In Bangladesh, there are reasons to emphasize the adoption of labour-based approach to rural infrastructure development. As emphasized in the present review, the lack of infrastructure and/or its dilapidation remains a major obstacle to rural growth which also constrains the effective functioning of rural labour markets. At the same time, infrastructure is one of the major sectors where construction, rehabilitation and maintenance works account for a large share of the Government's budget. With a wide range of substitution possibilities, the adoption of labour-based techniques in rural infrastructure can lead to significant employment generation as well as macroeconomic benefits and linkages. If well-planned and well-executed, these can contribute to both growth and poverty reduction objectives at costs which are unlikely to exceed those of conventional investment options. The fact that many rural infrastructure development programmes in the country have been criticized for their inability to provide expected benefits is certainly not an argument against such projects. This points to the need to devise and implement infrastructure projects that have better capacity to reach the poor, better ability to ensure both immediate and future benefits to the target groups, and can adopt better techniques and mechanisms to involve the beneficiaries and institutions in these programmes. The feature of rural infrastructure programmes that needs to be highlighted is that these are public programmes that typically generate public goods through labour-based means and be treated as investments with prospective returns which should ensure better use than alternative options.

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