

THE WORLD BANK

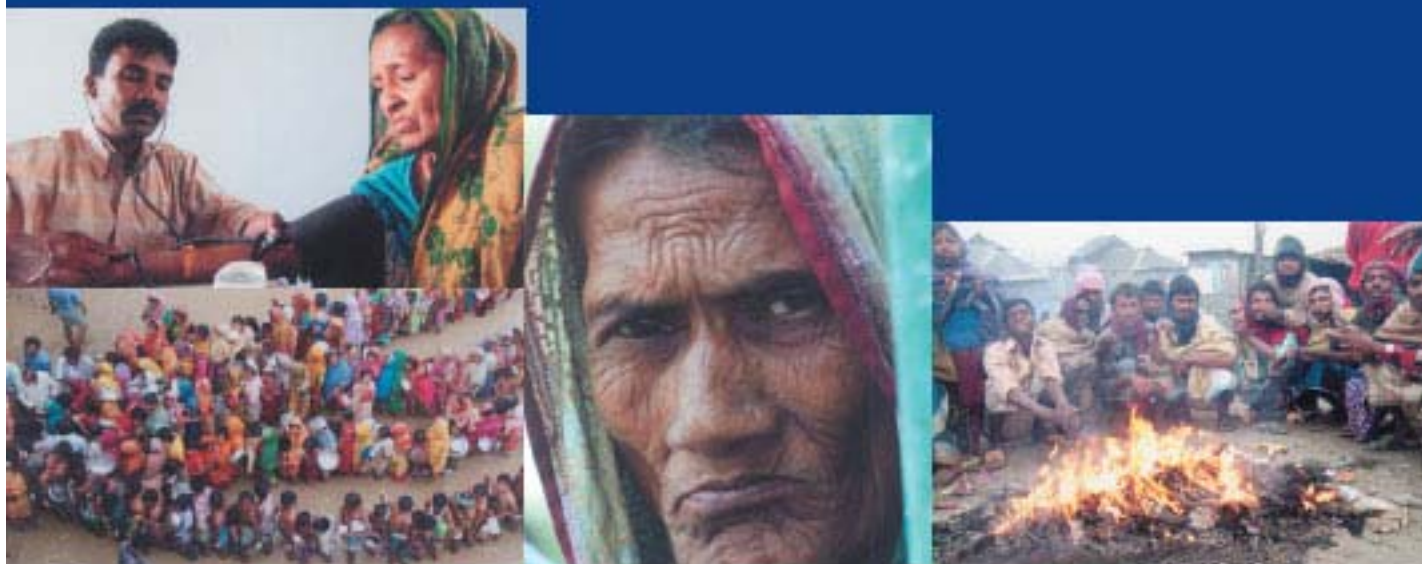
# BANGLADESH

## Development Series



South Asia Human Development Unit

# Targeting Resources for the Poor in Bangladesh



# **Targeting Resources for the Poor in Bangladesh**

*Bangladesh Development Series – paper no. 5*

**The World Bank Office, Dhaka  
December 2005**

[www.worldbank.org.bd/bds](http://www.worldbank.org.bd/bds)



**Document of the World Bank**

**Disclaimer:**

This volume is a product of the staff of the International Bank for Reconstruction and Development/ The World Bank. The findings, interpretations, and conclusions expressed in this paper do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

**Copyright Statement:**

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/ The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, <http://www.copyright.com/>.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail [pubrights@worldbank.org](mailto:pubrights@worldbank.org).

## **CURRENCY EQUIVALENTS**

Currency Unit = Bangladesh Taka (Tk.)

US\$1 = 65.82 Tk. (November 28, 2005)

## **GOVERNMENT FISCAL YEAR**

July 1 – June 30

## **ACRONYMS**

AC	Area Coordinator
ADB	Asian Development Bank
ADP	Annual development Program
AHI	Assistant Health Inspector
AL	Adult Literacy
BBS	Bangladesh Bureau of Statistics
BIA	Benefit Incidence Analysis
BPHC	Bangladesh Population and Health Consortium
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
CC	Community Clinic
CCT	Conditional Cash Transfer
CER	Combined Enrolment Ratio
CFPR	Challenging the Frontiers of Poverty Reduction
CHS	Community-Based Health Scheme
CTC	Close to Client
DFID	Department for International Development
DG	Director General
DI	Data International Limited
DPA	Direct Program Aid
DWA	Department of Women's Affairs
ESP	Essential Services Package
FGD	Focus Group Discussion
FMAU	Financial Management and Audit Unit
FSPP	Financial Services for the Poorest Project
FSVGD	Food Security for Vulnerable Group Development Women and Their Dependants
FWA	Family Welfare Assistant
GDP	Gross Domestic Product
GOB	Government of Bangladesh
GR	Geographical Reconnaissance
HA	Health Assistant
HCR	Head Count Ratio
HDI	Human Development Index
HDRC	Human Development Research Center
HDRO	Human Development Report Office
HEU	Health Economics Unit
HFP	Health and Family Planning
HIES	Household Income and Expenditure Survey
HIPC	Highly Indebted Poor Countries
HNP	Health, Nutrition and Population
HNPS	Health, Nutrition and Population Sector Program
HPI	Human Poverty Index
HPSP	Health and Population Sector Program
IGA	Income Generating Activities

IMR	Infant Mortality Rate
LE	Life Expectancy
LLP	Local Level Planning
MCH	Maternal and Child Health
MFI	Microfinance Institutions
MMR	Maternal Mortality Ratio
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
MOWCA	Ministry of Women and Children Affairs
MSR	Medical and Surgical Requisites
MSS	Medical and Surgical Supplies
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organizations
NHA	National Health Accounts
NPI	Non-Profit Institutions
NSDP	NGO Service Delivery Program
ODA	Overseas Development Administration
OLS	Ordinary Least Squares
OOP	Out-Of-Pocket
PB	Plan Bangladesh
PCC	Program Coordination Cell
PHD	Partners in Health and Development
PIO	Project Implementation Officer
PKSF	Palli Karma-Sahayak Foundation
PMT	Proxy Means Test
PO	Program Organizers
PPA	Participatory Poverty Assessment
PPP	Public-Private Partnership
PRA	Participatory Rural Appraisal
RED	Research and Evaluation Division
RPA	Reimbursable Program Aid
RSS	Regional Sector Specialist
SAE	Small Area Estimation
SISBEN	System for Selecting Beneficiaries
SMR	Standardized Mortality Rate
STI	Sexually Transmitted Infections
SVRS	Sample Vital Registration System
THE	Total Health Expenditure
TOR	Terms of Reference
TUP	Targeting the Ultra Poor
U-5MR	Under-5 Mortality Rate
UHFPO	Upazila Health and Family Planning Officer
UN	United Nations
UNDP	United Nations Development Program
UP	Union Parishad
USAID	United States Agency for International Development
VGD	Vulnerable Group Development
WFP	World Food Program

Vice President:	Praful Patel
Country Director:	Christine Wallich
Sector Manager:	Anabela Abreu
Sector Director:	Julian Schweitzer
Task Team Leader:	Rafael Cortez

## Table of Contents

<b>Acknowledgements</b> .....	i
<b>Foreword</b> .....	ii
<b>Executive Summary</b> .....	iii
<b>Introduction</b> .....	1
<b>Chapter 1. Health Financing and Equity in the HNP Sector in Bangladesh</b> .....	5
I Health Expenditures and Benefit Incidence Analysis in the HNP Sector.....	5
II Inequity in the HNP Sector: The Current Situation.....	8
<b>Chapter 2. Experiences of Government and Non-Government Organizations</b> .....	15
I. The Government’s Experience.....	15
A. <i>Food Security for Vulnerable Group Development Women and Their Dependents (FSVGD) Project</i> .....	15
B. <i>Palli Karma-Sahayak Foundation</i> .....	17
II. NGO Experience.....	20
A. <i>NGO Service Delivery Program</i> .....	20
B. <i>The CFPR/TUP Program of BRAC</i> .....	23
C. <i>Marie Stopes Clinic Society</i> .....	28
D. <i>Plan Bangladesh</i> .....	31
E. <i>Public Private Partnership Program</i> .....	34
F. <i>Partners in Health and Development</i> .....	36
III Summary.....	37
<b>Chapter 3. Resource Allocation Across Districts and Upazilas</b> .....	39
I The MOHFW’s Existing Method of Allocating Resources Across Districts and Upazilas .....	39
II Analysis of the MOHFW Health Care Resource Allocation by Districts for the Past Two Fiscal Years.....	42
III Review of Existing Human Development Index and Human Poverty Index for Districts.....	45
A. <i>Human Development Index for Districts</i> .....	45
B. <i>Human Poverty Index for Districts</i> .....	49
IV Analysis of Key Human Development Indicators.....	52
A. <i>Analyzing the Suitability of Key Human Development Indicators for Identifying Poor Districts</i> .....	57
V Reviewing the Status, Availability and Suitability of Poverty Map.....	60
<b>Chapter 4. Developing Proxy-Means Formula</b> .....	61
I Review of International Experience.....	61
II Proxy-Means Test: A Model for Bangladesh.....	64
III Indicator Selection Process.....	66
IV Description of Dependent and Explanatory Variables.....	70

V	Application of the Model.....	72
VI	Implementation of the Proxy-Means Testing Method.....	72
VII	Validation of Proxy-Means Testing Method.....	73
VIII	Field Testing of Proxy-Means Method.....	74
	A. Findings.....	76
<b>Chapter 5 Conclusions and Policy Options</b>		<b>79</b>
I	Replicating Design Strategies.....	79
II	Government Resource Allocation.....	79
III	Proxy-Means Test Formula.....	80
IV	Poverty Maps.....	81
V	Proposed Options for Geographical Resource Allocation Mechanisms.....	82
VI	Other Considerations for Geographical Allocation.....	83
VII	Proposed Formula for Resource Allocation.....	84
VIII	Illustrative Steps Towards Implementing PMT in Bangladesh.....	88
IX	Final Remarks	90
<b>Bibliography.....</b>		<b>93</b>
<b>Annexes.....</b>		<b>97</b>
List of Annexes .....		99
Annex I	Questionnaires .....	100
Annex II	Summary of Identification and Targeting Mechanism of Selected Organizations.....	106
Annex III	Instruction Manual for Proxy-Means Test Model.....	109
Annex IV	Application of Proxy-Means Test Model.....	113
Annex V	Multivariate Analysis of Resource Allocation.....	120
Annex VI(a)	Poverty Map by Districts and Upazilas.....	121
Annex VI(b)	Relative Food Insecurity Map by Districts and Upazilas.....	122
 <b>Figures</b>		
Figure 1.1.	Percent Distribution of Total Health Expenditure by Sources of Funding 1999-2000.....	6
Figure 1.2.	Lorenz Curve & Concentration Curves for Public Health Care Utilization, 1999-2000.....	6
Figure 1.3.	Health Indicators, by Economic Status for 1999-2000 and 2001.....	10
Figure 1.4.	Percent of Sick People not Receiving Treatment, by Economic Status.....	11
Figure 1.5.	Utilization of ESP by Income Quintiles.....	11
Figure 1.6.	Delay in Seeking Treatment after Recognizing Life-Threatening Complication Related to Pregnancy, by Economic Status (percent of births).....	12
Figure 1.7.	Cost Cited as a Reason for not Delivering in a Health Facility, by Economic Status (percent of births) .....	12
Figure 3.1.	Rank of Districts by Per Capita Allocations in Two Consecutive Years.....	45
Figure 3.2.	Relation between Per Capita Allocations and HDI among Districts, 2001-02.....	49
Figure 3.3.	Rank of Districts by HDI and HPI.....	50
Figure 3.4.	Relation between Per Capita Allocations and HPI, 2001-02.....	52
Figure 3.5.	Current Per Capita Allocations by Poverty Status of Districts, 2001-02.....	57
Figure 4.1.	PMT Formula: A Schematic Presentation.....	65

## Tables

Table 1.1.	International Comparison of Selected National Health Accounts Indicators.....	5
Table 1.2.	Trends in Health Performance Indicators of Bangladesh.....	7
Table 1.3.	Quintile Shares of Living Standards and Public Health Care Subsidy, 1999-2000.....	8
Table 2.1.	Criteria for Preliminary Selection of Ultra-Poor Beneficiaries.....	27
Table 2.2.	Program-Set Criteria for Preliminary and Final Selections.....	27
Table 2.3.	Levels of Poverty Indicators (Nutrition).....	29
Table 2.4.	Scoring System for Poverty Indicators .....	30
Table 3.1.	Allocation of MSR by Subgroups and Among Facilities.....	40
Table 3.2.	Allocation of Funding to Public Facilities.....	40
Table 3.3.	Comparison of Typical District Hospital and Upazila Health Complex Budgets.....	41
Table 3.4.	Rank of Districts by Per Capita Allocations in Two Consecutive Years .....	42
Table 3.5.	District Level Human Development Index (HDI).....	47
Table 3.6.	Comparison of HDI and HPI for Districts, 2000.....	50
Table 3.7.	District Level Human Development Indicators.....	54
Table 3.8.	Distribution of Per Capita Expenditures by Four Groups.....	57
Table 3.9.	Partial Correlation Matrix between Poverty Index and Indicators by Districts.....	59
Table 4.1.	Initial Model of the Per Capita Consumption Expenditure, OLS Estimates.....	66
Table 4.2.	Results of Technically Optimal Model, Semi-Log Estimates.....	67
Table 4.3.	Results of Selected Regression Model for PMT.....	69
Table 4.4.	Description of the Explanatory Variables Used for PMT.....	70
Table 4.5.	Statistics of Indicators for Lowest and Highest Income Households.....	71
Table 4.6.	Proxy Means Test Result for Two Households from HIES Sample.....	73
Table 4.7.	Distribution of USAID Poor Households Interviewed.....	74
Table 4.8.	Distribution of Error of Exclusion.....	74
Table 4.9.	Distribution of Exit Patients Interviewed by Facilities and Providers.....	75
Table 4.10.	Distribution of Exit Patients.....	76
Table 4.11.	Distribution of Exit Patient by In-Patients and Out-Patients.....	76
Table 4.12.	Distribution of Exit Patients by Type of Facility.....	76
Table 4.13.	Type of Medical Personnel Consulted by Needy and Non-Needy Patients.....	77
Table 4.14.	Percent of Needy and Non-Needy Patients Who Paid Fees.....	77
Table 4.15.	Amount Paid as Fees by Needy and Non-Needy Patients.....	77
Table 4.16.	Payment of <i>Bakshish</i> by Type of Facility.....	78
Table 4.17.	Received Medicines by Type of Facility.....	78
Table 4.18.	Level of Satisfaction by Type of Facility.....	78
Table 5.1.	Existing and Proposed Resource Allocation.....	85
Table 5.2.	A Comparison of Existing and Proposed Resource Allocation.....	86



## **Acknowledgements**

This report was prepared by a team of World Bank staff and consultants. The core team of authors comprised of Rafael Cortez (Task-Team Leader), Farial Mahmud, Ghulam Rabbani, Najmul Hossain, Naushad Faiz, Nazmul Huq, Sharmin Sultana, and Tarana Tasnim.

The World Bank team is thankful to DfID, the European Commission, the Netherlands Embassy, CIDA-Canada, SIDA-Sweden, and KFW for the financing support through the Health Program Support Office (HPSO) and also to the teams from each of these agencies for their collaboration and partnership.

We wish to acknowledge the continued collaboration of the Government of Bangladesh, especially the significant contributions made by dedicated officials of the Government of Bangladesh through the Ministry of Health and Family Welfare's (MOHFW) Health Economics Unit (HEU) team, including: Mr. Md. Jahangir (Joint Chief- HEU), Shamim Ara Begum (Deputy Chief), Ahmed Mostafa (Senior Assistant Chief), Shahjahan Ali Khandaker (Senior Assistant Chief), and Abdul Hamid Moral (Assistant Chief). We also appreciate the support provided by the Directorate General of Health Services (MOHFW), Directorate of Family Planning (MOHFW) and the Bangladesh Bureau of Statistics, for their assistance to the task team in the collection of data with the exit patient interviews in public facilities, and to USAID for making available the data from the Food Security Monitoring Project in order to test the proxy-means formula.

The task team benefited from the guidance of the management team: Anabela Abreu (Sector Manager, SASHD) and Kees Kostermans (Health Lead Specialist, SASHD) and received valuable feedback from all members of the HPSO team in the World Bank, Dhaka office. The team is grateful to Christine I. Wallich, Country Director (World Bank, Bangladesh) for her continuous support during the preparation of the report.

Peer reviewers of the report were: Mansoor Rashid (SASHD), Binayak Sen (PREM), Zahid Hussain (PREM), AArastoo Khan (Joint Secretary, Ministry of Finance), Jahir Uddin Ahmed (Director-Planning, Directorate of Family Planning), Md. Munsur Ali Sikder (Deputy Secretary-Admin., MOHFW), Abdul Hamid Moral (Assistant Chief, HEU, MOHFW), M. Kabir (Jahangirnagar University), and Petra Osinski (ICDDR,B) to whom the team is provided detailed comments to an earlier draft. The team also appreciates the suggestions provided by the participants at the dissemination workshop of the study held in Dhaka, on March 22, 2005.

## Foreword

Bangladesh has been able to sustain high rates of economic growth with considerable improvements in the social indicators over the past two decades, and is well underway in achieving many of the Health Nutrition and Population related Millennium Development Goals. The Government of Bangladesh has also made commendable progress in the HNP sector. Despite these significant achievements, the sector is faced today with a number of challenges.

One of key challenges facing the HNP Sector is that of health inequality, despite increases in the average values for many HNP indicators, the gap in health conditions between the rich and the poor continue to remain high. There is an urgent need to better address the health rights of poor people by targeting consumption subsidies and restructuring resource allocation mechanisms based on population needs and poverty index.

This report reviews several poverty alleviation programs in the public and NGO sector in Bangladesh, and gives valuable information in helping understand the strengths and weaknesses of the methods used for targeting resources to the poor. The World Bank supports the Government's policy objective to improve equity and its decision to focus on the poor by developing strategic options that would allow for optimal use and equitable resource allocation to the poor.

This study has provided crucial inputs in the preparation of the current Health, Nutrition and Population Sector wide Programme -by providing evidence and policy options for the development of an effective tool (*the Proxy-Means*) for targeting the poor *at the individual as well as at the district level*.

The preparation of this report was possible through effective teamwork between the Ministry of Health & Family Welfare (MOHFW) and the World Bank. We congratulate them for putting together this important piece of work which will enable the GoB in developing guidelines and tools to provide quality HNP services to the poor and vulnerable groups in Bangladesh.

Christine Wallich  
Country Director  
World Bank Office, Dhaha

Anabela Abreu  
HNP Sector Manager  
South Asia Region

## Executive Summary

1. One of the Government of Bangladesh's health policy objectives is the development of strategic options that would provide for greater and more equitable resource allocation to the poor. This study provides technical documentation on the status of past and current resource allocations by geographic locations and programs. In addition, it introduces a new approach and techniques for administering a more objective, transparent and easily applicable targeting scheme to deliver subsidies to the poor.
2. The study reviews a number of poverty alleviation programs in the public and NGO sectors, examines the methods and techniques used for identifying and targeting the poor, and defines the strengths and weaknesses of those programs.
3. To select the target groups, each organization/program defines a set of criteria against which the conditions of potential beneficiaries are measured. These selection criteria depend on the type of people to be targeted. The conditions of potential beneficiaries are defined by using a set of socio-economic indicators developed by each reviewed organization/program, usually in consultation with the stakeholders and members of the community in which the program works. To determine the conditions of potential beneficiaries, a survey of households in the program area is typically carried out. The survey can take the form of simple interviews with household heads/members using a questionnaire to elicit socio-economic information, or it can be a participatory rural appraisal (PRA). Once the target groups have been identified, the organization takes steps to target its services towards them, for example by issuing family health cards that enable the family to receive free treatment.
4. The government's budget allocations for health services across districts and upazilas are centrally determined. Guidelines used for allocation are primarily driven by the capacity of the public health facilities and historical norms, rather than by per capita needs. Variations in allocation are not based on health needs or on other objective criteria, such as spatial or district distribution of poverty as indicated by poverty mapping and other indicators of poverty, like the human poverty index (HPI) or the human development index (HDI). An analysis of per capita allocations by districts for two consecutive years reveals that allocations follow somewhat of a random walk pattern.
5. The application of multiple socio-economic and human development indicators, in addition to the per capita criteria, provides policy makers with a menu of objective tools for spatial resource allocation. The analysis concludes that for identifying poor districts, district head count ratio (HCR) is the prime indicator. In its absence, any of the following five indicators that are more readily available by districts can be used as proxy indicators: (a) housing access to sanitary latrine; (b) housing access to electricity; (c) adult literacy; (d) district population density; and (e) demographic burden as measured by burden population.
6. Targeting health care subsidy to the poor will require effective identification of both poor and non-poor households. In any administrative targeting effort, the major challenge facing policy makers is to create a system to identify those households accurately and cost-effectively. To this end, the per capita income of a household can be considered as a measure of its welfare. However, measurement of household income or expenditure requires expensive and time consuming surveys in a poor country like Bangladesh. An alternative method to measure household welfare is to administer a proxy-means test (PMT) formula.

7. The PMT is a scientific technique that has received increased attention as a tool to identify beneficiaries of social programs. Its introduction seems suitable in the case of Bangladesh. The PMT formula generates a score for households based on easy to observe characteristics, such as location and quality of dwelling, ownership of durable goods, demographic structure, and education and occupation of households. Based on an estimated cut-off point of per capita expenditures, individuals interviewed are classified into two categories: (a) the poor who are eligible for the subsidies, and (b) the non-poor who will not be included in the program. In other words, if the calculated per capita consumption is less than or equivalent to the predetermined threshold level, then the individual will be treated as poor. Otherwise he/she will be treated as unqualified for the subsidized/free health care services.

8. The proxy-means test formula has a global proven track record which can be compared with the model developed for Bangladesh. A comparison of the regression models used for proxy-means testing in other countries indicates that the estimated model for Bangladesh performs quite well in predicting household welfare. Moreover, field-testing of the PMT model suggests that it can identify the poor with a 94 percent degree of accuracy. The ability of the model to correctly identify such a high percentage of the poor implies that the model can be replicated with considerable confidence for offering public health care services to the poor. Nonetheless, a small percent of deserving poor households may be incorrectly left out of a program employing the PMT model.

9. The introduction of a PMT model nevertheless has its administrative challenges. Close monitoring and accountability are essential for its success. Predictably, many of those identified as non-poor, and therefore not eligible for the benefits, would express dissatisfaction with such a program. Local level personal and political pressures may be imposed to include certain undeserving individuals in the program. Strong government and community participation can dissuade such impositions or demands. Institutional arrangements and policy options are suggested to ensure that such participation is subsequently included in the program.

## Introduction

1. During preparation of the Health, Nutrition and Population Sector (HNPS) support program, the discussions between the Government of Bangladesh and development partners (DP) emphasized one particular element of the Ministry of Health and Family Welfare's (MOHFW) Strategic Investment Plan (SIP) 2003-2010: the need to focus on the poor. Since the MOHFW is keen to develop strategic options that would allow more optimal and equitable resource allocation to the poor, as the GOB initiates the implementation of the next sector-wide HNP program- the preparation of this study is timely.
2. In 2003, the MOHFW held discussions with the DPs on a pro-poor health strategy. Those discussions highlighted the importance of the issue, and resulted in agreements for developing concrete mechanisms and instruments to reduce inequities in health care. This study is one product of those discussions and the resulting joint commitment of the GOB and the DP. The PRSP calls for more resources to be spent on the poor efficiently to obtain the highest impact. It also highlights the importance of the distributional objectives, which are to target the health of the poorest, the most disadvantaged and the vulnerable.
3. Ultimately, the primary goal of any development program is to reach and subsequently benefit the group to which the program's efforts are targeted, i.e., the poor and the vulnerable. Therefore, a key element of designing any development program that is targeted towards the poor is the identification of the poor. A suitable tool for identifying the poor in government health programs has yet to be developed and adopted by public facilities and publicly-financed private providers to supplement the existing targeting criteria currently used in the HNP sector.
4. A number of government and NGO programs attempt to identify and target the poor in the various poverty alleviation programs. Important lessons can be learnt from them. This study presents the proxy-means test (PMT) formula as a new technique for targeting the poor. In recent years, the PMT has received increased attention due to its successful implementation, especially in several Latin American countries. Targeting the poor remains a major challenge when designing appropriate social programs, both for the government as well as the NGOs/private sector. The PMT model holds promise as an effective mechanism for identifying the poor.
5. The GOB and the DPs have made progress in prioritizing resource allocation in poor districts as well as increasing the utilization of HNP services by the poor and vulnerable. However, the challenges ahead are still significant. Nevertheless, by combining their efforts, the GOB and the DPs will certainly achieve their common goal of reducing poverty by further increasing the utilization of HNP services by the poor.
6. There are significant public policy challenges for the HNP sector, including poor health performance indicators and incidence of poverty in Bangladesh. While overall improvement in health sector performance remains a broad government goal, ensuring greater access and equity in the delivery of HNP services is a more direct and urgent public policy agenda. The MOHFW's "Agreed Action Plan for Reform Agenda" is intended to develop

strategic options to allocate greater resources to the country's relatively poor administrative districts and upazilas<sup>1</sup>

7. The Bangladesh HNP sector has been concerned for years over the issue of identifying the poor. The recently-concluded Health and Population Sector Program (HPSP) underscored the need to identify special risk groups to ensure that the households most in need receive timely care of sufficient quality.<sup>2</sup> In its 2003 Conceptual Framework for Health, Nutrition and Population Sector Program (HNPSPP), the MOHFW proposed identifying the poorest segments of the population by applying simple survey tools during the annual planning exercise at the upazila management level.<sup>3</sup> The Strategic Investment Plan: 2003-2010 of the government states that "allocative norms for aligning per capita allocations to districts, weighted by a poverty related index of health needs, remain to be constructed, as do the allocation targets to be achieved each year".<sup>4</sup>

### **Objectives of the Study**

8. One of this study's main objectives is to provide data for the development of an effective tool to identify the poor, which can be used to implement the HNPSPP by the government, as well as the publicly-financed NGOs and the private sector. In addition, the study reviews and analyzes the experiences gathered so far of the government and the NGOs in identifying and targeting the poor in Bangladesh in the course of their various poverty alleviation programs.

9. The report also examines the current allocation of resources by the GOB and NGOs through their major programs and activities. The data highlights how well poor areas and poor households are targeted by various programs. The report also analyzes the correlation between the GOB's resource allocations across the districts and upazilas, and the social and economic indicators at the respective administrative levels. Finally, a new simple but indirect approach to identifying the poor, commonly known as the proxy-means test (PMT) formula, is discussed and applied to the Bangladesh context as an innovative approach to providing health subsidies.

### **Methodology**

10. This study relied primarily on secondary information to document the government's and NGOs' current health sector resource allocation. The study team visited a number of government organizations that operate pro-poor programs, interviewed senior officials in charge of the relevant programs, and reviewed available documents relating to those programs. The programs studied include: (1) the Food Security for Vulnerable Group Development Women and Their Dependents (FSVGD) project, which was implemented by the Department of Women's Affairs, Ministry of Women and Children Affairs; and (2) the micro-credit program implemented by the Palli Karma-Sahayak Foundation.

---

<sup>1</sup> Agreed Action Plan for Reform Agenda, the Ministry of Health and Family Welfare (vides. memo no. MOHFW/Health-Econo/Action Plan/397/2003/382 Dated 07/08/03).

<sup>2</sup> MOHFW: HPSP Program Implementation Plan, Part I, Ministry of Health and Family Welfare, April 1998, pp. 66-67.

<sup>3</sup> Ministry of Health and Family Welfare (MOHFW), 2003, Conceptual Framework for Health, Nutrition and Population Sector Program.

<sup>4</sup> Ministry of Health and Family Welfare, HNP Strategic Investment Plan July 2003 – June 2010, Planning Wing, MOHFW, Government of the People's Republic of Bangladesh, November 2004, p: 23.

11. To collect data on the NGOs' experience, the study team reviewed the tools and methods used by NGOs to identify and target the poor. The study team also visited a number of NGOs, interviewed senior-level program managers, and reviewed available documents relating to their programs in general, and the NGOs' experience in identification and targeting the poor in particular. The NGO programs studied include: (1) the USAID-funded NGO Service Delivery Program, (2) Bangladesh Rural Advancement Committee, (3) Marie Stopes Clinic Society, (4) Plan Bangladesh, (5) the Public Private Partnership Program, and (6) the DFID-supported Bangladesh Population and Health Consortium, now called Partners in Health and Development.

12. Relying on international best practice literature to identify the poor through the PMT, and applying the Bangladesh Bureau of Statistics' Household, Income and Expenditure survey (HIES) 1999-2000 data, a model for Bangladesh has been developed for this study. The model has been field tested with a household sample to assess its stability and robustness. Also presented in this report are policy prescriptions to improve resource allocation, as well as to introduce and implement the PMT formula in order to deliver health subsidies to the poor.

### **Content of the Study**

13. This report has five sections. Chapter 1 is a background review of Bangladesh's overall health sector structure and performance. In Chapter 2, major government and NGO social programs, including health, are reviewed. Chapter 3 provides an assessment of resource allocation across the administrative districts and upazilas of Bangladesh.<sup>5</sup> Chapter 4 introduces the proxy-means test formula (PMT), and includes a review of relevant literature. The model for Bangladesh is developed using the PMT, and the findings from testing the tool are presented. The concluding chapter (Chapter 5) comments on the need for greater coordination of programs targeting the poor, as well as more improved and objective methods for spatial resource allocation. This chapter also highlights the necessary next steps to promote the PMT method as an effective alternative to target the poor for the government, NGOs and other stakeholders delivering subsidized health care services in Bangladesh.

14. There are six annexes to the report which can be downloaded from the web-site at: [www.health-swap2.com](http://www.health-swap2.com). Annex I includes the questionnaires used to collect primary data for testing the PMT technique. Annex II contains a summary of the mechanisms to identify and target the poor used by selected organizations. Annex III contains an instruction manual for the PMT model. Annex IV illustrates the application of the PMT model for targeting the poor. The multivariate analysis of resource allocation is included in Annex V. Annex VI lays out the poverty map and relative food insecurity maps by different districts and upazilas.

---

<sup>5</sup> Divisions are the largest administrative units in Bangladesh. There are six divisions in Bangladesh, which are broken down into districts (64), followed by upazilas (507) and unions (4,484). A union may consist of several villages (Source: BBS, 2001, *Bangladesh Population Census 2001, Preliminary Report*).



## Chapter 1. Health Financing and Equity in the HNP Sector in Bangladesh

*This chapter is an overview of trends in expenditures, performance indicators and the distribution of public subsidies. The key information provided by the MOHFW justifies future efforts to implement efficient and effective mechanisms to reach the neediest populations.*

### I. Health Expenditures and Benefit Incidence Analysis in the HNP sector

1.1 Bangladesh's total health expenditure (THE) per capita is about US\$10; its per capita public expenditure on health is US\$3 (Bangladesh National Health Accounts 1999–2001). THE encompasses all health related expenditures during a given year, including capital formation. Both in terms of per capita and overall public expenditures on health, Bangladesh figures are low relative to international norms or even for the region (Table 1.1). In terms of purchasing power parity (PPP), which adjusts for cost of living, Bangladesh's health expenditure is lower than that of all the countries cited in Table 1.1, except for Myanmar. As a percentage of gross domestic product (GDP), THE is about 3.2 percent of GDP. Over time, while annual growth in THE kept pace with GDP growth, real public expenditure consistently fell below THE or GDP growth rates (Bangladesh National Health Accounts 1999 – 2001).

Country	Year	GDP Per Capita	Per Capita THE in Nominal US\$	Per Capita THE in PPPUS\$	THE as Percent of GDP
Bangladesh	1999-2000	358	12	49	3.2
Bhutan	1998-1999	255*	23	71	3.8
India	1998-1999	461	22	110	5.1
Indonesia	1998-1999	681	12	54	2.7
Myanmar	1998-1999	312*	86	32	1.5
Nepal	1998-1999	213	11	58	5.4
Sri Lanka	1998-1999	827	29	99	3.4
Thailand	1998-1999	2,008	71	197	3.9
Malaysia	1998-1999	3,288	84	168	2.5
Pakistan	1998-1999	444	18	67	4

Source: Data International Ltd., 2003, Bangladesh National Health Accounts, 1999 – 2001.

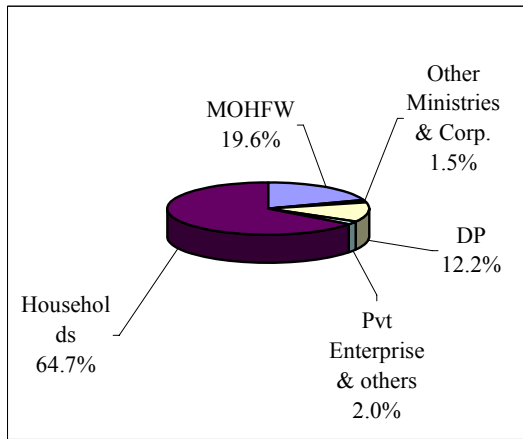
\*1997 figure

1.2 Through its network of facilities across the country, the MOHFW offers a wide range of services from primary health care to complex treatment care. In recent years, there has been a structural shift in the pattern of the MOHFW expenditures as more resources are being allocated to primary health care facilities that offer primary and preventive care at the expense of secondary and tertiary services. Bundled as the “essential services package” (ESP), many of these basic services are offered at the upazila level and below in close-to-client (CTC) facilities. Currently, the ESP constitutes around 48 percent of the MOHFW's total expenditure.

1.3 While household expenditures account for about two-thirds of total health expenditure, government funding, primarily through the MOHFW, is 19.6 percent of THE

(Figure 1.1). In absolute nominal terms, according to Bangladesh National Health Accounts 1999-2001, the THE for Bangladesh in 2001-02 was approximately US\$1.5 billion.

**Figure 1.1. Percent Distribution of THE by Sources of Funding, 1999-2000**



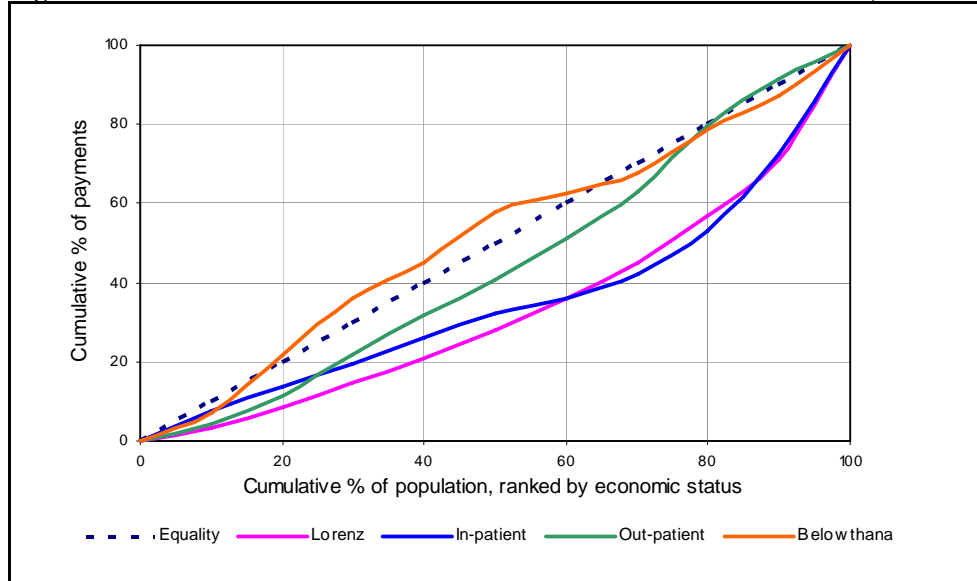
Source: Bangladesh National Health Accounts, 1999/01

Household out-of-pocket (OOP) health expenditure thus account for the bulk of total health expenditure, amounting to about 64 percent. An overwhelming 70 percent of OOP is spent on pharmaceutical drugs. The distribution of out-of-pocket health expenditure by providers also indicates that household health expenditures at government facilities are insignificant at less than one percent of the total OOP health care expenditure (Bangladesh National Health Accounts 1999-2001). Poor quality and difficult access are considered to be major factors compelling households to rely more on

private sector facilities. In addition, informal payments make public services expensive for the poor (The World Bank, 2001).

1.4 Since public facilities are not a common destination for health care and not everyone seeks care, the resulting utilization rates of government facilities are quite low (The World Bank, 2001). Out-patient visits are more equitable compared to in-patient care (Figure 1.2). Furthermore, as figure 1.2 shows, the utilization of public health facilities by the poor below the upazila level, is more prevalent.

**Figure 1.2: Lorenz Curve & Concentration Curves for Public Health Care Utilization, 1999-2000**



Categories	Living standard	In-patient	Out-patient	Below upazila
Concentration Index	0.3784	0.3301	0.1545	0.0338

Source: Huq, 2004, Benefit Incidence Analysis of Public Healthcare Subsidies: Methods and Preliminary Results from EQUITAP Study.

1.5 The rules of expenditure allocation across regions are not conducive to effective delivery of health subsidies to the poor, even though there is evidence from rural areas that access to public health facilities improved between 1995 and 2000. Fees charged in government facilities do not represent a large burden for poor households, but informal fees required in the same facilities are comparable or even higher than the official fees in the non-public/private facilities (The World Bank, 2001).

1.6 Despite the many impediments, health indicators suggest a steady overall improvement in many areas. Table 1.2 presents the trends in selected health indicators. Between 1970 and 2004, the infant mortality rate has declined over fifty percent (145 to 65 per 1,000 live births) and under-five mortality rate has been reduced by about two-thirds (239 to 88 per 1,000 live births) over the same period. Marginal improvements are evident in the water, sanitation and nutritional data during the period 1990 to 2000. Nevertheless, in absolute terms, Bangladesh's human development index is very low (Human Development Index, 2004).

**Table 1.2. Trends in Bangladesh Health Performance Indicators**

<b>Health Performance Indicators</b>	<b>Year</b>	<b>Value</b>	<b>Year</b>	<b>Value</b>
Life expectancy at birth (years)	1970-75	45.2	2003	62
Infant mortality rate (per 1,000 live births)	1970	145	2004	65
Under-five mortality rate (per 1,000 live births)	1970	239	2004	88
Maternal mortality ratio (per 100,000 live births)	-	-	2001	322
Total Fertility Rate (births per woman age 15-49 years)	1975	6.3	2004	3.0
Population with sustainable access to improved sanitation (%)	1990	41	2000	48
Population with sustainable access to an improved water source (%)	1990	94	2000	97
Undernourished people (% of total population)	1990/92	35	1999/2001	32
Children under weight for age (% under age 5)	1996-97	56.3	2004	47.5

Source: United Nations Development Program (UNDP) 2004, Human Development Report 2004 and Bangladesh Demographic and Health Survey 2004, NIPORT and USAID.

1.7 Although the Bangladesh constitution assures equal access to quality health care to all its citizens, public resources devoted to realizing those assurances are limited. The GOB spent only 3.23 percent of GDP on health care in 2001-2002 (Bangladesh National Health Accounts, 1999-2001). That meager allocation warrants an assessment of the target efficiency of public spending committed to health care services. Target efficiency can be assessed by benefit incidence analysis (BIA), which analyzes whether health care subsidies are well targeted to poor individuals. The BIA of the data derived from the Bangladesh Bureau of Statistics' (BBS) Health and Demographic Survey (HDS) 1999-2000 reveals that the poorest 20 percent of the population are particularly disadvantaged. They receive only 16 percent of the public resources devoted to health (see Table 1.3). In contrast, the richest 20 percent of the population receive one-third of the total public health care resources.

**Table 1.3. Quintile Shares of Living Standards and Public Health Care Subsidy, 1999-2000**

Quintile	Living standards	Hospital care		Below upazila level	Total subsidy
		In-patient	Out-patient		
Poorest 20%	8.5	15.5	10.8	21.9	16.1
2nd poorest	12.3	13.1	19.3	23.2	17.4
3 <sup>rd</sup>	15.2	11.1	19.1	17.4	14.8
2nd richest	21.1	15.6	31.4	16.0	19.7
Richest 20%	42.9	44.7	19.4	21.5	32.0
Total	100%	100%	100%	100%	100%
Concentration Index	0.3784	0.2595	0.1565	0.0338	0.1706
Subsidy shares		48%	25%	27%	100%

Source: Huq, 2004, Benefit Incidence Analysis of Public Healthcare Subsidies: Methods and Preliminary Results from EQUITAP Study.

1.8 While investigating “who receives benefits from public health care subsidies” at different levels of public facilities, it became apparent that the poor receive more subsidies (10.8 percent) from out-patient visits compared to the in-patient visits made to secondary and tertiary level facilities (see Table 1.3). On the other hand, facilities below the upazila level seem to be more equitable in terms of benefiting the poor. However, judging by the concentration indices, overall public spending for health care does not appear to be pro-poor. The indices indicate a lack of effective targeting strategies in the existing system. It is therefore imperative to introduce an efficient targeting mechanism to ensure that the poor receive more benefits from the limited public resources allocated to the health sector.

1.9 Health performance and health expenditure are intertwined with poverty. Poverty is viewed as both a cause and an effect of performance in the health sector. At the household level, health expenditures drive many below the poverty line, while many others forego such expenses, thereby accentuating the level and extent of morbidity (Huq, 2004). Widespread poverty forces the government’s resource allocation into an array of interventions and programs at the expense of greater allocation to the HNP sector (e.g., income generating activities).

## **II. Inequity in the HNP sector: The Current Situation**

1.10 The PRSP estimates that 49.8 percent of the population is income-poor. And furthermore, “whatever the definition adopted, it appears that at least about 45 percent of the poor population of Bangladesh currently subsist in extreme poverty”. Total public expenditure on the HNP sector represents only about 1.1 percent of GDP per capita. This expenditure is one of the lowest in the world and below the average of 2.8 percent in low and middle-income countries. The total annual per capita spending on health is estimated to be US\$12.2, which is far below the WHO-recommended US\$34, the minimum required to deliver an essential health services package. Moreover of the US\$12.2, only about US\$3.2 per capita represents government spending and US\$1 is contributed by international donors,

whereas about US\$8 per capita represents health services purchased out-of-pocket by households.<sup>6</sup> Household out-of-pocket expenditure thus represents over 64 percent of total health expenditure.<sup>7</sup> This burden of health care cost falls disproportionately on the poor, and their access to services is thus severely limited. Against this backdrop, Bangladesh seems to be doing fairly well gauging by various indicators, and compares favorably with other countries in South Asia. Poverty incidence has fallen by 9 percentage points over the past decade, the fastest decline in the country's history. Aggregate trends in most health outcomes show considerable progress as well. Life expectancy at birth has increased from 46 years in the early seventies to 62 years by 2003. There has been considerable reduction in the infant mortality rate (IMR), from as high as 145 deaths per 1,000 live births in 1970 to about 65 deaths in 2004. The success of the family planning program has been remarkable in bringing down total fertility (TFR) from a high of 6.3 in 1975 to 3.0 in 2004. The declining level of malnutrition in recent years is also promising.

1.11 The trends noted above look promising. The caveat, however, is that the improvements are based on aggregate statistical trends at the national level. The situation is quite different if one looks beyond such average figures and considers the disaggregated picture where substantial inequalities exist in the status of health performance indicators across various population groups (Figure 1.3). The poor in Bangladesh bear higher health risks and suffer the burden of excess mortality and morbidity. Sen (2001) found that a high degree of inequality persists in health outcomes (mortality, malnutrition, morbidity and disease prevalence), and health-seeking behavior (treatment-seeking behavior and preventive health awareness) as well as health-coping costs, including the economic burden of health care and its differential dynamic effects.

1.12 IMR is around 38 percent higher for the lowest wealth quintile compared to the highest.<sup>8</sup> Even higher degrees of inequity are documented in case of under-five mortality, with the under-five mortality rate (U-5MR) being almost twice as high for the lowest quintile compared to the richest.<sup>9</sup> While the proportion of children with malnutrition declined from 66 percent in 1990 to 48 percent in 2004,<sup>10</sup> a high degree of inequity still persists, with children in the poorest household being twice as likely to be moderately malnourished, and three times as likely to be severely malnourished compared to children in the richest households. Malnutrition has decreased on an aggregate level and nutritional status has improved overall, but more so among the richest quintile. Wide inequity is discernible in the nutritional status of mothers as well. Mothers from the poorest households are almost three times more likely to have BMI less than 18.5 than mothers belonging to the richest quintile (BDHS 2004).

---

<sup>6</sup> Bangladesh National Health Accounts, 1999-2001, Health Economics Unit, MOHFW, December 2003.

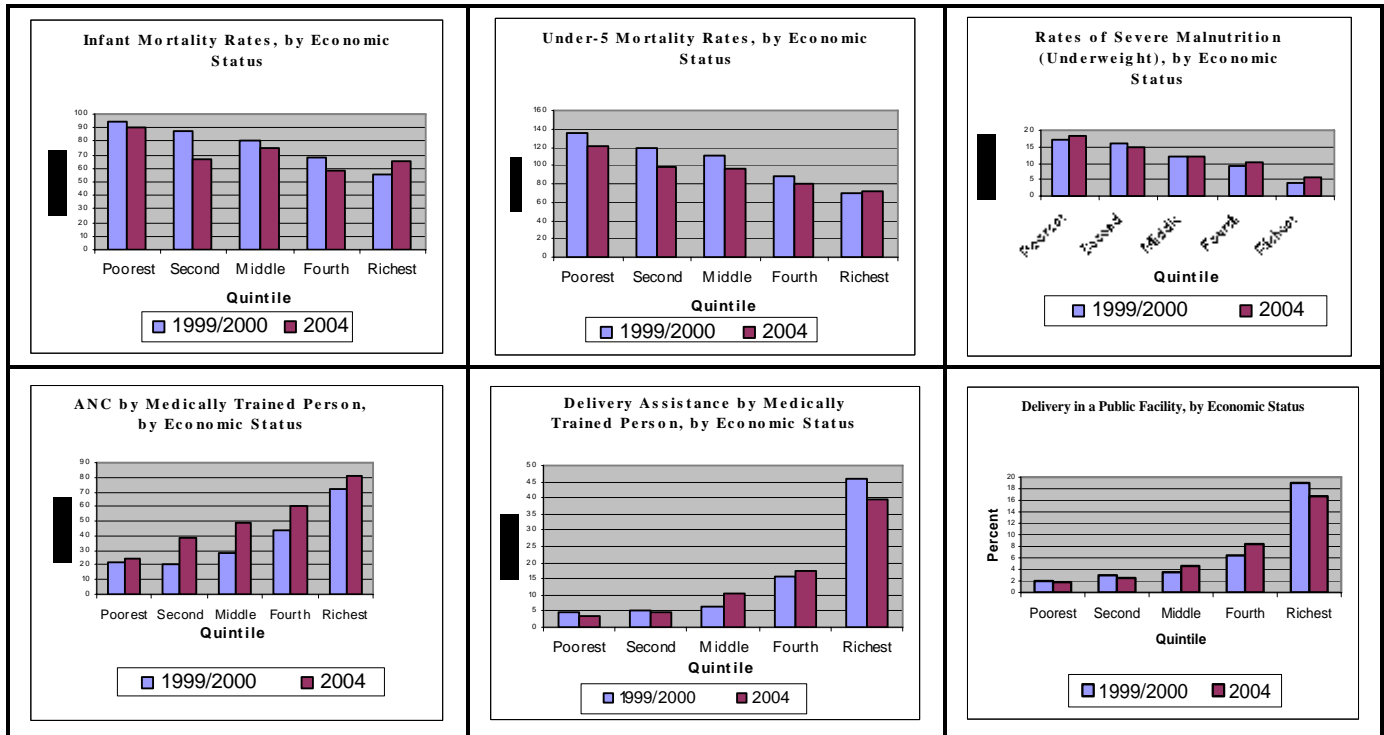
<sup>7</sup> *Ibid.*

<sup>8</sup> Bangladesh Demographic and Health Survey 2004, NIPORT, Dhaka, May 2005.

<sup>9</sup> *Ibid.*

<sup>10</sup> *Ibid.*

Figure 1.3. Selected Health Indicators, by Economic Status for 1999-2000 and 2004

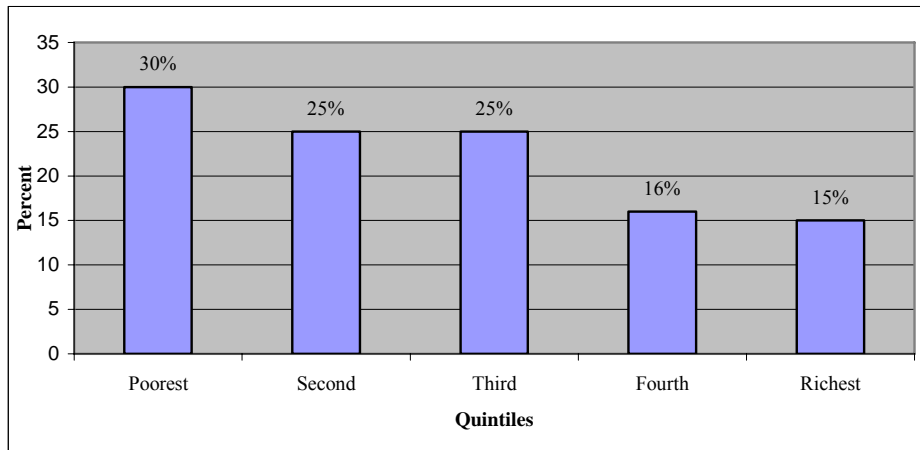


Source: Bangladesh Demographic and Health Survey 1999-2000 & Bangladesh Demographic and Health Survey 2004, NIPORT, Dhaka.

1.13 Household wealth is strongly related to fertility. Differentials exist among wealth groups; women from the poorest households bear about two children more (TFR of 4.0) than women in the wealthiest households with a TFR of 2.5 (BDHS 2004). The use of contraceptives differs among the wealth quintiles; contraceptive prevalence is 54 percent among women belonging to the lowest quintile while it is 63 percent among those in the richest quintile. Also, while the adolescent fertility rate has declined slightly over the same period, it rose amongst the poorest quintile. With regards to antenatal care (ANC), households belonging to the lowest quintile are three times less likely to utilize the ANC services from a medically trained person than the richest quintile (BDHS 2004). Analysis by income-levels indicates that only 3 percent of births are attended by a medically trained person in the poorest households compared to about 40 percent in the richest households (BDHS 2004). Among 45 countries with comparable demographic health survey data, Bangladesh has the lowest rate of institutional deliveries; nine out of ten births still occur at home. The richest group is nine times more likely than the poorest to deliver in a public facility and almost seventy times more likely to deliver in a private facility.

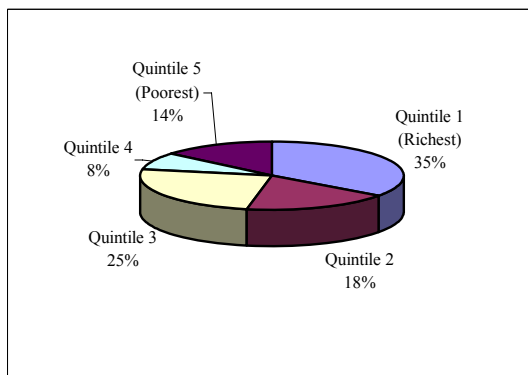
1.14 A large proportion of sick people forgo treatment, and as expected this figure is much higher for the poor compared to the rich (30% vs. 15%) (Figure 1.4). Sen (2001) further noted that the poor in general are more prone to illness and diseases than the non-poor and for most diseases, they demonstrate higher prevalence rates. The mean duration of morbidity was also found to be higher in poor households compared to the non-poor households.

**Figure 1.4. Percent of Sick People not Receiving Treatment, by Economic Status**



Source: Household Income and Expenditure Survey 2000, Bangladesh Bureau of Statistics, 2003.

**Figure 1.5. Utilization of ESP by income quintiles**



During the implementation of HPSP, over 50 percent of the public health budget was shifted to the delivery of primary health care under the essential services package (ESP). The provision of the ESP has not necessarily resulted in a fair distribution of subsidies in favor of the poor (Figure 1.5). The percentage of expenditure subsidies in government health facilities across income quintiles is 16, 19, 21, 18, and 26 percent respectively.

Source: Public Expenditure Review of the HPSP, HEU, MOHFW.

1.15 As noted in the SIP 2003-10, the poorest quintile now accounts for 38 percent of total utilization of ESP services at the upazila level and below, while the poorest two quintiles account for 55 percent. In terms of expenditure, the richest 10 percent is the largest beneficiary group using 15.4 percent of national health expenditure, while the poorest 10 percent account for around 8.2 percent. The richest decile utilized more than one-and-half times the health care services as those used by the poorest decile<sup>11</sup>. In fact, findings from the NHA-II show that expenditures in the public health facilities are the least progressive. Therefore, those expenditures benefit the richer deciles more in comparison to the poor.

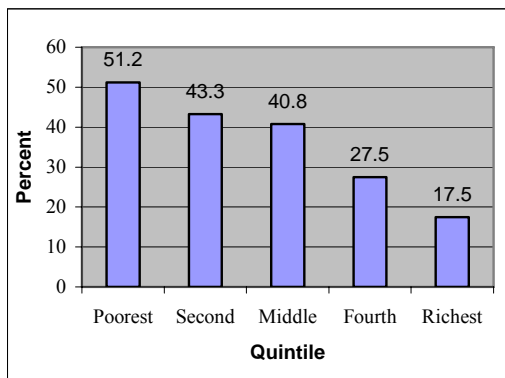
1.16 Households are now increasingly turning to unqualified service providers for their health care needs. Sixty percent of users now visit unqualified health service providers, an increase from 52 percent in 2000. Moreover, it is the very poor households rather than the less poor that are turning more frequently towards unqualified providers (65 percent versus 59 percent). According to the 2003 CIET Survey, two-thirds of the reported visits by very

<sup>11</sup> Bangladesh National Health Accounts, 1999-2001, Health Economics Unit, MOHFW, December 2003.

poor households were to unqualified practitioners, while only 17 percent of their visits were to government facilities. The 2003 CIET Survey reports that 49 percent of service users with an annual income below the 25<sup>th</sup> percentile were satisfied with the behavior of government providers, compared with 64 percent of those with annual income at or above the 25<sup>th</sup> percentile.

1.17 This coincides with the SIP observation that “only a minority of the poor choose to use subsidized government services.” The reasons reported for this low utilization of government services include: poor quality of services; high out of pocket payments for drugs, diagnostic tests and unofficial charges; lack of medicines and supplies; poor staff attitude; and longer waiting time (which is even longer for the poor). These are among some of the key complaints for low utilization, which particularly deter the poor from accessing government health services.

**Figure 1.6. Treatment Seeking for Maternal Complications, by Economic Status (percent of births)**

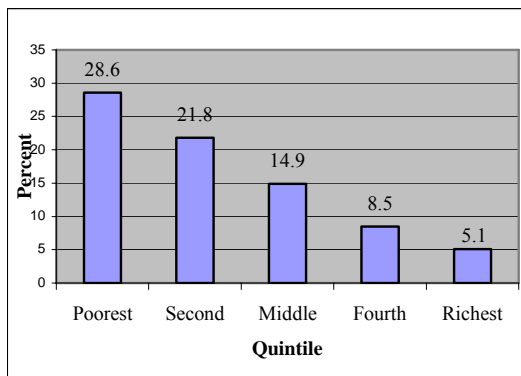


Source: BDHS 2004. NIPORT, Dhaka, May 2005.

High treatment costs appear to be a key concern, particularly among the poor. “Treatment cost is too high” is the second-most important reason for forgoing treatment.<sup>12</sup> As revealed by the recent BDH Survey 2004, for maternal complications around delivery, treatment was not sought in 51 percent of the cases in the households from the lowest quintile, compared to 18 percent of the cases in the richest quintile (Figure 1.6). The most commonly cited reason for not seeking care for

life-threatening complications related to pregnancy, even at the public facilities, was cost, mentioned by 44 percent of the respondents in the BMM survey (BMMS 2001). The BMMS findings reveal that for deliveries with complications, median expenditures are in fact higher in public facilities than in private facilities (approximately US\$17 versus US\$13), despite the fact that public services are supposed to be free of charge (Figure 1.7).

**Figure 1.7. Cost Cited as a Reason for not Delivering in Health Facility, by Economic Status (% of births)**



Source: BMMS 2001. NIPORT, Dhaka, December

The BMMS findings reveal that for deliveries with complications, median expenditures are in fact higher in public facilities than in private facilities (approximately US\$17 versus US\$13), despite the fact that public services are supposed to be free of charge (Figure 1.7). The poor bear a higher burden of coping costs from income shocks due to sickness relative to the rich. Illness shocks constitute about 40 percent of all income shocks faced by rural households, and the burden of coping costs fall disproportionately on the poor<sup>13</sup>.

<sup>12</sup> Household Income and Expenditure Survey 2000, Bangladesh Bureau of Statistics, 2003.

<sup>13</sup> Sen, Binayak, The Health Divide: Analysis of Inequities in Health in Bangladesh, Dhaka, May 2001.

1.18 Further, analysis by Sen (2001) showed that only 25 percent of extremely poor households could meet treatment costs for chronic illnesses out of their current incomes, compared to 60 percent for non-poor households.

1.19 A number of governance issues plague the health sector. These have implications for access and utilization by users, particularly for the poor users. Unofficial payments are widespread in most facilities. Nearly all users (80 percent) paid to receive government health services in 2000, and about 82 percent in 2003. Some 20 percent reported direct payments to service providers in 2000, and 18 percent in 2003<sup>14</sup>. A visit on average costs about 3 percent of per capita monthly income for the richest, while for the poorest group it is nearly 17 percent.

1.20 The shortage of medicines in government health facilities is another chronic problem. The public widely believe that the shortage is a result of drugs being diverted onto the open market by the facility staff. The proportion of users who received all prescribed medicines in government facilities fell from 33 percent in 1999 to 23 percent in 2003.<sup>15</sup> Medicines and drugs are not free of charge even at the public health facilities; about 95 percent of users of public health facilities pay for their medicines. As documented in the NHA-II, the predominant component of household health expenditure is for drugs- above 70 percent. Drug costs are a major burden for the poor, whose outlays are the greatest in relation to their income. There is great room to improve access to health services by the poor. Unmet health needs continue to be greatest among the poor as they remain largely outside the health system. Increased spending on health has not necessarily resulted in meeting the needs of the poor. To effectively provide services to the poor, a mechanism must first be devised to identify the poor and target the requisite resources to them.

1.21 The HNP SIP 2003-2010 expresses the MOHFW's renewed commitment to improving equity by reallocating its budget towards areas with greatest needs and redistributing public subsidies in favor of the poor to raise their utilization rates of health services. Given the constraints on public spending, the government recognizes the importance of ensuring that scarce resources are spent efficiently and with the greatest incidence and impact on the poor.

---

<sup>14</sup> Third Service Delivery Survey 2003, CIET, November 2003.

<sup>15</sup> Third Service Delivery Survey 2003, CIET, November 2003.



## Chapter 2. Experiences of Government and Non-Government Organizations

*This chapter reviews the experiences of government and non-government organizations in identifying and targeting the poor in Bangladesh in the course of implementing various poverty alleviation programs. A spatial distribution assessment of government resources is provided in this section to shed further light on the prevailing structure and performance of the public health sector.*

### I. The Government Experience

2.1 The sections below review existing programs that are administered by government departments to target the poor. The review is based on program documents and existing studies.

#### A. *Food Security for Vulnerable Group Development Women and Their Dependants (FSVGD) Project*

##### **Background**

2.2 The Vulnerable Group Development (VGD) program is aimed at providing food to very poor female-headed households in Bangladesh. Food is provided at the rate of 30 Kilogram (kg) per beneficiary, and the beneficiaries receive training from NGOs over a limited period of time (usually two years). At the end of the training period, they are expected to access micro credit, engage in a small business and move out of extreme poverty. The program is implemented throughout the country, and currently reaches a total of 485,000 beneficiaries.

2.3 The long-term objective of the VGD program is “to improve the socio-economic conditions of the poorest and distressed rural women of Bangladesh so that they can successfully overcome the prevailing conditions of food insecurity, malnutrition, economic insecurity and low social status, and can sustain livelihoods above the extreme poverty level.”<sup>16</sup> The main short-term objectives of the program are to create opportunities for women through training to increase their marketable skills, encourage the creation of seed capital for investment through savings, support their engagement in income generating activities, and encourage their participation in on-going development activities, etc.<sup>17</sup>

2.4 The VGD program was started with the financial assistance of the GOB, the World Food Program (WFP) and other DPs. On behalf of the GOB, it is implemented by the Ministry of Disaster Management and Relief, Ministry of Women and Children Affairs (MOWCA), Department of Relief and Rehabilitation, Department of Women’s Affairs (DWA), District/Upazila Administration and the Union Parishads. The main responsibility for implementing the VGD program has been gradually shifted to MOWCA.

---

<sup>16</sup> MOWCA: Food Security for Vulnerable Group Development (VGD) Women and Their Dependants (FSVGD): Report on the NGO Reflection/Orientation Workshop 11-13 May 2003, Department of Women’s Affairs, Ministry of Women and Children Affairs, Dhaka, June 2003.

<sup>17</sup> *Ibid.*

2.5 One of the VGD projects, the Food Security for Vulnerable Group Development Women and Their Dependants (FSVGD) project, is currently run by the MOWCA through the DWA. It is being implemented in 57 upazilas of 7 districts in the northern part of Bangladesh and covers 85,300 beneficiaries (about 18 percent of the national VGD program coverage).<sup>18</sup> The project is financed by the GOB, the European Commission and the WFP. DWA is fully responsible for project implementation, which includes distribution of food aid (wheat) and the provision of development packages through a number of collaborating NGOs.<sup>19</sup>

2.6 The development package consists of training in awareness raising and income-generating activities (IGA). The selected beneficiaries are required to participate in the training programs, which are aimed at increasing their skills and making them eligible to receive micro credit from collaborating NGOs in the future. The beneficiaries themselves decide on the type of IGA they want to engage in.

### **Identification of Target Areas**

2.7 Under the VGD program, each beneficiary is given a card, which enables her to receive 30 kg of wheat per month from an NGO participating in the program. The areas in which the VGD cards are distributed are identified and selected from a resource allocation map jointly prepared by the Socio-Economic Infrastructure Division of the Planning Commission of the GOB and the WFP. This map shows the geographical distribution of poverty and food insecurity, especially with regards to women, and provides the basis for allocating VGD cards in different districts, upazilas and unions. The map identifies areas of different levels of food insecurity based on the following indicators:

- Vulnerability to natural disasters like floods, river erosion and cyclone
- Deficit or surplus of food grain
- Rate of agricultural wages
- Proportion of households not owning agricultural land
- Proportion of unemployed persons
- Proportion of widowed, divorced and separated women
- Proportion of literate women

2.8 Four levels of food insecurity are identified based on the above-mentioned indicators: (a) very high food insecurity, (b) high food insecurity, (c) moderate food insecurity, and (d) low food insecurity. Most of the VGD cards are allotted to those with very high food insecurity.

### **Criteria for Selecting Target Groups**

2.9 In selecting women for participation in the FSVGD project, priority is given to the following categories:

---

<sup>18</sup> The FSVGD project is being implemented in the following districts: Rajshahi, Naogaon, Dinajpur, Thakurgaon, Panchgarh, Lalmonirhat and Kurigram. These districts are among those with the highest incidence of poverty in Bangladesh.

<sup>19</sup> BRAC and some other NGOs, like Jagoroni, were responsible for developing these packages. Twelve NGOs are working with FSVGD. TMSS is the lead NGO. It trains workers of other (partner) NGOs, which in turn, provide training to the VGD beneficiary groups.

- Women who are household heads
- Widowed, divorced, separated and abandoned women
- Wives of sick, inactive and disabled husbands

2.10 The following criteria are applied for selecting the beneficiaries:

- Landlessness or land ownership of less than 0.15 acre, including homestead
- Income of less than Taka 300 per person per month
- Lack of productive assets
- Occupation of casual or day labor

2.11 In order to avoid duplication of efforts, former VGD cardholders and members of NGO groups or other poverty alleviation programs (like the Rural Maintenance Program) are not eligible to participate in the FSVGD program.

### **Identification and Selection of FSVGD Participants**

2.12 Beneficiaries are identified and selected at the local level by the Union VGD Committee, which consists of all members of the Union Parishad (UP) and representatives of other local government and NGOs. The chairperson of the Union Parishad also chairs the Union VGD Committee, while one of the female UP members acts as its member-secretary. Among other things, the Union VGD Committee is mandated to ensure: (a) proper selection of VGD women according to prescribed terms and conditions; (b) proper distribution of wheat so that eligible VGD women receive the monthly ration of 30 kg of food grain; (c) distribution of food grain on fixed distribution dates; and (d) proper preservation of all records.

2.13 The selection of FSVGD participants is approved by the Upazila VGD Committee, which comprises members of the Upazila Parishad, Chairpersons of all Union Parishads of the upazila, representatives of the collaborating NGOs and the Project Implementation Officer. VGD committees also operate at the district and national levels to coordinate and implement the selection process, which is finally approved by the MOWCA.

### ***B. Palli Karma-Sahayak Foundation***

#### **Background**

2.14 The Palli Karma-Sahayak Foundation (PKSF) is the premier funding organization for microfinance programs directed by various microfinance institutions (MFIs) in Bangladesh. Established by the government in 1990, PKSF is organized as a not-for-profit company limited by guarantee. It receives funding from the GOB, the World Bank, the Asian Development Bank, and other DPs. Its main functions include:

- Provision of micro credit funds to partner organizations
- Development of best practices for the micro credit sector
- Provision of institutional and capacity building support to partner organizations
- Advocacy of appropriate policies and regulations for the micro credit sector.<sup>20</sup>

---

<sup>20</sup> PKSF: Annual Report 2003, Palli Karma-Sahayak Foundation, Dhaka, January 2004.

2.15 PKSF's core activities are the provision of funds to partner MFIs under its mainstream Credit Program and a number of other projects. The Credit Program consists of the following components: Rural Micro-Credit Program, Urban Micro-Credit Program, Micro-Credit for the Hardcore Poor Program and Micro Enterprise Credit Program.

2.16 Around 200 partner organizations receive funding from PKSF under the above programs and projects. PKSF's share of the micro credit market is about 25 percent, according to some estimates. Its partner organizations comprise about 30 percent of the total MFIs and NGOs that are active in Bangladesh's microfinance sector.<sup>21</sup>

### **Selection of Partner Organizations**

2.17 PKSF lends money to its target group (i.e., the landless and those without assets) indirectly through its partner organizations, which include mainly NGOs and MFIs. To be eligible for PKSF funding, these organizations need to fulfill a number of criteria relating to their track record, length of experience in micro credit operations, rate of loan recovery achieved, skill level of staff, existence of a management information system, level of available capital, and debt-capital ratio, etc. The selection criteria differ from program to program, depending on their focus and coverage. The criteria for selecting partner organizations for the Urban Micro Credit Program are listed below (as an example):

- The partner organization should have a good track record in micro credit operations
- The partner organization must have a policy on urban micro credit approved by its executive committee
- A minimum of two years experience in urban micro credit operations with outstanding loans of not less than Taka 500,000
- A loan recovery rate of 98 percent or above
- Adequate skilled staff, a management information system and a specific separate division for urban micro credit operations.<sup>22</sup>

2.18 For other components of PKSF's Credit Program, similar criteria with slight variations are in place to select partner organizations.

### **Selection of Beneficiaries**

2.19 The four components of PKSF's Credit Program mentioned above target four types of poor people: the rural poor, the urban poor, the hardcore poor and micro credit borrowers. To identify and select these groups, PKSF follows certain criteria, which are described below.<sup>23</sup>

2.20 The Rural Micro Credit component exclusively targets the landless and those without assets living in villages. It considers the landless and persons without assets as "those residing in rural areas and owning less than 50 decimals of arable land or the value of whose total asset is not more than the value of one acre of land in the locality." The Urban Micro Credit Program targets people residing in urban and semi-urban areas with a monthly income of between Taka 4,000 and 5,000.

---

<sup>21</sup> SIRIUS: Market Study of Capacity Building Services in Bangladesh, Final Report, SIRIUS Marketing and Social Research Ltd., Dhaka, November 2002.

<sup>22</sup> PKSF: Annual Report 2003, Palli Karma-Sahayak Foundation, Dhaka, January 2004, p. 18.

<sup>23</sup> *Ibid*, pp. 18-19

2.21 The Hardcore Poor Program, as the name suggests, targets the ultra poor, who are defined as “households with less than 1,800 kilo calories food consumption per person per day.” The selection criteria of hardcore borrowers are the same as those for the beneficiaries of the rural micro credit program. In addition, the following types of people are also included in the category of the hardcore poor:

- Unemployed persons with no assets and source of income
- Female head of a family with many children
- Persons dependent on temporary jobs

2.22 Participants of other poverty alleviation programs aimed at mobilizing the hardcore poor – like the Vulnerable Group Development Program – also qualify for support under this component.

2.23 On the other hand, the Micro Enterprise Credit Program targets “progressive and experienced micro credit borrowers” who are in need of larger loans to augment and diversify their existing income generating activities. The criteria for selecting beneficiaries in this category are the following:

- Micro enterprise borrowers must have a minimum positive track record of 3 years in loan repayment
- Potential must exist for expanding their income generating activities into enterprises that create full-time employment
- Their equity participation should be at least a fifth of the total investment in the expanded IGAs

2.24 In addition to the Credit Program described above, PKSF operates the following projects under which credit funds are provided to the poor:

- Participatory Livestock Development Project
- Integrated Food Assisted Development Project
- Training, Employment and Income Generating Program of Jamuna Multipurpose Bridge Authority
- Southwest Flood Damage and Rehabilitation Project
- Sundarbans Bio-diversity Conservation Project
- Financial Services for the Poorest Project
- Microfinance and Technical Support Project

2.25 The above projects have also devised various criteria for selecting their target groups and beneficiaries. For example, the Financial Services for the Poorest Project (FSPP), which targets the ultra hardcore poor, uses the following criteria for selecting target households:

- Mostly landless, but a few with landholdings of up to 30 decimals
- Unemployed or earning less than a dollar a day, or dependent on temporary jobs
- Without assets and sometimes without a place to sleep
- Deserted or separated women-headed households
- Disabled and elderly (over 50 years of age) heirs/successors of deceased borrowers
- Parents of former child laborers
- Former sex workers
- Domestic help or beggars

- Seasonal wage earners or daily laborers without any skills or experience<sup>24</sup>

2.26 To select beneficiaries, the partner organizations implementing FSPP conduct household surveys in the target areas to collect information on the socio-economic conditions at the household level. This information is matched with the above mentioned selection criteria to examine the eligibility of the surveyed households. The conditions of the eligible households are physically observed and verified by program managers before the beneficiaries are finally selected and approved.

## **II. NGO Experience**

2.27 This section analyses the tools and methods used by NGOs in Bangladesh to target programs for the poor. The analysis focuses on large programs that deliver social services to the poor and/or select beneficiaries based on some objective criteria.<sup>25</sup>

### **A. *NGO Service Delivery Program***

#### **Background**

2.28 The USAID-funded NGO Service Delivery Program (NSDP) is a partnership of eight international and Bangladeshi organizations. NSDP delivers family health services in 62 districts of the country by means of 41 participating NGOs. The major objectives of NSDP are to:

- Expand the range and improve the quality of the Essential Services Package (ESP), which is provided by NGOs at the clinic and community levels
- Increase the use of ESP provided by partner NGOs, especially by the poor
- Increase the capacity of NGOs to sustain clinic and community-based service provision, institutionally and financially
- Influence GOB policy, in coordination with other DPs, to expand the role of NGOs as providers of ESP within the national health system

2.29 The NSDP's goal is to enable Bangladeshi NGOs to become technically and managerially self-sufficient in the provision of essential health services and to maximize NGOs' access to non-USAID funding for essential service delivery. The services provided by NSDP include the following: child health care, family planning and reproductive health, behavior change communication and marketing, limited curative care and communicable diseases control.

2.30 NSDP delivers ESP through three service delivery points at the local level. At the village level, services are provided by 6,370 depot holders (community outreach workers), while 7,906 satellite clinics provide 11,979 sessions per month at the ward level, and 278 static clinics and 374 upgraded satellite clinics provide services at the union/district/city corporation level. Since the beginning of 2004, NSDP clinics have provided ESP to a total of

---

<sup>24</sup> Ahmed, H.U., Financial Services for the Poorest of the Poor: The Experience of Palli Karma-Sahayak Foundation, PKSF, Dhaka.

<sup>25</sup> The World Bank: Terms of Reference (TOR) on Targeting Resources for the Poor in Bangladesh: Development of Guidelines and Tools, HPSO, The World Bank, February 2004.

20 million clients in rural and urban areas in 62 districts, 83 municipalities, 6 city corporations and 139 upazilas.<sup>26</sup>

### **Identifying the Poor**

2.31 NSDP uses the participatory rural appraisal (PRA) method to identify the poor in the catchment areas of its clinics.<sup>27</sup> The PRA wants to enable the local people (existing and potential clients) to interact with NSDP and its partner NGOs “to plan together for appropriate interventions.” They adopted two PRA techniques– social mapping and wealth ranking, to identify the poor and to classify their social positions in a sample of 48 villages covered by NSDP clinics. These techniques are briefly reviewed below.

- ***Social Mapping***

2.32 The first stage in the process of identification of the poor, as undertaken by the NSDP, was to conduct a social mapping session in each of the sampled villages with the participation of the local population. With this aim in view, NSDP officials and its partner organizations visited each village, discussed the idea with a wide section of its inhabitants and invited 30-35 of them to participate in a social mapping exercise. The selected participants, both males and females, represented different occupations, social classes and age groups. On average 20-25 people participated in each of the mapping sessions.

2.33 The participants were asked to draw a map of their village showing houses, educational institutions, mosques, temples, pagodas, health delivery points, markets, rivers, canals, big ponds, big trees, bridges, culverts, and roads, etc. A facilitator, a co-facilitator and two note-takers assisted the participants in this exercise. It was a participatory process in which the participants discussed with one another the location of the houses and other village landmarks and arrived at a consensus. The outcome of this exercise was the production of a map that showed all the households and other important landmarks of the village/locality.

- ***Wealth Ranking***

2.34 In the next stage, the participants were asked to identify and stratify the households of the village/locality according to the volume of wealth/assets possessed by them. The participants grouped the households into four categories – rich, middle class, poor, and hard-core poor – on the basis of a number of socio-economic indicators. These indicators include:

- Monthly income
- Occupation
- Land ownership
- Asset ownership
- Possession of clothes
- Food habit
- Medical facilities
- Education
- Number of family members

---

<sup>26</sup> HDRC: Formative Research on Reaching Poorest in NSDP Clinic: Identification of Perceptions and Barriers of the Poorest in Accessing NSDP Services, Human Development Research Centre, Dhaka, February 2004.

<sup>27</sup> *Ibid.*

2.35 Each house on the map was marked with one of four colors signifying the category it belonged to with an extensive discussion amongst the participants before a consensus would be reached regarding the socio-economic status of the different households. This exercise produced a list of the poor and hard-core poor for whom health care interventions could be targeted by NSDP in a particular village/locality.

### **Targeting the Poor**

2.36 The main purpose of identifying the poor and hard-core poor in the manner described above was to be able to target them to receive NSDP services. The NSDP study used two PRA techniques that generated important information on the health care seeking behavior of the poor, their perceptions of NSDP services, and utilization of and barriers to the utilization of such services. These techniques– the Health Seeking Mobility Map and the Venn diagram are briefly reviewed below:

- ***Health Seeking Mobility Map***

2.37 To understand the health care seeking behavior of the poorest segment of the population in the NSDP catchment areas covered by the NSDP study, a number of health seeking mobility sessions were held. These sessions were attended by groups of the poorest, who had been earlier identified through wealth ranking. Each session was conducted by a facilitator, a co-facilitator and three associates, two of whom took notes. At the start of the session, the facilitator briefed the participants about the purposes and procedures of the meeting. The participants were requested to discuss about the health care providers that they and their neighbors usually visited. After the discussion, the participants were asked to write the names of the service providers on colored cards that were provided to them. They were also asked to write the distances from their residences to each of the service providers they had visited and the services that they had obtained from the provider. The filled-in cards were subsequently pasted on a big sheet of brown paper. The outcome of this exercise was a health seeking mobility map, which showed the names and types of service providers the poorest had visited, the distances they had to travel to reach those providers, and a ranking of the providers in terms of the proportions of people visiting them. The information obtained through the health seeking mobility sessions was later tabulated, summarized and reported. The findings of this exercise would be used to prepare action plans for providing services to the poorest by the concerned NSDP clinics.

- ***Venn Diagram***

2.38 In order to understand the perceptions of the poor vis-à-vis NSDP clinics, the NSDP study used the Venn diagram technique of PRA. As in the previous case, meetings (focus group discussions) were held with participants selected from the list of the poorest who were identified through wealth ranking. Facilitators, co-facilitators and note takers were there to assist the participants. The participants were asked to state their perceptions of NSDP clinics, to list the reasons for not visiting those clinics, and to suggest ways to overcome those barriers. The participants were provided with colored cards of different sizes on which they were asked to write their perceptions, barriers and suggestions. The participants discussed with one another these issues, debated them and finally reached a consensus. They wrote their opinions on the cards, which were then pasted on a big sheet of brown paper. The cards were thematically arranged to form Venn diagrams highlighting different issues. The key

findings of the Venn diagrams were then listed and ranked in order of importance. The information obtained from this exercise would be later used for drafting action plans by the respective NSDP clinics in the study area.

### **Guideline for Identifying and Targeting the Poor**

2.39 NSDP has developed a guideline for its partner NGOs to follow for identifying and targeting the poorest and least advantaged households in the catchment areas of NSDP clinics, and provides detailed instructions on the sequence of steps.<sup>28</sup> A brief review of these steps is as follows:

1. Make a list of poor households from the family register maintained by an NGO using basic information on the households in that area (i.e., names of household members, their age, sex, education, status of immunization of children under five, etc.). The register also contains the socio-economic household information determined on the basis of the household's own response (i.e., the household earned income on a daily basis; the household does not have more than one day's stock of food or equivalent money; the wage earner of the household is unable to work; the daily earnings of the household are uncertain; the household income is limited but there are too many family members; the household head is a widow, or divorced or had been abandoned by her husband; the monthly income of the household is below a certain level; the monthly rent of the house is below a certain level, etc.). The guideline states that if four out of the first six conditions mentioned above apply to any household, that household should be listed as poor.
2. Meet with a number of poor people drawn from the list of poor households obtained from the family register. The guideline suggests purposively selecting the participants so that they can actively help in identifying the poorest and least advantaged. This process starts with what the guideline calls a "transect walk" through the catchment area with the aim of getting acquainted with would-be participants, explaining the meeting agenda, and arranging a time and place for the meeting. Out of a population of 200-300 in a catchment area, 25-30 persons are invited to the meeting.
3. Hold a meeting (focus group discussion) with the selected participants. The PRA techniques of social mapping and wealth ranking described above are used in that meeting to identify and to list the poorest of the poor.
4. Hold two other meetings with the selected participants in which the PRA techniques of health seeking mobility maps and Venn diagrams are used to target the poorest of the poor.

### ***B. The CFPR/TUP Program of BRAC***

#### **Background**

2.40 Since January 2002, the Bangladesh Rural Advancement Committee (BRAC) has overseen a five-year experimental program called "Challenging the Frontiers of Poverty Reduction– Targeting the Ultra Poor" (CFPR/TUP). This program uses a detailed and well thought out targeting strategy which serves as a good example of how an NGO identifies and

---

<sup>28</sup> NSDP: Guideline for Participatory Identification of the Poorest/Least Advantaged, Community Response Team, NSDP, February 2004 (*in Bangla*).

targets the poor. The Research and Evaluation Division of BRAC has documented in detail the process of beneficiary selection under this program. The process is briefly reviewed in this section.<sup>29</sup>

2.41 The purpose of the program is to enable ultra-poor women to develop new and better options for sustainable livelihoods. The program seeks to reach 70,000 “specially targeted ultra poor” (STUP) beneficiaries in all the upazilas of three northern districts of Kurigram, Rangpur and Nilphamari during 2002-06.<sup>30</sup> STUP beneficiaries were specially selected from the above geographic regions because of their severe poverty. During the first two years of the program, which served as the pilot phase, 10,000 ultra-poor women were selected. In 2004, another 10,000 STUP beneficiaries were selected. In the last two years of the program 50,000 more will participate.<sup>31</sup>

2.42 The program provides an exclusive package to the ultra-poor selected. The package consists of (a) enterprise development training and subsequent assets transfer for facilitating income generating activities, (b) a tailor-made essential health care package entailing free treatment and sanitary benefits, and (c) a community mobilization program that ensures the security of the granted assets and community support for the beneficiaries. After the STUP households are selected, BRAC provides them with enterprise development training and information regarding different IGAs in which they can participate. The beneficiary decides herself which IGA to select. Once that decision is made, BRAC grants assets (a cow, goat, etc., depending on the type of IGA) to the beneficiary within two weeks and helps set up the activity. The average grant amount is Taka 6,000 (approx. US\$100), while the range varies from Taka 3,000 to Taka 9,000 (approx. US\$50- \$150).

### **Process of Targeting the Ultra Poor**

2.43 The CFPR/TUP Program targeting process has four major stages: (a) rapport building; (b) participatory rural appraisal meeting; (c) survey and preliminary selection; and (d) final selection. Each of these stages involves a variety of steps which are described below.

#### **(a) Rapport Building**

2.44 The first stage of the targeting process is building rapport with the community in order to:

- Determine the target area,
- Select a venue for holding a participatory rural appraisal meeting, and
- Invite community members to attend a PRA meeting.

2.45 The first step in the targeting process is to determine the boundaries of a target area, approximately 100 households. To do this, BRAC program organizers (POs) build rapport

---

<sup>29</sup> BRAC: Stories of Targeting: Process Documentation of Selecting the Ultra Poor for CFPR/TUP Program, CFPR-TUP Working Paper Series No. 1, BRAC Research and Evaluation Division and Aga Khan Foundation Canada, April 2004.

<sup>30</sup> Matin, I. and Halder, S.R.: Combining Targeting Methodologies for Better Targeting of the Extreme Poor: Some Preliminary Findings from BRAC’s CFPR/TUP Program, Research and Evaluation Division, BRAC, Dhaka, September 2002.

<sup>31</sup> Matin, I. and Yasmin, R.: *Managing Scaling-Up Challenges of a Program for the Poorest: Case Study of BRAC’s IGVGD Program*, Scaling Up Poverty Reduction: Case Studies in Microfinance, Consultative Group to Assist the Poor, World Bank Financial Sector Network, Washington D.C. Scaling Up Poverty Reduction Conference, Shanghai, May 2004.

with members of the community in that area. The POs usually walk through a village observing various areas of the locality and meeting various community members to elicit information and form an opinion of the target area. Through observation and discussions with community members, the POs determine the boundaries of the village and the distribution of households within it. The POs can also ask community members to determine the target area based on the latter's knowledge of and opinions about the village and community. In these initial interactions with the community, the POs try to clearly explain their objectives and intentions to build rapport with the community.

2.46 The next step is for the POs to select a venue for the PRA meeting. BRAC has laid down a number of guidelines that the POs need to follow regarding the meeting place. For instance, the venue should be located in a central, quiet and peaceful place that members of the community would not have any problem visiting. The POs generally select a venue based on their discussions with various community members and their own observations. Once the venue is selected, the POs embark on the next step, which involves inviting a large cross-section of the targeted community to attend the PRA meeting on a scheduled date. The POs usually invite respected people of the community, male members of the community, and members of very poor households (as judged by the state of their dwellings and surroundings).<sup>32</sup>

#### **(b) Participatory Rural Appraisal Meeting**

2.47 The second stage of the targeting process consists of holding a PRA meeting with community members to:

- Prepare a map of the village showing the number and distribution of households
- Rank the households by wealth

2.48 These activities are done in a participatory manner by the invitees to the PRA meeting, which is facilitated by the POs. A brief description of these activities follows:

- ***The Mapping Exercise***

2.49 The meeting participants select a mapmaker to draw the map. Usually, a young man in his 20s or 30s with a minimum level of education is chosen as the mapmaker. The PO instructs him on the requirements. In consultation with other participants, the mapmaker first draws the outline of the target area on the ground with a stick. This outline shows major landmarks such as roads, ponds, bridges, canals, etc. The other participants then locate the households on the map. The PO write the names of the household heads, their fathers' names (in the case of males) and husbands' names (in the case of married women) on colored cards that are then pinned to the households' locations on the map. After all the households are placed, a PO reproduces the map on a brown sheet of paper.

- ***The Wealth Ranking Exercise***

2.50 The PRA participants rank the different households by wealth. This is done in a participatory manner with the PO facilitating the process. The households on the map – represented by the cards containing the names of the household heads – are grouped by the

---

<sup>32</sup> BRAC: Stories of Targeting: Process Documentation of Selecting the Ultra Poor for CFPR/TUP Program, CFPR-TUP Working Paper Series No. 1, BRAC Research and Evaluation Division and Aga Khan Foundation Canada, April 2004.

participants into 5-6 categories, beginning with the most affluent ones and ending with the poorest ones. The last category (or the last two categories) is primarily selected for the CFPR/TUP program. A number of criteria are used for grouping the households into “rich” and “poor” categories. The *wealthy* are considered to:

- own a fair amount of land
- have a salaried job
- live in tin or paddy sheaf houses
- own cows, goats and/or other livestock
- own a power tiller, rice mill, etc.

2.51 The *poor* are considered to:

- be landless
- own only their homestead
- work as day laborers, small traders or beg for a living
- not own any livestock or assets
- live in straw houses

2.52 Other criteria used for wealth ranking include the following:

- presence of school-going children
- ownership of TV, tape recorder, radio, tube well, etc.
- member of an NGO

2.53 As a result of the wealth ranking exercise in the PRA meeting, the BRAC POs are able to identify a target group. The group is further screened by a questionnaire survey before the target households are selected.

### **(c) Survey and Preliminary Selection**

2.54 Structured questionnaires are used for the survey, and the POs try to elicit truthful replies by asking questions indirectly in the course of conversations. The indirect approach is employed to counter a tendency amongst the respondents to appear poorer than they are in anticipation of receiving aid from BRAC. The survey questions are aimed at establishing whether or not a target household is eligible to become a beneficiary of the CFRP/TUP Program (the eligibility criteria are discussed below). The information gathered from the survey is cross-checked with the respondents’ neighbors, who usually are in a position to provide a good assessment of the respondents’ poverty status. The POs also try to assess the socio-economic conditions of the respondents by closely observing their living conditions: their houses and the construction materials used, the visible assets and belongings that they have. In order to determine whether a household can be eligible for program support, the POs check the following: “the furniture, utensils and crockery, granary, the household’s food habits, the housing conditions and materials, whether there are any valuable trees in the dwelling or a bamboo or banana grove, whether there is a vegetable garden, whether they own a TV or a radio cassette, whether they have a fishing net or a boat, etc.”<sup>33</sup>

2.55 In making a preliminary selection of beneficiaries, the POs consider the data generated from the filled-in questionnaires, information gathered from the respondents’ neighbors, and the results of their own observations. That data is matched against the program selection criteria. Two types of criteria have been developed: one favoring “inclusion” and the other

---

<sup>33</sup> *Ibid*, p. 22

prompting “exclusion” of the households from being beneficiaries. These are summarized in Table 2.1. On the basis of these criteria, the POs make a preliminary selection of the ultra-poor households.

<b>Inclusion factors</b>	<b>Exclusion factors</b>
<ul style="list-style-type: none"> <li>▪ Not having a VGD card</li> <li>▪ Not being a member of any MFI or NGO</li> <li>▪ Being the head of a female-headed household and being able to work</li> <li>▪ Having a sick husband (who is unable to work)</li> <li>▪ Being a woman living with her father</li> <li>▪ Being widowed or divorced</li> <li>▪ Gathering and selling fuel wood and coal</li> <li>▪ Sewing katha (tapestry)</li> <li>▪ Working as a maid servant</li> <li>▪ Making bamboo products</li> <li>▪ Living in poor housing conditions</li> <li>▪ Having a low level of income (if any)</li> <li>▪ Not owning any “luxury” items (wall clock, cupboard, radio etc.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being a member of an NGO</li> <li>▪ Holding a VGD card</li> <li>▪ Not being able to work</li> <li>▪ Being in comparatively good economic condition</li> <li>▪ Having repaid a loan/credit but still having savings</li> <li>▪ Having a disabled husband/wife and getting assistance from others</li> <li>▪ Having a husband capable of earning Taka 80-150 a day</li> <li>▪ Being too old (e.g., 70 or 80 years)</li> <li>▪ Having a tin-roofed house</li> <li>▪ Possessing “luxury” items (e.g., wall clock, cupboard, radio, etc.)</li> </ul>

Source: BRAC: Stories of Targeting: Process Documentation of Selecting the Ultra Poor for CFPR/TUP Program, CFPR-TUP Working Paper Series No. 1, BRAC Research and Evaluation Division and Aga Khan Foundation Canada, April 2004.

**(d) Final Selection**

2.56 The fourth and last stage in the targeting process is the final selection of ultra-poor households as beneficiaries of the CFPR/TUP Program. This takes place when BRAC’s regional sector specialist (RSS) or area coordinator (AC) or both visit the preliminarily selected households and ask questions similar to the ones previously asked by the POs. The RSS and/or AC later discuss their findings and observations with the POs involved in the first three stages of the targeting process. Together, they try to agree on the preliminary selection of beneficiaries. A number of program-set inclusion and exclusion criteria are applied in making the preliminary and final selections. Those criteria appear in Table 2.2. The exclusion criteria are meant to be strictly applied and any potential beneficiary meeting any one of these criteria would fail to qualify. In the case of the inclusion criteria, however, failure to meet three of the five criteria would result in exclusion of the household in question.

<b>Inclusion factors</b>	<b>Exclusion factors</b>
<ul style="list-style-type: none"> <li>▪ Owning less than 10 decimals of land including homestead</li> <li>▪ No adult male income earner in the household</li> <li>▪ Having school-age children who are working</li> <li>▪ Women of the household work outside the household</li> </ul>	<ul style="list-style-type: none"> <li>▪ The household is borrowing from an MFI or NGO</li> <li>▪ The household is a current cycle recipient of government or non-government benefits (e.g., under the VGD program)</li> <li>▪ There is no adult woman in the household who is physically able to</li> </ul>

▪ Owning no productive assets	contribute labor towards assets transfer
-------------------------------	--

Source: BRAC: Stories of Targeting: Process Documentation of Selecting the Ultra Poor for CFPR/TUP Program, CFPR-TUP Working Paper Series No. 1, BRAC Research and Evaluation Division and Aga Khan Foundation Canada, April 2004.

### ***C. Marie Stopes Clinic Society***

#### **Background**

2.57 Marie Stopes Clinic Society (MSCS) is a partner of the UK-based NGO Marie Stopes International. Established in 1998, MSCS is one of the leading NGOs engaged in the Bangladesh health sector. MSCS works in 23 health care centers and 44 slum-based mini centers. MSCS provides a wide range of health care services, including mother and child health, family planning, treatment of sexually transmitted infections (STI) and general health services. In 2002, it served 800,000 clients. In addition to providing health care services, MSCS trains providers in the government, non-government and private sector with the goal of strengthening the country's national health capacity.<sup>34</sup> Over the years, MSCS has developed a number of innovative projects aimed at reaching the more marginalized sections of society, like:

- Garment Factory Health Scheme
- Tea Sellers' Educational Project
- Capacity Building of Non-Formal Practitioners/Traditional Healers
- Homeless People, etc.

2.58 Its target groups include: the urban poor, homeless, young people aged 10-20 years, men, injecting drug users, men having sex with men, commercial sex workers and their clients, transgender and factory workers.<sup>35</sup>

2.59 One of the main target groups of MSCS is the urban poor, who are provided services free of cost. To ensure the free or subsidized health care services to the urban poor, MSCS has developed an elaborate technique of identifying and targeting poor households in the catchment areas of its slum-based mini centers. This technique is explained in some detail below.

#### **Identifying and Targeting the Urban Poor**

2.60 To identify and to target the urban poor, MSCS has developed what it calls "a tool for poverty grading." The tool is a "community-focused approach to determining poverty levels, based on the assumption that those within a community are best placed to understand their own levels of poverty." This is a participatory method, in which a community served by MSCS identifies the indicators of its own poverty, determines the poverty levels of various households within that community, and ranks them according to poverty status. This tool was developed by PRIP Trust, a local NGO, as a result of participatory research conducted in three slums of Dhaka during June-September 2002, on behalf of MSCS.

---

<sup>34</sup> Marie Stopes International, Viewpoint: Developing a Participatory Poverty Grading Tool, Marie Stopes International, 2003.

<sup>35</sup> *Ibid.*

2.61 The identification and targeting process using the poverty grading tool consists of the following activities listed and discussed below:

- Conducting focus group discussions
- Identifying poverty indicators
- Determining poverty levels
- Using a scoring system
- Grading households according to poverty levels
- Drawing social maps
- Targeting services

2.62 The first step in the identification and targeting process is to hold focus group discussions (FGDs) with a number of randomly selected respondents from the target areas. In each of the three slums that PRIP Trust researched, three focus groups were formed: One consisting of males, one with females, and one mixed group. FGDs were held with these groups in order to elicit information on the nature and extent of poverty in the slums.

2.63 Next, the participants in the focus groups identify indicators of poverty from their own perspective. In the PRIP research mentioned above, the FGDs in the three slums produced a number of poverty indicators, which were similar across the focus groups and the slums, with some differences in wording. These identified indicators included the following:

- **Earnings:** wage earners, household income, profession, savings and loans
- **Accommodation:** housing structure, size of accommodation, rental/ownership status and cost
- **Facilities and services:** cooking facilities, furniture and household assets, toilet facilities, access to water, access to electricity
- **Nutrition:** number of meals per day, frequency of nutritious meals eaten
- **Other:** clothing, education, child labor, access to health services

2.64 The above indicators were then aggregated to form a single consistent set of indicators called “key indicators,” which were representative across all communities. The key indicators covered a variety of poverty descriptors, including accommodation facilities, nutrition and earnings.

2.65 Each focus group determined the poverty levels of these indicators for its own slum. For each of the key indicators, four levels of poverty were established, namely “very poor,” “poor,” “middle” and “rich.” These levels differed slightly from slum to slum, as shown in Table 2.3. It should be noted that this poverty classification is relative within the slums and the absolute standard of living there is extremely low.

<b>Grade</b>	<b>Slum 1 (male group)</b>	<b>Slum 1 (female group)</b>	<b>Slum 2 (male group)</b>
Very Poor	Cannot manage a meal every day	Do not have sufficient food. Meal depends on earnings	Always half a meal. Do not eat if no work
Poor	Do not have sufficient food	Can have meal but not sufficient	Two meals a day
Middle	Three insufficient meals a day	Have necessary food	Three meals a day
Rich	Have sufficient food	Have sufficient food	Three meals a day

2.66 Next, a scoring system was devised for grading the poverty levels of each indicator. The lowest level of an indicator “very poor” was assigned a score of 1, while the next level “poor was assigned 2, and so on. The following eight key indicators were considered for scoring:

- Living space
- House structure
- Rental status
- Cooking facilities
- Average meals per day
- Frequency of quality food intake
- Type of work (occupation)
- Monthly income (average/household member)

Table 2.4 shows an example of the scoring levels for the first two indicators – living space and house structure– listed above.

<b>Table 2.4. Scoring System for Poverty Indicators</b>		
<b>Indicator</b>	<b>Level of indicator for poverty grade</b>	<b>Score</b>
Living Space	Share one room with other family	1
	One small room for whole family	2
	Two small rooms or one large room	3
	Two or more rooms with additional space	4
House structure	Bamboo fence, bamboo thatched roof, polythene/kutchra floor or bamboo platform	1
	Bamboo fence, tin roof, kutchra floor or bamboo platform	2
	Tin fence, tin roof, brick floor	3
	Brick wall, tin or brick roof, brick floor	4

Source: Marie Stopes International: Developing Participatory Poverty Grading Tool, Marie Stopes International, 2003.

2.67 Next, with the help of the scoring system, households were graded against poverty levels. They were classified into four poverty categories, depending on the total scores obtained by them against all eight key indicators. The following poverty bands were used to classify the households:

- Score of 8-10: Very poor
- Score of 13-20: Poor
- Score of 21-28: Middle
- Score of 29-32: Rich

2.68 The next step in the identification and targeting process is social mapping of the target area. In the case of the PRIP research, this exercise was undertaken by holding more focus group discussions. Each focus group drew a map of their area of the slum. The maps contained the locations of all houses, water pumps, communal toilets, bathing and kitchen facilities, and notable landmarks like schools, mosques and factories. Members of the focus groups then graded each of the households by using the poverty grading tool described above.

2.69 They illustrated the poverty status of each household by coloring the roof of each house on the maps using the following color code:

- Red: Very poor
- Yellow: Poor
- Blue: Middle
- Green: Rich

2.70 Once the poorest have been identified, steps can be taken to target interventions aimed at helping them. In the case of MSCS, identification of the very poor households has helped it to further develop its programs for targeting its services to this group. The information about the number and locations of the poorest households has enabled MSCS to more accurately allocate its subsidized treatment funds through a family health card scheme. This information has also helped MSCS's volunteers, who work with slum communities and come from those communities themselves, to visit the poorest within the slums and raise their awareness about health care and access to it.

#### ***D. Plan Bangladesh***

##### **Background**

2.71 Plan Bangladesh (PB) is a child-focused development organization, which believes that “poor children and their families have the right and inherent capacity to effectively participate in, and benefit from, society.”<sup>36</sup> PB has developed a Child Centered Community Development Approach, which enables PB “to engage with the most marginalized members of the community, especially children, in strategies that enhance their capacity to address their own development issues.”<sup>37</sup> PB's central focus is on the child, primarily child rights, including: child survival, child development, child protection and child participation. With this focus, it has developed the following programs in Bangladesh:

- Community Health Care Program
- Community Learning Program
- Family Economic Security Program
- Enabling Environment Program

2.72 PB has significant experience working with children to identify the poorest of the poor by wealth ranking under its Child Focused Community Development Approach. An important premise of this approach is that “since children are non-biased with no vested interest, a fair ranking of the community is possible through proper facilitation by the children. The results after validation by the adults lead to development of a fairly precise list of the poorest of the poor and other categories of the community.”<sup>38</sup> This approach was adopted by the former Program Coordination Cell (PCC) of the MOHFW in 2001 to develop a process of identifying the vulnerable – women, children and the hard-core poor – as explained below.

---

<sup>36</sup> Plan Bangladesh, Plan Bangladesh's Approach for Child Centered Community Development, Plan Bangladesh, November 2002.

<sup>37</sup> Hill, J., Facilitating Child Centered Community Development Approach: A Case Study of Gazipur Program Unit 1996-2002, Plan Bangladesh, Dhaka, February 2003.

<sup>38</sup> MOHFW, Identification of the Vulnerable: Women, Children and Hard Core Poor, Operations Research Conducted by Program Coordination Cell, Ministry of Health and Family Welfare, in collaboration with Plan International Bangladesh, Dhaka, 2001.

## **Technique of Identifying Vulnerable Households**

2.73 To develop the identification technique mentioned above, PCC carried on operations research in collaboration with PB<sup>39</sup> in the following four purposively selected sites which represent different socio-economic conditions in Bangladesh:

- Nilphamari: High poverty stricken area
- Chirirbandar upazila (Dinajpur): Mid poverty stricken area
- Sreepur upazila (Gazipur): Low poverty stricken area
- Ukhia upazila (Cox's Bazar): Hard to reach area

2.74 The identification exercise carried out as part of the PCC-PB study was participatory in nature and involved the following types of actors:

- Staff members of the MOHFW at the community, union and upazila levels
- Members of local government (Union Parishad)
- Members of community groups (of community clinics)
- School-going children aged 12-14 years
- Adult community members

2.75 PB facilitated the capacity of the MOHFW staff members, including Upazila Health and Family Planning Officer (UHFPO), Medical Officer– mother and child health (MO-MCH), Assistant Health Inspector (AHI), Health Assistant (HA), Family Welfare Assistant (FWA), etc. The identification exercise consisted of three broad types of activities: (a) Preparatory work; (b) Identification work; (c) Validation work. These activities, documented by the operations research, are briefly described below.

### **(a) Preparatory Work**

2.76 The first step in the identification exercise was to demarcate the catchment areas of community clinics (CC). This was done in each study site by holding a meeting of the UHFPO, staff of the MOHFW at the union level, chairman and members of the Union Parishad and members of the community group. The meeting, which was chaired by the UP chairman, examined the map of the area that showed the location of the CCs, and validated the number of households in the area with the help of the geographical reconnaissance (GR) number. Members of the community group identified and provided information on the CCs, which was validated by union-level staff of the MOHFW by a participatory process. Decisions were recorded and read out to all participants at the end of the meeting. In this way, the catchment areas of all the CCs in a union were mutually identified, demarcated and formally endorsed by the UHFPO.

2.77 The next step was to provide orientation to MOHFW staff members at the union level, including the UHFPO, to explain the objectives of the exercise, the participatory tools and techniques that would be used, advantages and disadvantages of community participation and ownership, children's potential, and techniques of facilitation by children, etc. This was done during a one-day session in which the work process was explained and the participants engaged in mock in-house exercises.

---

<sup>39</sup> *Ibid.*

2.78 At the orientation meeting, the participants drew a hypothetical map of the CC's catchment area in which the *paras* (hamlets) were identified and clustered into small pockets. The participating children would have to be selected from every corner of each *para* of the pocket. A venue for holding a meeting with the children in the middle of the pocket was identified and a schedule for the meeting agreed upon. The MOHFW staff members divided amongst themselves the responsibility for meeting different school teachers and identifying potential participant children. At the end of the session, an action plan for conducting the field work was prepared.

2.79 Next, the MOHFW staff members visited different schools and explained to the teachers and concerned authorities the purpose of their exercise. They also visited each section of classes VI-VIII and talked to children aged 12-14 (the preferred age group) in order to identify children from every corner of each *para* of the entire catchment area. They then grouped the potential children participants according to the latter's respective *paras* and invited the participating groups to attend a meeting at the scheduled venue and time.

### **(b) Identification Work**

2.80 The MOHFW staff team facilitated the meeting to identify vulnerable households in the catchment area with the children. The participating children were seated in groups in accordance with their respective *paras*. The facilitator welcomed them and explained the objective of the session. The children and members of the facilitating teams introduced themselves to one another. To obtain a list of the participating children, each child was provided with a piece of paper on which he/she wrote down his/her name, his/her father's name and the class he/she attended.

2.81 The adults accompanying or surrounding the children were requested to let the children carry out the identification exercise freely without any interruption. They were invited to a validation session that would take place later at a scheduled date and place. The facilitator asked the children if they knew the general status/condition of their neighboring households and whether they were able to provide accurate information about them. They were also asked whether they knew the extremely poor among those households. The facilitator encouraged the children to discuss amongst themselves these issues and identify the poorest households in their *paras*.

2.82 Each group of children was provided with different colored cards and pens for writing down the names of the heads of the extremely poor households in their *para*. Each group nominated a moderator to do this exercise on behalf of the group. The moderator was reminded to listen to everyone before writing down the names on the cards, using one card for each household. At the end of the exercise, the children were asked to mention the poverty markers they had used to identify the extremely poor households. These markers were documented. It was found that the children had identified the vulnerable households against the following poverty indicators:

- Housing condition
- Occupation
- Daily income/wages
- Land ownership
- Food intake
- Clothing

2.83 The cards were then counted and collected by the facilitating team. The children were asked to remember the number of cards they had completed and ensure that all the cards would be displayed during the forthcoming validation session. The children also nominated their representatives to attend the validation session on behalf of each group. The representatives would serve to respond to queries from the community and make clarifications as needed. The facilitator then thanked the children for their effort, encouraged them to participate in their community development initiatives, and closed the meeting.

### **(c) Validation Work**

2.84 Next, a validation meeting was organized for the community in the presence of the UP Chairman, the UHFPO and members of the community group. In that meeting, the poorest households, identified by the children, were validated by the adults of the concerned area. This was done in an organized and participatory fashion, as described below.

2.85 First, all the cards containing the names of the heads of the poorest households in each *para* were pasted separately on a large sheet of paper (one large paper was used for each *para*). The papers were then hung in a visible place so that people could easily read the cards pasted on them. The children's representatives were seated in groups according to the *paras* they belonged to. They were asked to verify whether all the cards they had written on had been pasted on the large sheets. The adults of the community, together with community group members, the UP Chairman and the UHFPO, were requested to check the cards relating to their respective *paras* for validity. If they had any questions before validating the findings, they were encouraged to put them to the children, who were standing beside the large sheets of paper.

2.86 In case of any dispute or disagreement, the children were asked questions to determine the status of a household by using the poverty indicators that had been used by the children. If changes were thought necessary, the children's opinions on the matter were sought, and changes were made by consensus of all present. Respectable people of the community were asked for their opinions on the process and output. The UP Chairman and the UHFPO were then invited to comment on the process and endorse the list of the poorest households if they were convinced. Finally, at the end of the session, a final and endorsed list of agreed vulnerable households in the catchment area of a CC was obtained.

## ***E. Public Private Partnership Program***

### **Background**

2.87 The Public Private Partnership (PPP) for Essential Health Services is an experimental program started under HPSP with funding from DFID. It is co-managed by the MOHFW and NICARE.<sup>40</sup> The main purpose of the PPP program is to improve access of the poor and vulnerable to good quality essential health services by developing partnerships between the public and private health sectors. The program aims to combine health care provided through community-based schemes with resources available from the public and private sectors, both traditional and modern, to create an integrated health scheme. The main elements of the PPP are as follows:

---

<sup>40</sup> Helaluzzaman, ABM. and Ali, M.A., Public Private Partnership (PPP) for Essential Health Services in Bangladesh: Development, Achievements and Challenges. Paper presented in the International Conference on PPP in Health Care for the Poor and Disadvantaged, Dhaka, 19-21 October 2003.

- Community-Based Health Scheme (CHS) is a community ESP outlet run by community members that covers a catchment area of 6,000 – 8,000 people.
- Funding and Commissioning Partnership enables pooling of resources from all available sources, including available GOB resources and allocations from Union Parishads.
- Provider Partnership ensures the availability of a community physician based at the union level and offering services to 3-4 CHSs. Also providers, like medical assistants and health workers along with volunteers, are engaged and ESP training is arranged for them.

2.88 PPP models are being implemented in two upazilas of Bangladesh: Brahmanpara of Comilla district (an average upazila in terms of economic status) and Sariakandi of Bogra district (a poor and disadvantaged upazila).<sup>41</sup>

2.89 Under its CHS component, PPP has developed the participatory poverty assessment (PPA) mechanism for “identifying the poorest of the poor within a community in order to provide necessary health support with financial exemption.”<sup>42</sup> This mechanism is briefly reviewed below.

### **Participatory Poverty Assessment (PPA) Mechanism of the PPP Program**

2.90 The PPA technique was developed by the PPP program while working with the community people of Mahalakhmipur village in Brahmanpara upazila to:

- select the poorest of the poor who could be exempted from fees and charges;
- understand the types and patterns of diseases that the poor suffer from most; and
- to identify poor households’ relationship with access to and preference for different sources of health care services.<sup>43</sup>

2.91 The PPA exercise uses the following PRA tools for achieving the above objectives:

- Transect walk
- Social mapping
- Well-being analysis
- Focus group discussions
- Seasonal calendars
- Venn diagrams

2.92 Since most of the above PRA tools have been discussed earlier in the report, we will focus here on the process by which the PPA mechanism was developed. First, all relevant PPP and PPA-related documents were reviewed and a draft outline of the PPA process was prepared. The main considerations at this stage were: (a) the need to allow local people to assess poverty levels within their own communities; and (b) to let the community classify households in specific categories. On the basis of the document review, a range of different PRA tools and techniques were selected for the process.

---

<sup>41</sup> *Ibid.*

<sup>42</sup> Biswas, P., Participatory Poverty Assessment for Public Private Partnership (PPP) Community Health Scheme Level: A Reflection Report on a PPA Exercise in Mahalakhmipara Village, DFID, Dhaka, September 2001.

<sup>43</sup> *Ibid*, p. 6.

2.93 Next, a four-person assessment team, consisting of both male and female members, was formed to conduct the PPA work, which was completed in four days. On the first day, the team members walked through the area. The “transect walk” objective is to familiarize team members with the place and to gain an overall impression of the community by talking to different people. This stage was also meant to build rapport with the community.

2.94 On the second day, team members continued collecting information on the social, natural and infrastructural resources of the area. They selected a mixed-age group of villagers, representing different levels of income, caste, class and ethnicity, and asked them to draw a social resource map. The “social mapping” showed all the households and other important objects of the area. Next, the assessment team used the technique of well-being analysis. The community members themselves identified different socio-economic categories of the village by “wealth ranking.” They also identified various characteristics and indicators of the socio-economic groups, and categorized the households accordingly.

2.95 On the third day, the assessment team held discussions with two separate focus groups (male and female) representing the lowest well-being category. The accuracy of the criteria and indicators was verified through these discussions. The FGDs also provided information on the area’s disease pattern from which a “seasonality calendar” of diseases could be prepared. Using the technique of Venn diagrams, the assessment team was able to determine the preferences of the health service users. On the fourth and final day, the assessment team presented its findings to the community and verified the accuracy of the collected information. In this way, the poor and vulnerable households in the area were identified with the help of the Participatory Poverty Assessment mechanism of the PPP program.

## ***F. Partners in Health and Development***

### **Background**

2.96 The Bangladesh Population and Health Consortium (BPHC)--now called Partners in Health and development (PHD), started as a DFID project in 1988 (at that time called Overseas Development Administration or ODA) to support NGOs delivering maternal and child health and family planning services to poor and under-served communities in Bangladesh. Since then, more than 100 NGOs and 150 projects have received BPHC support. The project ended in December 2004. As part of its Public NGO Partnership program, BPHC supported 36 locally based NGOs, the majority of which worked in rural areas with predominantly hard-to-reach and underserved communities. Most of these NGOs offered diverse and integrated programs, of which health was an important component. BPHC provided financial and technical support to these NGOs for delivering the Essential Services Package to an estimated 2.2 million rural people, particularly to the poor, women and children who lived in hard-to-reach and disadvantaged areas. Targeting poor people for health services had, therefore, been one of the main agenda of BPHC. Briefly reviewed below are the main elements of identification and targeting of the poor as practiced by BPHC and its partner NGOs.

### **Identifying and Targeting the Poor**

2.97 In 1998, BPHC reviewed the performance of its partner NGOs and discovered that a considerable proportion of the population residing in the catchment areas was not receiving

services from the NGOs. This raised the question whether the poorest were receiving services according to their needs or were being left out altogether. To address this issue, BPHC devised a strategic plan to ensure that the poorest receive essential health care services from its partner NGOs. As part of its pro-poor strategy, BPHC developed a methodology to identify and to target the poor by collecting expenditure data and estimating per capita household expenditures in the catchment areas served by those NGOs.<sup>44</sup>

2.98 BPHC developed an elaborate questionnaire for collecting the required data using household surveys. BPHC also provided orientation to NGO program managers on the methodology and survey tools and techniques. The first round household expenditure data surveys was conducted by the NGOs in late 1999 and early 2000. The collected data was categorized to group the relevant households in one of the following four categories according to one poverty indicator “per capita annual expenditure”- as below.

Category	Per capita annual expenditure
A. Poorest	Up to Taka 5,000
B. Poor	Taka 5,001 – 7,500
C. Middle	Taka 7,501 – 10,000
D. Upper middle and rich	Taka 10,001 and more

The per capita annual expenditure was estimated by dividing the total annual expenditure of each household by the number of people residing in that household. The total annual expenditure was determined by totaling expenses as reported in the survey by each household on an array of items, e.g., food, clothing, education, health, assets, repair of house, etc.

2.99 To effectively target their services to the poor, the BPHC/PHD-funded NGOs developed a sliding-scale pricing strategy which enabled poor households to obtain free services. Having categorized the different households according to their reported per capita annual expenditures, the NGOs provided the surveyed households with family health cards that indicated their economic status. Poor households could receive free services by showing their cards at service centers. The information on the economic status of the different households was also transferred to the registers of paramedics and field workers to enable them to identify and target the poor.

### III. Summary

2.100 The cases reviewed above show that both government and NGOs have good experience in identifying and targeting the poor and vulnerable in their development projects which are aimed at alleviating poverty. All the organizations/programs discussed have devised their own identification and targeting mechanisms, the main elements of which are summarized below and presented in matrix-form in Annex III.

2.101 Each organization has a pre-determined target group(s) in accordance with its program objective(s). To select these groups, each organization defines a set of criteria against which potential beneficiaries are measured. These selection criteria depend on the type of people to be targeted, e.g., the landless or those owning less than 0.15 acre of land, including homestead, and/or those earning an income of less than Taka 300 per month (e.g., FSVGD project).

<sup>44</sup> Sarker, M.A.H., Targeting and Reaching the Poor by BPHC-funded NGOs, BPHC Public NGO Partnership, Dhaka.

2.102 Potential beneficiaries' conditions are assessed using a set of socio-economic indicators developed by the organization, usually in consultation with stakeholders and members of the community in which the organization works. These poverty indicators vary from organization to organization but focus on: ownership of land and assets, income, occupation, housing conditions, food security, quality of food intake, clothing, etc.

2.103 In order to determine the poverty level of potential beneficiaries, a household survey in the program area is carried out. The survey can take the form of simple interviews of household heads/members using a questionnaire for eliciting socio-economic information (as in the case of PHD/BPHC). Or it can be an elaborate PRA exercise in which community members actively participate to obtain the required information (as in the case of the other five NGOs).

2.104 The PRA techniques encountered in our case studies include transect walk, focus group discussion, social mapping, wealth ranking, health seeking mobility map, seasonality calendar, Venn diagram, etc. In some cases (e.g., BRAC), the PRA exercise is followed by household interviews to ensure greater accuracy of the collected information. The PRA techniques and/or interviews result in categorizing the households into different groups based on poverty indicators, such as rich, middle class, poor, poorest/ultra-poor/hard-core poor, etc. The conditions of the poor and poorest households are verified by physical observation and, at times, cross-checked with neighbors (e.g., BRAC). Once the target groups have been identified, the organization targets its services towards them by, for example issuing family health cards that enable them to receive free treatment (e.g., BPHC/PHD).

## **Chapter 3. Resource Allocation Across Districts and Upazilas**

*This chapter is an overview of the MOHFW's existing method for allocating resources across administrative districts and upazilas. It also reviews the district level Human Development Index (HDI) and Human Poverty Index (HPI), and suggests criteria to allocate budgets among districts based on the HPI.*

### **I. The MOHFW's Existing Method of Allocating Resources across Districts and Upazilas**

3.1 In recent years, the Government of Bangladesh has attempted to make a structural shift in resource allocation by focusing more on primary health care service delivery rather than on secondary and tertiary public health service. Presently the MOHFW is spending almost 50 percent of its total budget on primary health care under its Essential Services Package (ESP) (Bangladesh National Health Accounts, 1999-2001). To encourage the poor to use public health care facilities, the upazila health complex and lower level facilities are not permitted to charge user fees. At district and tertiary level facilities, a discretionary payment exemption system exists (Bangladesh National Health Accounts, 1999-2001). These adjustments are viewed as pro-poor and conforming to the overall national policy goals detailed in the Poverty Reduction Strategy Paper (Bangladesh: A National Strategy for Economic Growth, Poverty Reduction and Social Development, 2003). An analysis of the MOHFW's actual expenditures in the last two fiscal years demonstrates an absence of an explicit geographical (or spatial) targeting in resource allocation. In practice, resource allocation, including revenue and development expenditures, is made by provider facilities. These facilities are very unevenly distributed across the districts and upazilas. Currently, nearly 22 percent of the upazilas do not have any upazila health complex facilities. Allocation of resources across districts and lower level facilities, as represented by budget and actual expenditures, has little relation to either the size of the population or the number of patients treated when measured by number of admissions and out-patient consultations (Ensor, 2001).

3.2 The MOHFW annually allocates budgetary resources comprising both revenue or recurring budget and the Annual Development Program (ADP) to a network of more than 3,600 health facilities spread throughout the country. The procedure for allocating budgetary resources to such a large number of diverse types of facilities is not well documented. Ensor (HEU, 2001) appears to be the only source that provides a comprehensive and fairly up-to-date description of the MOHFW resource allocation procedure. According to Ensor, the MOHFW recurrent expenditures (termed as revenue expenditures) are funded by the GOB's revenue budget and are divided into the following major economic categories:

- Salary and allowances
- Contingencies (or operational expenses)
- Medical and surgical requisites (MSR) (funded by revenue budget) and medical and surgical supplies (MSS) (funded by development budget)
- Repairs and maintenance
- Transfers (grants in aid) to non-profit institutions (NPI), including NGOs, and contributions to the United Nations (UN) bodies.

<b>Subgroups of MSR</b>	<b>UHC</b>	<b>DH</b>	<b>MC</b>
Group A: drugs	51-75%	51-70%	51-60%
Group B: equipment	10-20%	12-20%	15-20%
Group C: bandage	5-8%	5-8%	6-8%
Group D: linen	4-8%	4-8%	6-8%
Group E: oxygen	1-5%	3-5%	5%
Group F: reagents	2-5%	3-5%	5%
Group G: furniture	2%	2%	2%
Group H: supplies	1%	1%	1%
Total of all sub groups	100%	100%	100%

Source: Health Economics Unit, 2001, Research Paper No. 21, p. 39.

Note: UHC: Upazila Health Complex; DH: District Hospital; MC: Medical College

3.3 As an illustration, medical and surgical requisites (MSR) are classified into eight subgroups. MSR allocations among primary (upazila health complex), secondary (district hospital) and tertiary (medical college hospital) facilities are presented in Table 3.1.

3.4 In the government's budget, health allocations across districts and upazilas are centrally determined. Allocation guidelines are primarily driven by the capacity of the GOB health facilities and historical norms rather than based on per capita needs. Resources are allocated for specific line items (such as food, medicines, and medical supplies). Variations in the line items' allocations are not possible (Health Economics Unit, 2001, Research Paper 21, p.7). Table 3.2 illustrates allocations under line items in public facilities. The table demonstrates the limitations for discretionary adjustments to line items within the facilities and between them.

<b>Line items</b>	<b>Allocation basis</b>	<b>District</b>	<b>Upazila</b>	<b>Union</b>	<b>Financial and management authority</b>
Food	Per bed-day	Taka 30 per bed-day	Taka 30 per bed-day	Not applicable	Civil Surgeon supervises local tender
Medical and Surgical Requisites	<ul style="list-style-type: none"> <li>● Per bed/per facility</li> <li>● Top-down decision from DG</li> </ul>	Taka 22,000	Taka 15,000	Taka 75,000	Civil Surgeon supervises local tender
Staff	Staff in post up to the maximum allotment per facility	11 doctors 27 nurses 30 other staff	9 doctors 10 nurses 23 other staff	4 other staff	Director General (DG)
Maintenance, fuel etc (<Taka 1000)	<ul style="list-style-type: none"> <li>● Based on historic spending</li> <li>● Vehicle capacity</li> <li>● Utilization pattern</li> <li>● Political importance</li> </ul>	Taka 40,000	Taka 25,000	Not applicable	Civil Surgeon supervises use of budget
Capital (Equipment, construction, renovation)	Submissions	Less than contingency fund amount, i.e., about Taka 2,000	Less than contingency fund amount, i.e., about Taka 2,000		Civil Surgeon when met from the contingency fund DG/CMMU/PWD

Source: Health Economics Unit, 2001, Research Paper No. 21, p. 8.

Note: <sup>1</sup> More than 70 percent drugs; the balance includes surgical instruments, bandages, reagents, linens, and gas.

3.5 Government allocations in district hospitals and upazila health complexes are dictated by in-patient facilities (number of beds) and staffing, as shown in Table 3.3. Consequently, this leads to wide differences in the districts' per capita allocations in both the revenue and development budget. These differences do not appear to be explained by the difference in health needs.

<b>Table 3.3. Comparison of Typical District Hospital and Upazila Health Complex Budgets</b>					
<b>District Hospital (50 beds)</b>					
<b>Item</b>	<b>Unit</b>	<b>Unit cost</b>	<b>Units</b>	<b>Total</b>	<b>%</b>
Staff					
Doctors	Annual salary	104,000	11	1,144,000	16.4
Nurses	Annual salary	74,000	27	1,998,000	28.6
Other	Annual salary	42,000	30	1,260,000	18
			Sub-total	4,402,000	63
Other					
Food	Per bed, per day	30	18,250	547,500	7.8
MSR	Per bed	22,000	50	1,100,000	15.7
Maintenance	Per year	40,000	1	40,000	0.6
Other	Per year	900,000	1	900,000	12.9
			Sub-total	2,587,500	37
			<b>Total</b>	<b>69,895,000</b>	<b>100</b>
<b>Upazila Health Complex (31 beds)</b>					
Staff					
Doctors	Annual salary	104,000	9	936,000	25.9
Nurses	Annual salary	73,000	10	730,000	20.2
Other	Annual salary	40,000	23	920,000	25.4
			Sub-total	2,586,000	71.5
Other					
Food	Per bed, per day	30	11,315	339,450	9.4
MSR	Per bed	15,000	31	465,000	12.9
Maintenance	Per year	25,000	1	25,000	0.7
Other	Per year	200,000	1	200,000	5.5
			Sub-total	1,029,450	28.5
			<b>Total</b>	<b>3,615,450</b>	<b>100</b>

Source: Health Economics Unit, 2003, Research Paper No. 21, p. 8.

Notes: 1. Assumes 50 bed district hospital, 31 beds UHC.

2. Salary figures taken from averages from small hospital study (Quayyum and Howlader, 2000).

3. Figures assumed hospital operating at 100 percent capacity with all allocated posts full.

3.6 The preceding two tables demonstrate the great differences in the districts' per capita allocations in either the government's revenue or the development budget. It is important to note that the variations in allocation are not based on health needs or on other objective criteria, such as spatial or district distribution of poverty as indicated by poverty mapping and

other indicators of poverty, like Human Poverty Index (HPI) or Human Development Index (HDI).

## II. Analysis of the MOHFW Health Care Resources Allocation by District for the Past Two Fiscal Years

3.7 Two MOHFW databases provide actual utilization of MOHFW health care resource allocation by districts: (a) Local Level Planning (LLP) database, and (b) Financial Management and Audit Unit (FMAU) database. The LLP database is comparatively new, and is being developed under the MOHFW's LLP initiative. Although the LLP database is more comprehensive with regard to type of data coverage, it is not yet completed. As a result, the estimated LLP district allocations are incomplete and the data may therefore provide biased results. The FMAU database, on the other hand, appears to be relatively developed, comprehensive in coverage with better quality data. It is operated and periodically updated by professionals and experienced personnel. Only the 2000-01 allocation data in the FMAU database was used in the analysis to illustrate fiscal years 2000-2001 and 2001-2002 fiscal years.

3.8 FMAU district allocations are derived from comprehensive field reports and include total expenditures by districts comprising revenue and development expenditure components. Development expenditures consist of expenditures by the GOB and DPs. The latter are the totals of reimbursable program aid (RPA) and direct program aid (DPA) disbursements during the concerned fiscal years.

3.9 To assess whether annual allocations by districts follow any logical pattern over time, per capita ranking by districts in 2000-01 and 2001-02 has been prepared with data from the FMAU database (Table 3.4). The table reveals little variation in ranking between the two periods by district. However, per capita expenditure between the districts differs, ranging from Taka 42 in Jamalpur to Taka 284 in Jhalokati during 2001-02.

Division	District	Per capita expenditure (2000-01)	Rank (2000-01)	Per capita expenditure (2001-02)	Rank (2001-02)
Barisal	Barguna	105	19	109	16
Barisal	Barisal	185	6	205	5
Barisal	Bhola	76	46	71	51
Barisal	Jhalokati	290	1	284	1
Barisal	Patuakhali	85	35	88	30
Barisal	Pirojpur	83	38	88	29
Chittagong	Bandarban	224	3	226	3
Chittagong	Brahmanbaria	65	60	68	59
Chittagong	Chandpur	76	44	73	50
Chittagong	Chittagong	112	14	118	14
Chittagong	Comilla	100	20	101	21
Chittagong	Cox's Bazar	66	59	71	55
Chittagong	Feni	99	23	94	25

**Table 3.4. Rank of Districts by Per Capita Allocations in Two Consecutive Years**

<b>Division</b>	<b>District</b>	<b>Per capita expenditure (2000-01)</b>	<b>Rank (2000-01)</b>	<b>Per capita expenditure (2001-02)</b>	<b>Rank (2001-02)</b>
Chittagong	Khagrchhari	194	4	197	6
Chittagong	Lakshmipur	80	42	74	47
Chittagong	Noakhali	70	55	71	54
Chittagong	Rangamati	238	2	231	2
Dhaka	Faridpur	163	8	177	7
Dhaka	Gazipur	56	61	61	61
Dhaka	Gopalganj	94	26	100	22
Dhaka	Jamalpur	44	63	42	63
Dhaka	Kishoreganj	82	40	83	36
Dhaka	Madaripur	99	22	87	32
Dhaka	Manikganj	109	15	134	13
Dhaka	Munshiganj	99	24	97	24
Dhaka	Mymensingh	120	13	114	15
Dhaka	Narayanganj	74	47	74	46
Dhaka	Narsingdi	76	45	71	53
Dhaka	Netrokona	87	32	82	37
Dhaka	Rajbari	94	27	91	27
Dhaka	Shariatpur	91	29	88	28
Dhaka	Sherpur	72	51	75	45
Dhaka	Tangail	87	33	84	34
Khulna	Bagerhat	100	21	107	18
Khulna	Chuadanga	67	57	70	58
Khulna	Jessore	72	49	68	60
Khulna	Jhenaidaha	46	62	51	62
Khulna	Khulna	156	10	171	9
Khulna	Kushtia	89	30	85	33
Khulna	Magura	106	18	102	19
Khulna	Meherpur	85	34	92	26
Khulna	Narail	88	31	98	23
Khulna	Satkhira	70	52	73	48
Rajshahi	Bogra	122	12	151	11
Rajshahi	Dinajpur	108	16	109	17
Rajshahi	Gaibandha	84	37	79	39
Rajshahi	Joypurhat	155	11	139	12
Rajshahi	Kurigram	92	28	78	41
Rajshahi	Lalmonirhat	83	39	75	44
Rajshahi	Naogaon	84	36	83	35
Rajshahi	Natore	70	54	75	43
Rajshahi	Nawabganj	73	48	73	49

<b>Table 3.4. Rank of Districts by Per Capita Allocations in Two Consecutive Years</b>					
<b>Division</b>	<b>District</b>	<b>Per capita expenditure (2000-01)</b>	<b>Rank (2000-01)</b>	<b>Per capita expenditure (2001-02)</b>	<b>Rank (2001-02)</b>
Rajshahi	Nilphamari	72	50	78	40
Rajshahi	Pabna	107	17	101	20
Rajshahi	Panchagarh	95	25	87	31
Rajshahi	Rajshahi	190	5	206	4
Rajshahi	Rangpur	163	7	157	10
Rajshahi	Sirajganj	67	58	70	56
Rajshahi	Thakurgaon	70	53	77	42
Sylhet	Habiganj	80	41	79	38
Sylhet	Moulvibazar	68	56	70	57
Sylhet	Sunamganj	79	43	71	52
Sylhet	Sylhet	162	9	173	8

Data source: FMAU database

3.10 The data for two consecutive years has been tested using the following regression model:

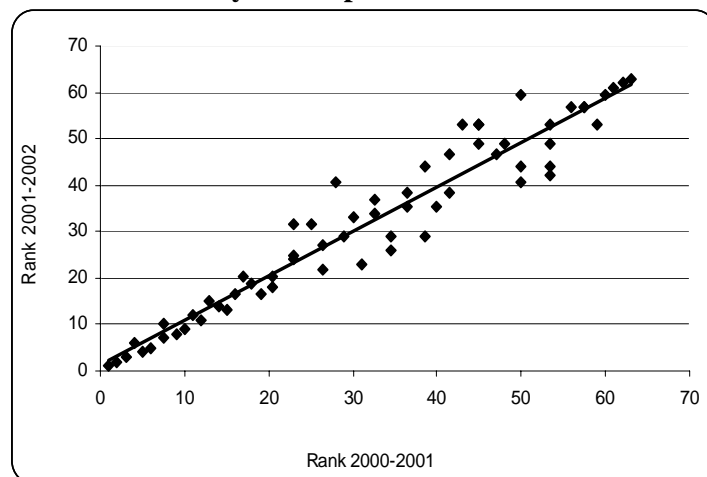
$$y_t = y_{t-1} + e_t$$

where:

- $y_t$  is current year's per capita allocation
- $y_{t-1}$  is last year's per capita allocation
- $e_t$  is a random error term distributed normally with zero mean
- and unit standard deviation and is additive over time.

3.11 The summary statistics of this regression model is show in the annex V. The analysis of the above regression model indicates that the current year allocation is significantly explained by the past year allocation. The graphical fit of the simple regression model is presented in Figure 3.1. It shows that the relationship between per capita allocations by districts for two consecutive years follows somewhat of a “random walk” pattern. Random walk can be defined as an autoregressive phenomenon influenced by random errors.

**Figure 3.1. Rank of Districts by Per Capita Allocations in Two Consecutive Years**



Data source: FMAU database

3.12 The random walk model observed in annual per capita allocation by districts can be interpreted as follows:

- There is high level of correlation between outlays in subsequent years. The variation between consecutive years is not very pronounced indicating rather low and finite variance of the error term;
- Allocations are made by facilities without regard to districts;
- When the actual allocations are converted by districts per capita, year-to-year allocation (per capita) varies due to the influence of a well known random error;
- The random walk model provides insight into the logic of annual allocations when converted into district allocation.

### **III. Review of Existing Human Development Index and Human Poverty Index for Districts**

#### **A. Human Development Index for Districts**

3.13 The disaggregated Human Development Index (HDI) for the 64 districts of Bangladesh was compiled for the first time by the United Nations Development Program's (UNDP) local office. The index was assembled for 1994-95 using the global methodology of the Human Development Index produced annually by the UNDP's Human Development Report Office (HDRO) in New York. Disaggregated regional and district data produced by the Bangladesh Bureau of Statistics (BBS) was used as the main data source and various manipulations were carried out to adopt the data to the methodological needs of the index.

3.14 Like the global index, the compiled HDI of Bangladesh takes into account three dimensions of human development at the district level, which are: (a) longevity, (b) educational attainment, and (c) standard of living. Each of these parameters independently or collectively impacts a household's health care seeking behavior.

3.15 To quantify the dimensions of human development in the respective administrative districts of Bangladesh, four indicators were used: (a) life expectancy (LE) at birth for longevity; (b) adult literacy (AL); (c) combined (primary, secondary and tertiary) enrollment ratio for educational attainment; and (d) district gross domestic product (GDP) per capita<sup>45</sup> in PPP\$ for standard of living. Until 1994, HDRO used mean years of schooling with adult literacy to obtain the educational attainment index. Since 1995, mean years of schooling have been replaced by the combined enrollment ratio (CER), which measures the ratio of enrolled students between the ages of 5 and 24 to the overall population belonging to this age group.

3.16 The formula used to compute individual district HDI index is as follows:

$$\text{Index} = (\text{Observed } x_i \text{ value} - \text{minimum } x_i \text{ value}) / (\text{maximum } x_i \text{ value} - \text{minimum } x_i \text{ value})$$

where  $x_i$  refers to the four selected human development variables.

3.17 In the global HDI calculation, maximum and minimum values refer to globally attained or potentially possible *maxima* and *minima*. The maximum and minimum values established for the four variables are: (a) life expectancy- 85 and 25 years; (b) adult literacy- 100% and 0%; (c) combined enrollment ratio- 100% and 0%; and (d) GDP per capita in PPP\$ 40,000 and 100.

3.18 Since GDP per capita in PPP\$ for Bangladesh (or any of its districts) is below the threshold value represented by global average GDP in PPP\$, the maximum value is replaced by its post-threshold discounted value. Accordingly, while calculating indexed income, no discounting of the observed value of the districts is needed. The discounted value of the maximum income of US\$40,000 (PPP\$) is estimated at US\$6,154 (PPP\$), applying the so-called Atkinson's formula. The minimum value of US\$100 (PPP\$) remains unchanged.

3.19 The educational attainment index is the weighted average of adult literacy and combined enrolment ratio. While two-third of the weight is apportioned to the former, the combined enrolment ratio's weight was set at one third. The aggregate HDI is the simple average of life expectancy, educational attainment and income indices. The steps followed in the construction of HDI are described below:

**Life expectancy index:**

$$\text{District 1} = (\text{District value} - 25) / (85 - 25) = (\text{District value} - 25) / 60$$

**Adult literacy index:**

$$\text{District 1} = (\text{District value} - 0) / (100 - 0) = (\text{District value} - 0) / 100$$

**Combined primary, secondary and tertiary enrollment ratio index:**

$$\text{District 1} = (\text{District value} - 0) / (100 - 0) = (\text{District value} - 0) / 100$$

**Educational attainment index:**

$$\text{District 1} = (2 \times \text{Adult literacy index} + \text{Combined enrolment ratio}) / 3$$

---

<sup>45</sup> The estimates of GDP: the district GDP estimates were taken from "Provisional Estimates of Gross Regional Products: 1995-1996 to 1999-2000. BBS, May 2002.

**Adjusted GDP per capita (PPP\$) index:**

District I

$$= (\text{District per capita GDP in PPP\$} - 100) / (6154 - 100)$$

$$= (\text{District per capita GDP in PPP\$} - 100) / 6054$$

3.20 Hence, for any district, HDI is estimated by summing the simple average of the life expectancy index, educational attainment index and adjusted GDP per capita (PPP\$) index and then dividing the sum of these three indices by three. The original HDI compiled by UNDP is ten years old and based on data from 1994-95. Because substantive changes in the component variables have occurred over time that data is now obsolete. Therefore the HDI for each of the 64 districts was updated. District level HDI data was obtained from the Bangladesh Bureau of Statistics for 1999-2000. Applying UNDP's methodology, HDI composite scores for 1994-95 and 2001 have been prepared for each of the districts of Bangladesh (Table 3.5).

3.21 A comparison of HDI ranking for 1994-95 and 2001 reveals that substantial changes have taken place over time for some districts, while for others there is slight variation in relative status. Rangmati had the highest HDI ranking in 1994-95; in 2001 its performance dropped to 54 among the 64 districts. On the other hand, Sherpur under Dhaka division was the lowest ranked district in 1994-95, but it made a modest climb to 58 in 2001. While Dhaka district consistently remained high in relative HDI ranking— fourth in 1994-95 and first in 2001.

**Table 3.5. District Level Human Development Index (HDI)**

Division	District	HDI 2001	Rank HDI 2001	HDI 1994-95	Rank HDI 1994-96
Barisal	Barguna	0.60	6	0.39	14
Barisal	Barisal	0.57	12	0.37	22
Barisal	Bhola	0.52	43	0.29	60
Barisal	Jhalakati	0.57	11	0.41	11
Barisal	Patuakhali	0.58	8	0.38	19
Barisal	Pirojpur	0.59	7	0.4	13
Chittagong	Bandarban	0.48	59	0.48	3
Chittagong	Brahmanbaria	0.53	35	0.31	50
Chittagong	Chandpur	0.55	16	0.44	8
Chittagong	Chittagong	0.62	5	0.43	9
Chittagong	Comilla	0.53	25	0.39	16
Chittagong	Cox's bazaar	0.51	45	0.28	63
Chittagong	Feni	0.54	23	0.41	12
Chittagong	Khagra chari	0.48	63	0.51	2
Chittagong	Lakshmipur	0.57	13	0.36	27
Chittagong	Noakhali	0.55	18	0.38	20
Chittagong	Rangamati	0.5	54	0.54	1
Dhaka	Dhaka	0.76	1	0.46	4
Dhaka	Faridpur	0.51	48	0.36	29
Dhaka	Gazipur	0.65	2	0.36	28

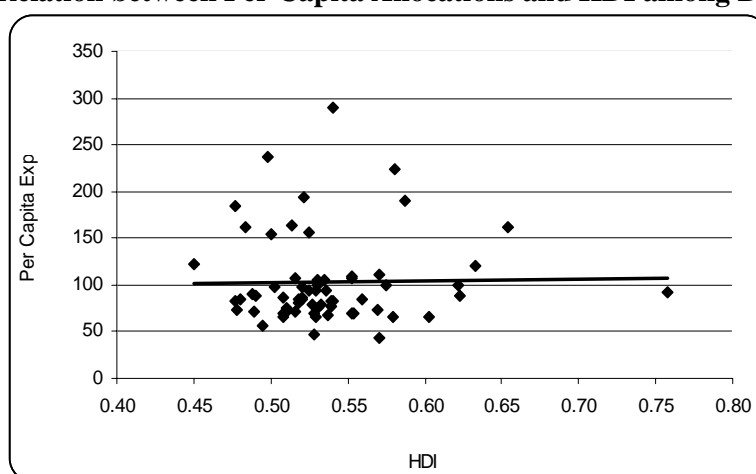
<b>Table 3.5. District Level Human Development Index (HDI)</b>					
<b>Division</b>	<b>District</b>	<b>HDI 2001</b>	<b>Rank HDI 2001</b>	<b>HDI 1994-95</b>	<b>Rank HDI 1994-96</b>
Dhaka	Gopalganj	0.54	22	0.41	10
Dhaka	Jalpalpur	0.45	64	0.32	44
Dhaka	Kishoreganj	0.49	57	0.33	40
Dhaka	Madaripur	0.52	36	0.36	30
Dhaka	Manikganj	0.51	47	0.33	43
Dhaka	Munshiganj	0.55	17	0.35	34
Dhaka	Mymensingh	0.52	41	0.29	61
Dhaka	Narayanganj	0.63	3	0.38	18
Dhaka	Narsingdi	0.53	26	0.37	23
Dhaka	Netrokona	0.51	49	0.31	53
Dhaka	Rajbari	0.49	56	0.37	21
Dhaka	Shariatpur	0.53	33	0.32	45
Dhaka	Sherpur	0.49	58	0.25	65
Dhaka	Tangail	0.51	51	0.3	56
Khulna	Bagerhat	0.58	9	0.46	5
Khulna	Chuadanga	0.53	31	0.3	57
Khulna	Jessore	0.58	10	0.36	26
Khulna	Jhenaidaha	0.53	29	0.32	48
Khulna	Khulna	0.62	4	0.46	6
Khulna	Kushtia	0.52	44	0.31	54
Khulna	Magura	0.52	42	0.34	36
Khulna	Meherpur	0.51	50	0.32	46
Khulna	Narail	0.54	21	0.46	7
Khulna	Satkhira	0.54	24	0.38	17
Rajshahi	Bogra	0.52	37	0.36	25
Rajshahi	Dinajpur	0.53	28	0.34	38
Rajshahi	Gaibandha	0.53	32	0.34	35
Rajshahi	Joypurhat	0.54	20	0.39	15
Rajshahi	Kurigram	0.48	61	0.32	47
Rajshahi	Lalmonirhat	0.53	27	0.31	52
Rajshahi	Naogaon	0.52	40	0.33	41
Rajshahi	Natore	0.53	34	0.36	24
Rajshahi	Nawabganj	0.48	60	0.33	42
Rajshahi	Nilphamari	0.48	62	0.25	64
Rajshahi	Pabna	0.56	14	0.31	51
Rajshahi	Panchagarh	0.52	39	0.3	55
Rajshahi	Rajshahi	0.55	15	0.35	33
Rajshahi	Rangpur	0.49	55	0.28	62
Rajshahi	Sirajganj	0.53	30	0.34	37
Rajshahi	Thakurgaon	0.51	46	0.33	39

Division	District	HDI 2001	Rank HDI 2001	HDI 1994-95	Rank HDI 1994-96
Sylhet	Habiganj	0.52	38	0.29	58
Sylhet	Maulvibazar	0.5	53	0.35	32
Sylhet	Sunamganj	0.5	52	0.32	49
Sylhet	Sylhet	0.54	19	0.29	59
Bangladesh		0.55		0.33	

Data source: Bangladesh Bureau of Statistics (BBS), 2001.

3.22 The scatter diagram and the results from the regression of per capita allocation of the 2001-2002 HDI do not show a clear relation of per capita allocation with HDI (Figure 3.2). This may be enough to establish the point that health expenditures are not targeted to the poor.

**Figure 3.2. Relation between Per Capita Allocations and HDI among Districts, 2001-02**



Data source: FMAU database and Bangladesh Bureau of Statistics (BBS), 2001.

### ***B. Human Poverty Index for Districts***

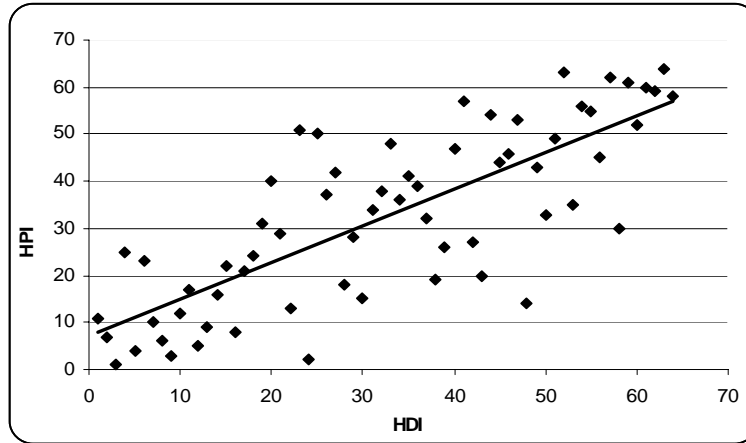
3.23 The Human Poverty Index (HPI) complements the Human Development Index (HDI). If HPI can be calculated at the district level, it can serve as a key yardstick for allocation of resources across districts. The HPI concentrates on deprivations in three essential elements of human life as reflected in HDI: longevity, knowledge and standard of living. The first deprivation relates to survival- vulnerability to death at a relatively early age. The second relates to knowledge- being excluded from the world of education and communication. The third relates to a decent living standard in terms of overall economic provisioning.

3.24 In constructing the HPI, deprivation in longevity is represented by the percentage of people not expected to survive to age 40 ( $P_1$ ). A proxy for estimating deprivation in knowledge is defined as the percentage of adults who are illiterate ( $P_2$ ). Being deprived of a decent living standard in terms of overall economic provisioning is represented by a composite ( $P_3$ ) of three variables – percentage of people without access to safe water ( $P_{31}$ ),

percentage of people without access to health services ( $P_{32}$ ), and percentage of children under five years of age who are moderately and severely undernourished ( $P_{33}$ ).

3.25 The composite variable  $P_3$  is constructed by computing a simple average of the three variables  $P_{31}$ ,  $P_{32}$  and  $P_{33}$ . Thus  $P_3 = (P_{31} + P_{32} + P_{33})/3$ . The formula for HPI is given by  $HPI = [(P_1^3 + P_2^3 + P_3^3)/3]^{1/3}$ .

**Figure 3.3. Rank of Districts by HDI and HPI**



Data Source: Binayak Sen and Zulfiqar Ali, 2003, Spatial Inequality in Social Progress in Bangladesh, UNICEF and BBS, 2000.

3.26 Sen and Ali (2003) estimated district level HPI for 2000. The findings are reproduced in Table 3.6, along with HDI 2000. Aside from the HPI and the HDI scores, the relative ranking of the districts based on these two indices are included in Table 3.6. Both Table 3.6 and Figure 3.3 reveal close association between HPI and HDI scores for a few districts, but not in many cases. Dhaka and Jamalpur from Dhaka division and Khulna district of Khulna division have very similar respective HPI and HDI rankings. On the other hand, Pabna district of Rajshahi division fares much better in terms of HDI (14 ranked), but has a low score of 48 based on HPI.

<b>Table 3.6. Comparison of HDI and HPI for Districts, 2000</b>					
<b>Division</b>	<b>District</b>	<b>HPI</b>	<b>HDI</b>	<b>Rank HPI</b>	<b>Rank HDI</b>
Barisal	Barguna	28.43	0.6	8	6
Barisal	Barisal	29.03	0.57	10	12
Barisal	Bhola	36.32	0.52	49	43
Barisal	Jhalakati	25.4	0.57	1	11
Barisal	Patuakhali	30.56	0.58	16	8
Barisal	Pirojpur	25.82	0.59	2	7
Chittagong	Bandarban	39.77	0.48	62	59
Chittagong	Brahmanbaria	37.65	0.53	53	35
Chittagong	Chandpur	29.76	0.55	14	16
Chittagong	Chittagong	29.21	0.62	12	5
Chittagong	Comilla	26.72	0.53	4	25
Chittagong	Cox's bazaar	38.44	0.51	56	45
Chittagong	Feni	28.15	0.54	6	23

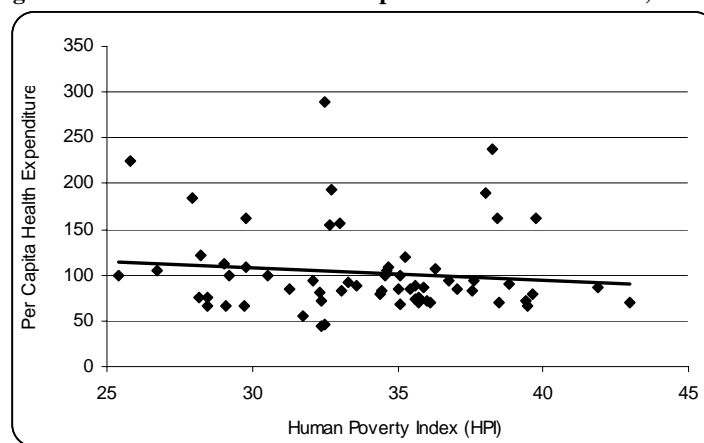
<b>Table 3.6. Comparison of HDI and HPI for Districts, 2000</b>					
<b>Division</b>	<b>District</b>	<b>HPI</b>	<b>HDI</b>	<b>Rank HPI</b>	<b>Rank HDI</b>
Chittagong	Khagra chari	37.58	0.48	52	63
Chittagong	Lakhsmpur	32.39	0.57	22	13
Chittagong	Noakhali	33.05	0.55	28	18
Chittagong	Rangamati	35.74	0.5	44	54
Dhaka	Dhaka	26.51	0.76	3	1
Dhaka	Faridpur	34.59	0.51	33	48
Dhaka	Gazipur	32.49	0.65	24	2
Dhaka	Gopalganj	29.77	0.54	15	22
Dhaka	Jalpalpur	41.87	0.45	63	64
Dhaka	Kishoreganj	35.59	0.49	41	57
Dhaka	Madaripur	34.64	0.52	34	36
Dhaka	Manikganj	35.44	0.51	40	47
Dhaka	Munshiganj	29.07	0.55	11	17
Dhaka	Mymensingh	34.7	0.52	35	41
Dhaka	Narayanganj	28.45	0.63	9	3
Dhaka	Narsingdi	35.25	0.53	39	26
Dhaka	Netrokona	37.06	0.51	51	49
Dhaka	Rajbari	38.03	0.49	54	56
Dhaka	Shariatpur	36.76	0.53	50	33
Dhaka	Sherpur	42.98	0.49	64	58
Dhaka	Tangail	32.48	0.51	23	51
Khulna	Bagerhat	29.72	0.58	13	9
Khulna	Chuadanga	32.11	0.53	19	31
Khulna	Jessore	28.2	0.58	7	10
Khulna	Jhenaidaha	32.37	0.53	21	29
Khulna	Khulna	27.95	0.62	5	4
Khulna	Kushtia	35.78	0.52	45	44
Khulna	Magura	33.04	0.52	27	42
Khulna	Meherpur	32.69	0.51	25	50
Khulna	Narail	31.26	0.54	17	21
Khulna	Satkhira	31.74	0.54	18	24
Rajshahi	Bogra	32.75	0.52	26	37
Rajshahi	Dinajpur	33.31	0.53	29	28
Rajshahi	Gaibandha	35.08	0.53	37	32
Rajshahi	Joypurhat	35.7	0.54	43	20
Rajshahi	Kurigram	39.42	0.48	59	61
Rajshahi	Lalmonirhat	35.63	0.53	42	27
Rajshahi	Naogaon	32.32	0.52	20	40
Rajshahi	Natore	34.42	0.53	31	34
Rajshahi	Nawabganj	39.66	0.48	61	60
Rajshahi	Nilphamari	38.5	0.48	57	62

<b>Table 3.6. Comparison of HDI and HPI for Districts, 2000</b>					
<b>Division</b>	<b>District</b>	<b>HPI</b>	<b>HDI</b>	<b>Rank HPI</b>	<b>Rank HDI</b>
Rajshahi	Pabna	36.11	0.56	48	14
Rajshahi	Panchagarh	35.03	0.52	36	39
Rajshahi	Rajshahi	33.57	0.55	30	15
Rajshahi	Rangpur	38.26	0.49	55	55
Rajshahi	Sirajganj	38.83	0.53	58	30
Rajshahi	Thakurgaon	35.87	0.51	46	46
Sylhet	Habiganj	34.45	0.52	32	38
Sylhet	Maulvibazar	36.01	0.5	47	53
Sylhet	Sunamganj	39.44	0.5	60	52
Sylhet	Sylhet	35.08	0.54	38	19
Bangladesh			0.55		

Source: Binayak Sen and Zulfiqar Ali, 2003, Spatial Inequality in Social Progress in Bangladesh, UNICEF and BBS, 2000.

3.27 The application of multiple socio-economic and human development indicators, in addition to the per capita criteria, provides policy makers with a menu of objective tools for spatial resource allocation. These types of computed scores by location enable assessment of how equitable or unfair the prevailing government allocation is. As an example, the estimated regression line in Figure 3.4 clearly shows negative relation between per capita allocation and HPI. This result implies that poor districts in terms of human development or poverty measures, which also are inherently less developed, receive lower per capita allocation than their richer cohorts. The HPI finding reinforces the earlier HDI and per capita allocation of being highly regressive.

**Figure 3.4: Relation between Per Capita Allocations and HPI, 2001-02**



Data source: Binayak Sen and Zulfiqar Ali, 2003, Spatial Inequality in Social Progress in Bangladesh, BBS, 2000 and FMAU database.

#### **IV. Analysis of Key Human Development Indicators**

3.28 In the preceding subsections, a review was presented of district level allocation of resources based on the Human Development Index (HDI) and the Human Poverty Index

(HPI) criteria. Other insightful indicators that can complement the HDI and the HPI can be grouped under an umbrella number of human development indicators. These variables can be estimated from various data sources, as briefly described below:

1. **Literacy rate:** Adult literacy rate (literacy of persons 15 years of age and above) for 2001 available from the Child Literacy Survey, 2002.
2. **Mortality rates:** Infant mortality rate (IMR), under 5 mortality rate (U5MR), standardized mortality rate (SMR) (standardized for district variations in age and gender distributions) and maternal mortality ratio (MMR) are available for all districts from the annual Sample Vital Registration System (SVRS) of the Bangladesh Bureau of Statistics (BBS).
3. **Landlessness:** Landlessness is measured by ownership of agricultural land. It is available by district for the benchmark year 2001 from the 2001 Population Census Report.
4. **Child nutrition:** Child nutrition is measured by the index of severe malnutrition of children aged 12-30 months. Anthropometric measures such as mid upper arm circumference (MUAC) indices of wasting and stunting of children of 6-59 months are available for 2000 from the district cluster survey conducted periodically by BBS' Child Nutrition Measuring Unit with assistance from UNICEF.
5. **Housing:** Three key indicators are used under the housing criteria. These include: (a) percentage of dwelling house population using unsafe sources of drinking water (defined by ponds, rivers and other unsafe sources); (b) percentage of dwelling house population with access to electricity; and (c) percentage of dwelling house population with access to a sanitary latrine facility. These indicators are available by district for the benchmark year from the Population Census Report 2001.

3.29 Table 3.7 collates nine district level human development indicators. The indicators are: (a) adult literacy; (b) infant mortality rate (IMR); (c) under five mortality rate (U5MR); (d) maternal mortality ratio (MMR); (e) standardized mortality rate (SMR); (f) percent of landless households; (g) malnourished children; (h) access to sanitary latrine facility; and (i) access to electricity.

**Table 3.7. District Level Human Development Indicators**

Division	District	Adult literacy rate 2001	IMR (1998)	U5MR	MMR 1998	SMR	Percent of landless household	Severe malnutrition of children aged 12-59 months	% of HH with access to sanitary latrine facility	% of HH with access to electricity
Barisal	Barguna	82.6	58.1	94	2.9	6.2	36.6	4	37.0	20.2
Barisal	Barisal	72.1	46.9	87	2.4	6.2	35.0	8	58.7	31.4
Barisal	Bhola	44.1	55.2	90	2.8	5.9	40.5	14	48.1	32.8
Barisal	Jhalokati	78.4	50.9	87	2.6	6.1	33.1	8	59.0	22.6
Barisal	Patuakhali	70.8	68.8	97	3.2	5.7	28.9	7	23.2	14.3
Barisal	Pirojpur	81.7	64.5	94	3.3	5.8	29.8	5	47.6	13.2
Chittagong	Bandarban	37.4	62.2	87	3.5	6.4	59.5	3	9.9	12.9
Chittagong	Brahmanbaria	54.4	58.6	94	3.7	5.7	43.4	5	30.3	24.8
Chittagong	Chandpur	67.0	58.8	99	3.2	5.5	38.7	3	53.9	29.3
Chittagong	Chittagong	64.0	63.1	103	4.6	4.9	58.5	5	56.6	59.1
Chittagong	Comilla	55.5	54.5	90	3.0	5.8	35.3	2	56.1	42.1
Chittagong	Cox's Bazar	46.1	43.7	80	2.4	6.1	68.5	4	29.2	16.6
Chittagong	Feni	68.0	63.1	98	3.5	7.2	39.5	6	63.9	47.7
Chittagong	Khagrachhari	44.1	60.1	85	3.4	6.0	57.6	3	12.7	13.9
Chittagong	Lakshmipur	72.5	59.4	95	3.6	6.5	44.1	7	45.5	23.8
Chittagong	Noakhali	70.0	54.0	89	3.8	7.1	43.9	9	41.9	44.1
Chittagong	Rangamati	36.2	62.3	87	3.1	6.5	40.2	4	19.4	22.6
Dhaka	Dhaka	84.9	58.6	89	2.9	5.0	49.1	4	77.6	88.8
Dhaka	Faridpur	52.4	61.1	89	3.8	6.0	40.3	9	43.8	18.5
Dhaka	Gazipur	62.5	45.9	80	2.5	5.8	35.4	3	57.8	54.3
Dhaka	Gopalganj	66.6	60.9	96	3.2	6.5	31.0	10	44.2	12.6
Dhaka	Jamalpur	30.9	52.3	87	2.8	6.0	44.7	6	20.5	15.2
Dhaka	Kishoreganj	46.4	57.3	97	3.1	7.0	43.5	6	26.3	18.3
Dhaka	Madaripur	57.7	68.9	99	3.7	6.1	28.1	2	15.9	30.7
Dhaka	Manikganj	50.1	41.9	78	2.3	6.3	41.7	2	40.3	29.1
Dhaka	Munshiganj	65.5	53.4	88	2.9	5.5	53.2	2	56.2	59.1
Dhaka	Mymensingh	50.2	52.4	93	2.8	5.4	39.3	4	20.0	14.6
Dhaka	Narayanganj	59.2	63.4	88	2.9	5.5	62.1	2	59.5	85.4
Dhaka	Narsingdi	49.1	53.4	88	2.8	6.0	48.1	5	28.6	24.4

Division	District	Adult literacy rate 2001	IMR (1998)	U5MR	MMR 1998	SMR	Percent of landless household	Severe malnutrition of children aged 12-59 months	% of HH with access to sanitary latrine facility	% of HH with access to electricity
Dhaka	Netrokona	49.1	62.6	102	3.1	6.0	45.5	4	12.3	12.0
Dhaka	Rajbari	45.2	59.3	90	3.2	6.0	42.0	5	33.1	14.1
Dhaka	Shariatpur	58.2	66.1	96	3.9	6.3	36.2	8	36.4	10.0
Dhaka	Sherpur	42.0	55.9	90	3.0	5.8	43.4	5	29.7	11.0
Dhaka	Tangail	43.8	50.7	86	2.6	4.6	37.2	2	37.9	23.6
Khulna	Bagerhat	72.2	57.1	87	3.0	6.1	43.2	4	33.2	21.9
Khulna	Chuadanga	50.6	49.5	89	2.6	5.8	43.5	6	21.2	29.6
Khulna	Jessore	61.1	44.2	84	3.4	5.0	40.3	7	36.8	39.5
Khulna	Jhenaidaha	52.8	57.2	97	3.6	5.9	36.3	4	21.8	26.7
Khulna	Khulna	75.4	60.5	90	2.9	5.7	50.5	3	59.2	43.4
Khulna	Kushtia	43.5	54.5	90	2.6	5.5	51.4	4	37.2	31.8
Khulna	Magura	49.3	58.7	94	3.2	6.1	36.5	6	21.6	18.6
Khulna	Meherpur	50.1	55.7	94	2.9	7.0	58.4	5	30.2	23.4
Khulna	Narail	56.2	58.5	94	3.2	6.0	33.2	7	40.7	19.6
Khulna	Satkhira	54.6	56.1	87	3.0	5.7	46.1	2	35.7	18.3
Rajshahi	Bogra	56.0	54.6	95	3.0	6.4	48.5	3	27.4	11.0
Rajshahi	Dinajpur	51.6	57.2	97	3.1	6.2	50.5	3	16.1	21.6
Rajshahi	Gaibandha	62.1	57.0	95	3.1	6.1	43.8	5	11.0	10.1
Rajshahi	Joypurhat	56.4	66.5	101	3.3	5.5	40.7	2	19.5	22.2
Rajshahi	Kurigram	35.4	54.3	94	2.7	5.6	45.3	6	29.6	7.7
Rajshahi	Lalmonirhat	56.2	55.2	95	3.0	5.5	39.5	2	26.8	7.3
Rajshahi	Naogaon	51.3	59.6	89	3.2	6.1	42.5	5	15.6	18.3
Rajshahi	Natore	51.5	48.1	88	2.8	6.2	57.4	7	13.7	22.6
Rajshahi	Nawabganj	42.4	55.5	95	2.7	6.2	40.5	6	15.1	14.6
Rajshahi	Nilphamari	40.6	60.7	100	3.1	6.5	41.6	5	43.5	29.3
Rajshahi	Pabna	60.5	53.5	93	NA	6.0	50.3	2	24.7	32.6
Rajshahi	Panchagarh	49.4	54.7	94	2.4	5.8	41.5	7	24.2	11.4
Rajshahi	Rajshahi	61.9	42.9	83	2.9	6.0	47.9	4	32.1	32.2
Rajshahi	Rangpur	43.7	54.5	94	3.0	7.6	49.3	6	16.0	18.0

Division	District	Adult literacy rate 2001	IMR (1998)	U5MR	MMR 1998	SMR	Percent of landless household	Severe malnutrition of children aged 12-59 months	% of HH with access to sanitary latrine facility	% of HH with access to electricity
Rajshahi	Sirajganj	58.0	54.1	94	2.6	5.8	45.6	5	23.0	24.8
Rajshahi	Thakurgaon	46.6	58.6	96	2.8	7.1	39.8	6	8.5	13.9
Sylhet	Habiganj	54.0	55.5	95	3.0	5.9	48.1	4	25.3	25.7
Sylhet	Moulvibazar	40.4	54.7	95	3.0	5.6	43.8	3	21.6	32.0
Sylhet	Sunamganj	49.8	48.6	90	2.6	6.0	50.1	9	19.5	10.3
Sylhet	Sylhet	53.7	53.1	93	2.9	5.5	54.4	2	44.7	36.1

Source: United Nations International Children Emergency Fund (UNICEF) and Bangladesh Bureau of Statistics (BBS), 2000.

Note: IMR=infant mortality rate; U5MR=under five mortality rate; MMR=maternal mortality ratio; SMR=standardized mortality rate; HH: Household

**A. Analyzing the Suitability of Key Human Development Indicators for Identifying Poor Districts**

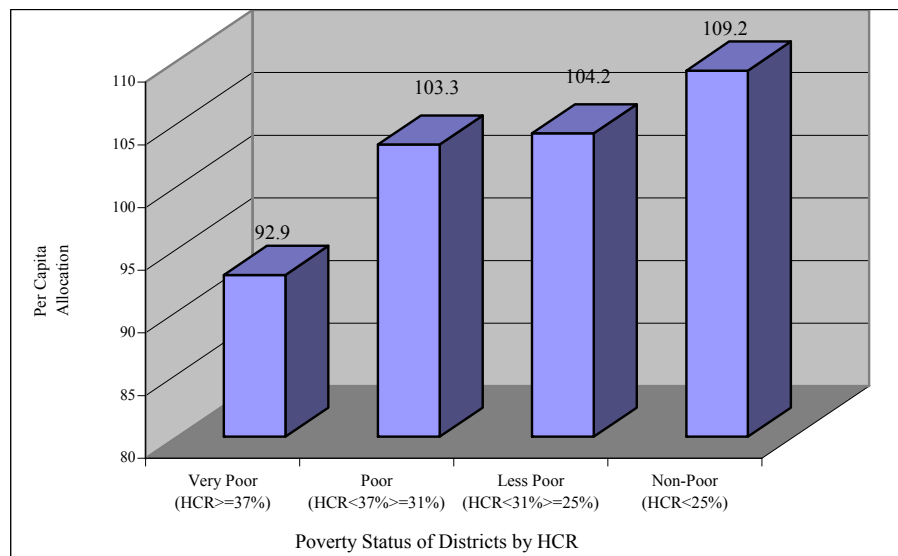
3.30 The appropriateness of key human development indicators is tested by conducting a partial correlation test of the indicators with the district level head count ratio (HCR). The ranking of the districts based on the indicators are matched with the ranks resulting from the HCR. Districts are grouped into four categories: very poor, poor, less poor and non-poor based on the HCR levels (Table 3.8, Figure 3.5).

Poverty	Per capita expenditure (2000-2001)		Per capita expenditure (2001-2002)	
	Mean	Variance	Mean	Variance
Very Poor (HCR $\geq$ 37%)	93.3	1,480.4	92.9	1,644.5
Poor (HCR <37% $\geq$ 31%)	102.8	2,481.5	103.3	2,575.9
Less Poor (HCR <31% $\geq$ 25%)	101.2	1,893.6	104.2	2,119.4
Non-Poor (HCR<25%)	108.1	3,738.0	109.2	3,828.8
Total	103.1	2,256.4	104.4	2,407.9

Source: FMAU database

- The results are presented in two stages. First, the indicators are presented by the four groups into which the districts are grouped along with their HCRs. Second, the partial correlation of the indicators is presented with the respective district HCR. Finally, the matching ranks predicted by the indicators and the district HCR are shown. Indicators with statistically non-significant partial correlations with HCR are identified.

**Figure 3.5. Current Per Capita Allocations by Poverty Status of Districts**



Source: FMAU database.

3.31 The analysis in Table 3.9 shows the following indicators to be significant, in descending order:

- Housing (access to sanitary latrine)
- Housing (access to electricity)
- Adult literacy
- District population (density)
- Demographic burden (as measured by burden population)

3.32 The analysis concludes that for identifying poor districts, district HCR is the prime indicator. In its absence, any of the following five indicators that are more readily available by districts can be used as proxy indicators:

- Housing (access to sanitary latrine)
  - Housing (access to electricity)
  - Adult literacy
  - District population (density)
- Demographic burden (as measured by burden population)

**Table 3.9. Partial Correlation Matrix between Poverty Index and Indicators by Districts**

	Per capita expenditure (2001-2002)	Head count ratio	Burden people	Density	SMR	IMR	U5MR	MMR	Adult literacy rate	Percent of landless household	Severe malnutrition of children aged 12-59 months	% of HH with access to sanitary latrine facility	% of HH with access to electricity
Per capita expenditure (2001-2002)	1	-0.001	-0.202	-.305*	0.171	-0.011	-0.214	0.014	0.068	0.053	-0.051	0.043	-0.115
Head count ratio	-0.001	1	-.259*	-.420**	0.222	-0.072	0.121	-0.209	-.540**	0.002	0.142	-.752**	-.693**
Burden people	-0.202	-.259*	1	.444**	-.366**	-0.119	0.094	0.126	0.174	0.143	-0.091	.327**	.433**
Density	-.305*	-.420**	.444**	1	-.281*	0.025	-0.096	-0.041	.278*	0.133	-0.216	.453**	.568**
SMR	0.171	0.222	-.366**	-.281*	1	0.092	0.103	0.05	-0.101	-0.004	.298*	-0.241	-.292*
IMR	-0.011	-0.072	-0.119	0.025	0.092	1	.665**	.628**	0.128	-0.222	-0.023	-0.041	-0.036
U5MR	-0.214	0.121	0.094	-0.096	0.103	.665**	1	.469**	0.06	-0.23	0.05	-0.165	-0.168
MMR	0.014	-0.209	0.126	-0.041	0.05	.628**	.469**	1	0.169	-0.077	0.082	0.031	0.073
Adult literacy rate	0.068	-.540**	0.174	.278*	-0.101	0.128	0.06	0.169	1	-.259*	0.034	.596**	.398**
Percent of landless household	0.053	0.002	0.143	0.133	-0.004	-0.222	-0.23	-0.077	-.259*	1	-.260*	-0.09	0.241
Severe malnutrition of children aged 12-59 months	-0.051	0.142	-0.091	-0.216	.298*	-0.023	0.05	0.082	0.034	-.260*	1	0.061	-0.212
% of HH with access to sanitary latrine facility	0.043	-.752**	.327**	.453**	-0.241	-0.041	-0.165	0.031	.596**	-0.09	0.061	1	.691*
% of HH with access to electricity	-0.115	-.693**	.433**	.568**	-.292*	-0.036	-0.168	0.073	.398**	0.241	-0.212	.691*	1

\*Correlation is significant at the 0.05 level (2-tailed)

\*\*Correlation is significant at the 0.01 level (2-tailed)

## **V. Reviewing the Status, Availability and Suitability of Poverty Map**

3.33 In Bangladesh, construction of detailed geographical profiles or poverty maps for districts and other smaller administrative units such as sub-districts or upazilas has been constrained by the lack of distributional data for districts or upazilas. The Household Income and Expenditure Surveys (HIES), from which the basic measures of poverty such as the per capita consumption and head count ratio are derived, have insufficient sample sizes for lower level disaggregation to yield statistically reliable estimates at district or sub-district levels. This problem can be rectified by employing the small area estimation (SAE) or ELL (named after Elbers, Lanjouw and Lanjouw). This technique, which was pioneered by the World Bank, combines HIES, 2000 and population census data to generate poverty measures at district and lower levels.

3.34 With the assistance of the WFP, the BBS applied the innovative ELL technique to the HIES, 2000 and Population Census 2001 in March 2004 to develop district and lower level poverty maps of Bangladesh as follows: Selected national level demographic variables from one data source were merged with the household income and expenditure data sources from a smaller sampled study. That was used to estimate the district level head count ratio (HCR) for 2000 by combining HIES 2000 data with the 2001 population census data (BBS, 2003).

3.35 There are three categories of poverty maps: the district and upazila poverty maps, the union level poverty maps, and the district relative food security maps. The district and upazila poverty maps show the distribution of poverty head count ratio as measured by the HIES 2000, disaggregated by the 64 districts and the component upazilas (Annex VII). Union level poverty maps show the incidence of extreme poverty at the union level. The relative food security maps reflect the district distribution of food security based on the concept of food security, taking into account the availability of food, the access to food, and food vulnerability incidence (Annex VII). The upazila and the smaller area union poverty maps are somewhat questionable in terms of reliability. For the visual presentation of the country's spatial distribution of poverty, the district maps appear sufficient to develop simpler operational tools to effectively allocate the MOHFW health care resources geographically.

## Chapter 4. Developing Proxy-Means Formula

*This chapter highlights a variety of international experiences using the proxy-means formula for the education, healthcare, food and nutrition, and social insurance sectors. The chapter also includes the results of the proxy-means test (PMT) applied to Bangladesh to complement the existing criteria for identifying and targeting public subsidies to the poor. This formula is relatively easy to administer because of its simplicity, low dependence on multiple sources of information for identifying the targeted beneficiary, and allows limited opportunity for subjective observations.*

### I. Review of International Experience

4.1 Tarsicio Castañeda termed proxy-means as the use of a set of socio-economic variables to predict poverty, and the allocation of benefits on the basis of those predictions (as opposed to verified means testing used in developed countries such as the United States, which refers to the use of income or wealth information to determine who receives benefits) (Castañeda, 2003).

4.2 Castañeda defined ‘proxy-means system’ as a system that generates a score for applicant households based on easy to observe household characteristics such as location and quality of dwelling, ownership of durable goods, demographic structure of the household, and education and occupation of adult members. The system aims to establish a technical, objective, equitable and uniform mechanism to be used by all government agencies for selecting beneficiaries of social spending.

4.3 Latin American countries (such as Chile, Colombia, Costa Rica and Mexico) used proxy-means test systems in education, health care, food and nutrition interventions, social insurance and assistance programs. These countries followed a three-step process to develop a proxy-means system. The first step involved determining variables and weights to estimate a quantitative measure of welfare for each individual family member using a random household sample. The second step was poverty mapping of small areas (communes, districts, etc.). The mapping was the basis for the inclusion of poor areas in social programs, and enabled the identification of individual families or households. The third step was the calculation of welfare levels for individual families or households using actual household information for selection into poverty programs (Castañeda, 2003).

4.4 To assess eligibility for social programs, household characteristics can serve as reasonable proxies for income information. More information is generally better than less, although there are diminishing returns. All proxy systems have significant errors of under coverage, but they reduce leakage so much that the impact on poverty is still better with imperfect targeting than with no targeting (Grosh and Baker, 1995).

4.5 While developing the proxy-means system, Chile, Colombia, Costa Rica and Mexico used four sets of variables. The first set was living conditions, measured by quality of dwelling— such as substandard materials of floors, walls, roofs, and number of dormitories. The second set was availability and quality of public services, including in-house potable water, sanitation, waste disposal, and presence of hot water and shower. The third variable corresponded to possession of durable goods- color television, refrigerator, washing machine, vehicle and dwelling site, among others. Finally, the fourth set was related to socio-

economic variables such as education, occupation, income and wealth of household members (Castañeda, 2003).

4.6 In Egypt, a proxy-means test was developed to ensure food security of the poor in a cost-effective manner by providing a high-subsidy green ration card to the poor and the low-subsidy red ration card to the non-poor. The program selected per capita consumption as the most reliable measure of household poverty because consumption expenditures reflect permanent income and are therefore a better indicator of consumption behavior. Data on consumption expenditure are generally more reliable and stable than income data (Ahmed and Bouis, 2002).

4.7 Under Colombia's System for Selecting Beneficiaries of Social Spending (SISBEN), the proxy-means test serves as a tool for measuring households' economic well-being. The variables used in the model to determine welfare included: availability and quality of housing and basic public services, possession of durable goods, human capital endowments and current income (this latter variable was excluded in the newly revised SISBEN index due to its unreliability and lack of predictive power). SISBEN is more appropriate for use in targeting programs for the chronic (structural) poor than the transient poor. Its advantage is that updating is not frequently necessary, but the disadvantage is its inability to "catch" vulnerable families when they fall into poverty (Castañeda, 2003).

4.8 Despite some important issues related to SISBEN's design and implementation, Colombia has experienced a remarkable improvement in targeting in the past few years. The share of subsidies received by the bottom 20 percent of the population increased from 39.3 percent in 1993 to 44.9 percent in 1997 in primary education, and from 29.1 percent to 34.8 percent in health and social assistance. The share of the bottom 40 percent increased from 65.0 percent to 73.4 percent (primary education) and from 57.3 percent to 65.1 percent (health), during the same period (Castañeda, 2003).

4.9 Another case study is Mexico's Selection of Beneficiary Households in the Education, Health and Nutrition Program (PROGRESA). PROGRESA accurately identifies extremely poor households, but makes errors identifying moderately poor households. That discrepancy raises serious concerns about the accuracy of PROGRESA's targeting method for the less-poor areas. However, in comparison to other schemes, PROGRESA's targeting appears to miss fewer extremely poor households. In addition, households that are included erroneously in the list of beneficiaries appear to be closer to the poverty line than households that are included incorrectly by other methods (Skoufias, Davis, and Vega, 2001).

4.10 Poverty in Ecuador, Madagascar and South Africa was estimated through a methodology based on a statistical procedure that combines household survey data with population census data by imputing into the census data a measure of per capita consumption from the survey data. The survey data were used to estimate a prediction model for either consumption or incomes. The selection of exogenous variables was restricted to those variables that could also be found in the census (or some other large dataset) or in a tertiary dataset that could be linked to both the census and survey. The parameter estimates were then applied to the census data and poverty statistics derived. The key assumption was that the models estimated from the survey data apply to census observations (Demombynes et al., 2002). In the case of Ecuador, the poverty map was based on census data combined with household survey data. The survey provided detailed information on a wide range of topics, including food consumption, non-food consumption, labor activities, agricultural practices,

entrepreneurial activities, and access to services such as education and health. Three data sources- population census, household survey, and a variety of spatial and environmental outcomes were used to produce local level poverty estimates for Madagascar. The South African poverty map was based on three datasets comprised of living patterns, including: employment, internal migration, housing, access to services and individual education; income and expenditure of households; and population census (Demombynes et al., 2002).

4.11 In Mozambique, regional and gender imbalances in health and education are more significant than income-based differences. Nevertheless, increased public expenditures on health and education, such as the Highly Indebted Poor Countries (HIPC) initiative, are likely to have significant poverty-reducing effects. Most of the public services are moderately progressive and try to reduce inequality relative to the distribution of consumption. Inequalities in school education and attainment accumulate going up the educational ladder, and result in increasingly unequal distribution, which requires more fiscal resources devoted to education at all levels (Heltberg, Simler, and Tarp, 2003).

4.12 Mozambique faces great difficulties in recruiting and attracting qualified teachers for primary schools in many areas, which constrains the continued expansion (and quality improvement) of primary schooling. In the health sector, hospital care is distributed progressively. Mozambique has the potential to direct welfare benefits to poor people through well-designed public interventions for improving the access of the poor to health, education, and road infrastructure (Heltberg, Simler, and Tarp, 2003).

4.13 Unlike other development initiatives, conditional cash transfer (CCT) programs were introduced in Latin America. CCT programs provided money to poor families conditional upon certain behavior, usually investment in human capital such as sending children to school or bringing them to health centers on a regular basis. Conditional cash transfer programs were an effective means in Mexico, Brazil and Nicaragua for promoting human capital accumulation among poor households. CCT programs have succeeded in increasing enrollment rates, improving preventive health care, and raising household consumption. (Rawlings and Rubio, 2003).

4.14 Tarsicio Castañeda (2003) identified the following challenges of the proxy-means testing system:

1. First, proxy-means tests are administratively demanding and require continued institutional building and budgeting efforts not only for the initial application of the system and associated database, but also for its maintenance and update.
2. Second, reliable and updated census information is critical for determining poverty maps and the strategy for data collection and inclusion of people in the registry.
3. Third, there are proxy-means testing implementation problems, including lack of monitoring of application procedures (when application is decentralized), lack of independent database auditing, infrequent or no evaluations, and lack of a consolidated central database.
4. Finally, proxy-means systems are not immune to manipulation by beneficiaries who may report false information, or by local authorities with incentives to inflate the number of poor in their territories when federal transfers are based on those estimates.

4.15 Several conclusions can be drawn from the literature review:

1. The proxy-means test formula has a proven global track record that can be replicated in a developing country like Bangladesh with limited technical and administrative backstopping.
2. Since information on income is difficult to assess, indirect economic indicators like consumption expenditure is a preferred measurement in economic ranking.
3. Easily observable and verifiable assets such as dwelling conditions or consumption patterns of selected commodities can be powerful discriminators in distinguishing between rich and poor.
4. Both on technical and administrative grounds, the proxy-means test model should first be tested in a limited geographic location, and not as a nationwide endeavor.
5. The proxy-means test model is replicable across regions and between urban and rural settings following minor technical and administrative adjustments.

## **II. Proxy-Means Test: A Model for Bangladesh**

4.16 The international review of the proxy-means test (PMT), as well as the review of the existing government and NGO social programs in Bangladesh which target the poor, suggest that it is an opportune time to introduce and implement the PMT tool in Bangladesh. The first step towards introducing PMT is to build a preliminary model, which combines the techniques applied in various countries with a database that is fairly representative of household income and expenditure patterns. This section of the report documents the processes for developing a Bangladesh PMT model using the data from the Household Income and Expenditure Survey (HIES), 2000. It also identifies a list of indicators that can assist in discriminating between rich and poor.

4.17 Targeting health care subsidy to the poor requires effective identification of both poor and non-poor households. In any administrative targeting effort, the major challenge facing policy makers is creating a system to identify those households accurately and cost effectively. To this end, the per capita income of a household can be considered as a measure of the household's welfare. However, the measurement of household income or expenditure requires expensive and time consuming surveys in a poor country like Bangladesh. An alternative method to measuring household welfare is to administer a PMT formula.

4.18 Instead of asking about income directly, this approach relies on indicators that are highly correlated with household income (or total consumption expenditure). These indicators are easy to collect, observe, and verify. Under this model, a deserving beneficiary can be determined at the field level on the basis of a total score, as a proxy for household income/expenditure.

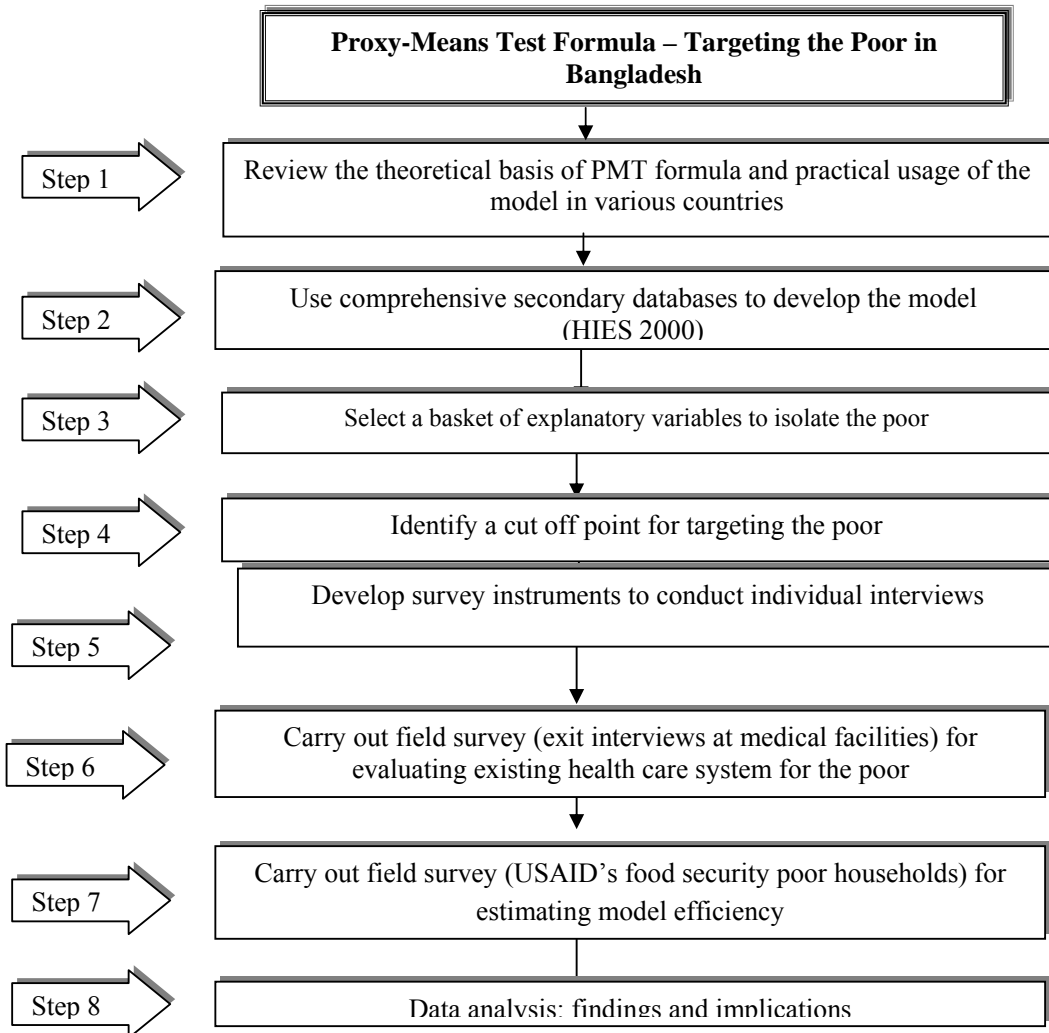
### **The Model:**

4.19 Per capita consumption expenditure can be considered a relatively reliable measure of household welfare compared to other indicators for two main reasons. First, consumption expenditures are likely to reflect permanent income and are therefore a better indicator of consumption behavior. Second, data on consumption expenditure are generally more reliable and stable than income data in any household survey.

4.20 In order to identify the best model for the proxy-means testing method, several iterative efforts were carried out. First, the data set of the HIES 2000 was edited and verified. Second, the dataset was used to test the explanatory power of various exogenous (external) factors in explaining household consumption expenditures. Consumption expenditures arguably are a more reliable and verifiable indicator for discriminating between the rich and the poor. The HIES data was tested to develop a semi-log function model and a linear model. The iterative process enabled the evaluation of the merits and demerits of the respective models. Third, explanatory variables, which are both easy to document and to verify through structured personal interviews, were screened and selected. The explanatory power or the level of significance of each of the independent variables to explain the variation in consumption expenditure was estimated. Fourth, the coefficients of the relevant variables that were going to be used in the proxy-means model were estimated. These coefficients, which were estimated from the HIES database, would serve as nationally representative estimates and are used to calculate the score for the households interviewed under this study.

Figure 4.1 highlights the steps taken to develop and to test the PMT formula.

**Figure 4.1. PMT Formula: A Schematic Presentation**



### III. Indicator Selection Process

4.21 For predicting household welfare using per capita expenditure, a large number of variables from the Bangladesh Bureau of Statistics' HIES dataset were selected. Several of these variables were expected to be highly correlated with per capita household consumption. These variables can be broadly classified into five categories: household demographic makeup, education, utility use, dwelling characteristics and ownership of assets. Initially, two regression models were run to predict household welfare. Table 4.1 presents the results of the first model, which uses the ordinary least squares (OLS) technique. The dependent variable is monthly per capita consumption. Of the 53 explanatory variables, 24 are statistically significant determinants of household consumption. Household size, education, use of telephone, number of rooms, ownership of assets, and sanitation were important in explaining changes in per capita consumption. The model explains 42 percent of variation in per capita consumption in the sample (i.e., its R-squared value is 0.42).

<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Has telephone/mobile	39.514	2.374	16.642	0.000
Number of rooms per capita	15.837	1.179	13.436	0.000
Family size	-1.673	0.160	-10.433	0.000
Carpet	27.508	2.694	10.211	0.000
Freezer	13.879	1.729	8.028	0.000
Highest year of schooling	0.501	0.089	5.609	0.000
Home renter	7.337	1.400	5.241	0.000
Drawing room furniture	4.954	0.972	5.097	0.000
Sewing machine	-6.925	1.377	-5.028	0.000
Washing machine	38.546	7.671	5.025	0.000
Wrist watch	3.182	0.697	4.568	0.000
Fans	5.115	1.154	4.434	0.000
Motorcar	19.705	4.685	4.206	0.000
Dining room furniture	2.525	0.733	3.442	0.001
Household members aged above 15 years who never attended school	-2.812	0.847	-3.319	0.001
TV	3.387	1.031	3.285	0.001
Clock	2.415	0.755	3.200	0.001
Has open latrine	-2.395	0.839	-2.853	0.004
Camera	4.867	1.751	2.780	0.005
Bicycle	-1.985	0.814	-2.438	0.015
Bedroom furniture	-1.838	0.769	-2.391	0.017
Has sanitary latrine	1.975	0.832	2.373	0.018
Land ownership	1.553	0.658	2.362	0.018
Kitchen item-cutlery	1.244	0.755	1.648	0.099
Dish antenna	8.924	5.443	1.639	0.101
Has separate kitchen	1.024	0.671	1.527	0.127

<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Kitchen item-cooking	0.940	0.627	1.497	0.134
Female headed household	-1.421	1.018	-1.396	0.163
Has electricity	1.443	1.049	1.376	0.169
Safe drinking water	-2.054	1.629	-1.261	0.207
Heaters	-3.216	2.578	-1.248	0.212
Has brick/cement roof	4.525	3.644	1.242	0.214
Age of household head	0.025	0.023	1.118	0.264
Cassette player	0.999	0.895	1.117	0.264
VCR	2.475	2.544	0.973	0.331
Has CI steel/wood wall	3.309	3.664	0.903	0.366
Children go to private school	-1.124	1.523	-0.738	0.461
Motor cycle	-1.846	2.732	-0.676	0.499
Radio	0.553	0.876	0.631	0.528
Has CI steel/wood roof	1.491	3.379	0.441	0.659
Has brick/cement wall	1.394	3.738	0.373	0.709
Has hemp/hay/bamboo wall	1.320	3.615	0.365	0.715
Has mud brick wall	1.244	3.656	0.340	0.734
Pressure lamp	-0.925	3.941	-0.235	0.814
Has tile/wood roof	0.806	3.706	0.218	0.828
Has hemp/hay/bamboo roof	0.581	3.422	0.170	0.865
Home ownership	-0.131	1.140	-0.115	0.909
Kitchen item-crockery	-0.026	0.771	-0.034	0.973
(Constant)	19.043	5.164	3.688	0.000

Dependent Variable: Consumption-expenditure per capita per day, F-statistics = 110.95\*\*, R<sup>2</sup> = 0.42, Number of observations = 7,440

4.22 In the second model, a semi-log functional form is used (taking the natural logarithm of per capita expenditure as the dependent variable) and most of the statistically insignificant variables are dropped. The R-squared value of the model is 0.63. This model is judged to be technically optimal for predicting household consumption from the HIES dataset. The results are presented in Table 4.2.

<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Family size	-0.049	0.002	-20.361	0.000
Number of rooms per capita	0.350	0.018	19.609	0.000
Has open latrine	-0.165	0.013	-12.991	0.000
Wrist watch	0.131	0.011	12.369	0.000
Highest year of schooling	0.017	0.001	12.251	0.000
Has telephone/mobile	0.282	0.036	7.826	0.000

<b>Table 4.2. Results of Technically Optimal Model, Semi-Log Estimates</b>				
<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Land ownership	0.077	0.010	7.741	0.000
Clock	0.086	0.011	7.504	0.000
Home renter	0.159	0.021	7.484	0.000
Has electricity	0.112	0.016	7.037	0.000
Dining room furniture	0.078	0.011	6.984	0.000
Has separate kitchen	0.068	0.010	6.659	0.000
Fans	0.109	0.017	6.258	0.000
Freezer	0.164	0.026	6.254	0.000
Has sanitary latrine	0.077	0.013	6.123	0.000
Drawing room furniture	0.083	0.015	5.620	0.000
Bedroom furniture	-0.065	0.012	-5.619	0.000
Cassette player	0.075	0.014	5.548	0.000
TV	0.069	0.016	4.424	0.000
Safe drinking water	-0.100	0.025	-4.069	0.000
Camera	0.104	0.027	3.936	0.000
Radio	0.048	0.013	3.579	0.000
Has brick/cement roof	0.181	0.055	3.281	0.001
Sewing machine	-0.064	0.021	-3.057	0.002
Carpet	0.121	0.041	2.964	0.003
Female headed household	-0.043	0.015	-2.764	0.006
Household members aged above 15 years who never attended school	-0.031	0.013	-2.376	0.018
Bicycle	-0.028	0.012	-2.290	0.022
Motorcar	0.155	0.071	2.179	0.029
Home ownership	0.038	0.017	2.174	0.030
Has brick/cement wall	0.120	0.057	2.111	0.035
Has CI steel/wood wall	0.116	0.056	2.093	0.036
Kitchen item-cooking	0.019	0.010	2.043	0.041
Has CI steel/wood roof	0.102	0.051	1.990	0.047
VCR	0.070	0.039	1.809	0.071
Dish antenna	0.143	0.082	1.732	0.083
Washing machine	0.133	0.116	1.147	0.252
Pressure lamp	0.068	0.060	1.147	0.252
Has hemp/hay/bamboo roof	0.057	0.052	1.103	0.270
Has mud brick wall	0.061	0.055	1.103	0.270
Has hemp/hay/bamboo wall	0.055	0.055	0.998	0.318
Kitchen item-crockery	0.012	0.012	0.996	0.319
Kitchen item-cutlery	0.011	0.011	0.987	0.324
Has tile/wood roof	0.054	0.056	0.961	0.336
Motor cycle	0.038	0.041	0.910	0.363

<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Age of household head	0.000	0.000	-0.796	0.426
Heaters	0.029	0.039	0.752	0.452
Children go to private school	0.016	0.023	0.678	0.498
(Constant)	2.841	0.078	36.301	0.000

Dependent Variable: Logarithm of consumption-expenditure per capita per day, F-statistics = 256.76\*\*,  $R^2 = 0.63$ , Number of observations = 7,440

4.23 Although the semi-log model fits the data better than the first model, the semi-log model is not recommended for use at the field level for administrative and practical reasons. The capacity and discipline of the field level staff may make it difficult to implement it correctly and effectively.

4.24 Table 4.1 includes too many explanatory variables, many of which do not have a significant effect on consumption expenditure (the dependent variable). Subsequently, OLS estimates were run by including selected explanatory variables that demonstrated strong effects on the dependent variable. Table 4.3 presents the revised linear model with 14 explanatory variables. All the independent variables were found to be discriminatory in classifying consumption expenditure.

<b>Variables</b>	<b>Coefficient (B)</b>	<b>Std. Error</b>	<b>t-value</b>	<b>Sig.</b>
Household size	-1.4	0.10	-14.8	0.00
Has no private toilet	-4.0	0.66	-6.1	0.00
Household members aged above 15 years who never attended school	-3.3	0.70	-4.7	0.00
Has hemp/hay/bamboo wall	-1.5	0.52	-2.9	0.00
Has hemp/hay/bamboo roof	-1.2	0.64	-1.9	0.05
Has electricity	2.6	0.86	3.0	0.00
Has electric fan	3.8	0.97	3.9	0.00
Has TV	4.2	0.85	5.0	0.00
Has dining room furniture	4.2	0.58	7.3	0.00
Has drawing room furniture	6.2	0.76	8.1	0.00
Has supply water	10.8	1.08	10.0	0.00
Has freezer	17.6	1.45	12.1	0.00
Highest year of schooling of any member of the household	0.8	0.07	12.7	0.00
Has telephone/mobile	42.5	2.04	20.9	0.00
Constant	29.1	0.94	30.8	0.00

Dependent Variable: Consumption-expenditure per capita per day, F-statistics = 371.1,  $R^2 = 0.41$ , Number of observations = 7,440

4.25 All independent variables chosen are found to be statistically significant at the 5 percent level. The R-squared value is 0.41. A comparison of the regression models used for proxy-means testing in other countries indicates that the model performs quite well in predicting household welfare. For instance, as a comparison, Grosh and Glinskaya (1997) achieved an R-squared of around 0.2 in Armenia, while Grosh and Baker (1995) achieved an R-squared of 0.3 to 0.4 in Latin American countries.

4.26 Regression results were estimated separately for rural and urban areas and validated the findings at the national level.

#### IV. Description of Dependent and Explanatory Variables

4.27 The description of the 14 indicator variables, and their average, minimum and maximum values are presented in Table 4.4.

Variables	Percent of household	Mean	Median	Minimum	Maximum
Family Size	-	5.2	5.0	1	25
Highest year of schooling	-	5.6	6.0	0	16
Household member aged above 15 years who never attended school	80.7	0.8	1.0	0	1
Has electricity	31.2	0.3	0.0	0	1
Has telephone/mobile	1.5	0.0	0.0	0	1
Has freezer	4.0	0.0	0.0	0	1
Has TV	15.8	0.2	0.0	0	1
Has electric fan	22.9	0.2	0.0	0	1
Has dining room furniture	22.1	0.2	0.0	0	1
Has drawing room furniture	12.9	0.1	0.0	0	1
Has hemp/hay/bamboo wall	40.3	0.4	0.0	0	1
Has hemp/hay/bamboo roof	19.1	0.2	0.0	0	1
Has no private toilet	48.0	0.5	0.0	0	1
Has supply water	6.8	0.1	0.0	0	1

Data source: HIES 2000, Bangladesh Bureau of Statistics

4.28 A brief discussion of the indicator set produced by our final model for PMT is given below:

**Household size** has a significant negative effect on consumption. The average household size is 5.3 persons for the poorest 20 percent of the households and 4.8 persons for the richest 20 percent households (Table 4.4).

**Education** plays a key role in alleviating poverty in Bangladesh. Two education-related variables were included in the model:

(1) highest level of education obtained by any family member (which has a strong positive effect on household welfare); and (2) whether any household member above 15 years of age

have never attended school (which captures the negative relationship between illiteracy and household welfare). Even in the richest quintile, a large percentage of households (12.6 percent) have at least one member age above 15 years who has never attended school (usually an elderly female, such as grandmother or wife of the household head).

**Access to electricity** has a significant positive effect on consumption. Those who have electrical connection are usually economically better off than those who do not. Only 20 percent of rural Bangladesh has electricity.

**Housing conditions** have been defined primarily by wall and room structures. As family size and composition varies, size is not a discerning criterion. Use of hemp/hay/bamboo rather than tin or brick reflects low purchasing power of the family.

**No private toilet** is more common among poor city dwellers and is a good indicator for identifying very poor households.

**Ownership of assets** is strongly and positively related to household welfare. A household is likely to be poor if it does not own a refrigerator, which is reflected by the significant and negative relationship of this variable with per capita consumption.

4.29 Table 4.5 presents statistics for the explanatory variables used in the final model for the lowest 20 percent and the highest 20 percent of households in terms of income distribution.

<b>Table 4.5. Statistics of Indicators for Lowest and Highest Income Households</b>		
<b>Variables</b>	<b>Poorest 20% Household</b>	<b>Richest 20% Household</b>
Household size (average)	5.3	4.8
Highest year of schooling of any member of the household (average)	3	9
Household members aged above 15 years who never attended school	23.8%	12.6%
Has electricity	3.4%	46.3%
Has telephone/mobile	0.0%	98.4%
Has freezer	0.0%	95.2%
Has TV	0.7%	62.9%
Has electric fan	1.9%	54.9%
Has dining room furniture	8.7%	37.7%
Has drawing room furniture	4.8%	57.1%
Has hemp/hay/bamboo wall	29.7%	7.9%
Has hemp/hay/bamboo roof	35.9%	4.5%
Has no private toilet	43.3%	3.8%
Has supply water	0.8%	73.8%

Data source: HIES 2000, Bangladesh Bureau of Statistics

## V. Application of the Model

4.30 To evaluate the performance of the PMT model, the HIES 2000 data was used to estimate the poverty head-count. The poverty head count implies the percentage of households living below the poverty line. According to the head-count ratio of the upper poverty line, approximately 50 percent of the population is defined as poor (BBS, 2003). The poverty head count is the basis for determining the poor who would receive the health care subsidy.

4.31 In order to find the cut-off point, distinguishing between the beneficiary and non-beneficiary groups, households were ranked by their per capita consumption. More specifically, the ranking was based on actual per capita household consumption in descending order (as measured from the HIES data). Calculation of consumption by family size ranking was also carried out. The bottom 49.8 percent of the population was deemed to represent the actual poor.

4.32 The predicted value of household consumption per capita was estimated using the regression model. The predicted household consumption represents the total “score” of the households. The household scores were ranked in descending order with the bottom 49.8 percent selected as the predicted poor. The maximum household consumption among the bottom 49.8 percent of the population is Taka 23.6 (US\$ 0.39) per capita per day, representing the initial cut-off point.

4.33 Since households just above the poverty line may also be deserving of a subsidy, an additional 10 percent of the population over the head-count estimate of 49.8 percent was included to define the poor. If 60 percent of the population are poor, the resulting cut-off point becomes Taka 26.25 (US\$ 0.43) per capita per day. Then, any household with a score at or below the cutoff point of Taka 26.25 is considered poor.

## VI. Implementation of the Proxy-Means Testing Method

4.34 Equipped with the model and an *a priori* selection of the explanatory variables and their corresponding explanatory coefficients, an instruction manual for PMT model has been prepared and is presented in Annex III. It includes a listing of the variables and instructions on how the calculation procedures should be administered. The process will lead to an arithmetic estimation of a “score” for each individual interviewed. The manual will allow the field level staff to identify poor individuals without any subjective bias. The field level staff will ask for information on selected explanatory variables and calculate the per capita consumption for that individual. The per capita consumption will be calculated by adding the products of input variables and the corresponding coefficients, which will then be compared with a predetermined threshold level. If the per capita consumption calculated is less than or equivalent to the predetermined threshold level, the individual will be treated as poor. Otherwise he/she will be treated as unqualified for the subsidized/free services.

4.35 To illustrate the process, the PMT calculations for two households from the HIES sample -- a needy and a non-needy household-- is provided in Table 4.6. The coefficients are obtained from the final regression model (Table 4.3). Scores are calculated for both the

needy and the non-needy households by multiplying the values of the indicators (variables) for the respective households with the coefficient values. The total scores of the two households are compared with the cut-off point of Taka 26 (approx. US\$0.43) to determine the eligibility of the households to a subsidized health service.

Variables	Needy Household			Non-needy Household		
	Value	Coefficients	Score	Value	Coefficients	Score
Household size	11	-1.4	-16	4	-1.4	-6
Highest year of schooling of any member of the household	9	0.8	7	10	0.8	8
Household member aged above 15 years who never attended school	1	-3.3	-3	0	-3.3	0
Has electricity	0	2.6	0	1	2.6	3
Has telephone/mobile	0	42.5	0	0	42.5	0
Has freezer	0	17.6	0	0	17.6	0
Has TV	0	4.2	0	1	4.2	4
Has electric fan	0	3.8	0	1	3.8	4
Has dining room furniture	0	4.2	0	0	4.2	0
Has drawing room furniture	0	6.2	0	0	6.2	0
Has hemp/hay/bamboo wall	0	-1.5	0	0	-1.5	0
Has hemp/hay/bamboo roof	1	-1.2	-1	0	-1.2	0
Has no private toilet	0	-4.0	0	0	-4.0	0
Has supply water	0	10.8	0	1	10.8	11
Constant	29			29		
Total Score	16			53		
Cut-off point	26			26		
	Needy			Non-needy		

Data source: Household Income and Expenditure Survey 2000, Bangladesh Bureau of Statistics

## VII. Validation of Proxy-Means Testing Method

4.36 In this section, we attempt to apply the formula to an existing health intervention and to verify for a specific case the robustness of the formula. The health intervention is managed by the United States Agency for International Development (USAID)/Dhaka which periodically monitors the impact of its Food Security Program in Bangladesh. Twice each year, over 11,000 households in poor locations of Bangladesh – program and control sites – are studied. Household poverty level, measured in terms of consumption expenditure, is estimated during this activity. Data International Ltd. has been involved in the data collection, processing and analyses efforts, and also maintains the database generated for this USAID project.

4.37 Following discussions between Data International and the World Bank, it was agreed that a sample of around 220 households earlier covered under the USAID monitoring effort would be revisited. The World Bank’s Dhaka office solicited and received the concurrence of USAID/Dhaka to use its database as well as to revisit selected households.

4.38 The PMT for these households was administered primarily to validate and assess the robustness of the model. Since *a priori* daily consumption expenditure had been estimated, the revisits to a sample of the households allowed verification of the model. The strength of the PMT model to “correctly” identify the poor and the non-poor is assessed by comparing the already available poverty (consumption expenditure) score of the sampled households.

4.39 Table 4.7 presents the distribution of the poor households revisited to test the robustness of the PMT model developed under this study. It should be highlighted that the sites visited are impoverished, which were the basis for USAID intervention. Also, as mentioned earlier, the 220 households interviewed have already been classified as poor households consuming less than 1,800 calorie per day according to the USAID-funded survey carried out less than a year ago.

District	Poor households
Mymensingh	71
Netrokona	51
Rangpur	98
Total	220

4.40 USAID’s database exhibits detailed daily calorie intake as well as consumption expenditure for each of the 220 households revisited. Each of the selected individuals consumes less than 2,122 calorie per day. The PMT model has been applied to evaluate the efficiency of the model using the ‘error of exclusion.’ The error of exclusion is defined as the percentage of households that were actually poor according to food security survey, but were in fact non-poor when the proxy-means testing coefficients are applied.

4.41 Table 4.8 presents the results on error of exclusion of the final proxy-means model. For this model, the error of exclusion is 6 percent. In other words, the PMT model identified the poor with a 94 percent confidence limit. The ability of the model to correctly identify such a high percentage of the poor implies that the model can be replicated with a high degree of confidence to deliver specific social services targeted at the poor.

	Frequency	Percent
Correctly identified	206	94
Wrongly categorized	14	6
Total	220	100

### **VIII. Field Testing of Proxy-Means Method**

4.42 This study attempted to pilot test the proxy-means test (PMT) model by conducting a sample survey of exit patients at selected public and NGO health facilities. Both out-patients and in-patients were interviewed as they prepared to leave the health facility premises following the completion of their medical services. Table 4.9 provides the distribution of the

1,120 patients interviewed at various locations and at different types of facilities. The sample selection was based on the terms of reference, which suggested selecting patients primarily from a range of public health facilities. The sample of exit patients is not nationally representative, although they were selected in a random manner. The purpose of the survey was to apply the developed PMT model to assess the extent to which the health facilities were used by the poor and the non-poor.

<b>Table 4.9. Distribution of Exit Patients Interviewed by Facilities and Providers</b>			
<b>Medical College Hospital</b>		<b>Exit Out-patient</b>	<b>Exit In-patient</b>
1	Mymensingh	32	9
2	Rangpur	30	10
3	Bogra	30	10
<b>Total</b>		<b>92</b>	<b>29</b>
<b>District Hospital</b>		<b>Exit Out-patient</b>	<b>Exit In-patient</b>
1	Gazipur	16	15
2	Manikgonj	15	15
3	Netrokona	20	15
<b>Total</b>		<b>51</b>	<b>45</b>
<b>Upazila Health Complex</b>			
<b>District</b>	<b>Upazila</b>	<b>Exit Out-patient</b>	<b>Exit In-patient</b>
Gazipur	Tongi	20	15
	Kaligonj	20	15
	Kaliakor	20	15
Manikgonj	Singair	20	15
	Gheor	20	15
	Saturia	20	15
Natrokona	Mohongonj	14	10
	Atpara	20	16
	Barhatta	25	18
Mymensingh	Fulpur	21	14
	Trishal	20	15
	Gouripur	22	15
Rangpur	Kaunia	20	15
	Mithapukur	20	15
	Pirgonj	20	15
<b>Total</b>		<b>302</b>	<b>223</b>
<b>15 FPC from 15 Upazilas</b>		<b>303</b>	<b>0</b>
<b>5 NGOs from 5 Districts</b>		<b>75</b>	<b>0</b>
<b>Total Interviews</b>			<b>1,120</b>

## A. Findings

4.43 The application of the PMT model revealed that both the needy (poor) and the non-needy (non-poor) utilize public health facilities in Bangladesh. Of the 1,120 respondents, 59 percent belong to the needy category, and the remaining 41 percent fall in the non-needy group (Table 4.10).

	Frequency	Percent
Needy	661	59
Non-needy	459	41
Total	1,120	100

4.44 A disaggregation by in-patient and out-patient categories suggests that the poor have relatively high propensity (64 percent) to use in-patient facilities (Table 4.11).

	In-patients		Out-patients		Total	
	Count	Percent	Count	Percent	Count	Percent
Needy	192	64	469	57	661	59
Non-needy	108	36	351	43	459	41
	300	100	820	100	1,120	100

4.45 NGO facilities attract the non-needy in relatively larger numbers compared to the government facilities. According to Table 4.12, 87 percent of the patients using NGO facilities belong to the non-needy category. The major factor explaining this phenomenon is that NGOs charge fees for their services, and their members are offered treatment at a lower rate than non-members. The findings reveal that the hard-core poor continue to be more dependent on government facilities than on NGOs.

Type of facility	Needy		Non-needy		Total	
	Count	Percent	Count	Percent	Count	Percent
Medical College Hospital	70	58	51	42	121	100
District Hospital	53	55	43	45	96	100
Upazila Health Complex	332	63	193	37	525	100
Below upazila	196	65	107	35	303	100
NGO	10	13	65	87	75	100
Total	661	59	459	41	1,120	100

4.46 Patients' experiences in terms of quality of service, and payment types and amounts also were documented. In almost three out of four cases, physicians provided consulting services to the patients, with the non-needy receiving marginally greater attention (Table 4.13).

	Needy		Non-needy		Total	
	Count	Percent	Count	Percent	Count	Percent
Doctor	458	69	359	78	817	73
Health assistant	139	21	86	19	225	20
Other support staff	32	5	11	2	43	4
Doctor and others	32	5	3	1	35	3
Total	661	100	459	100	1,120	100

4.47 About 68 percent of the patients interviewed stated that they did not pay any fees, while the remaining 33 percent claimed some payments, official or unofficial, were borne by them (Table 4.14).

	Needy		Non-needy		Total	
	Count	Percent	Count	Percent	Count	Percent
Yes	167	25	197	43	364	33
No	494	75	262	57	756	68
Total	661	100	459	100	1,120	100

4.48 The needy patients paid on average fewer fees than the non-needy. The amount of fees paid in public facilities is less at the lower level health facilities offering primary and preventive care (Table 4.15). The average fees the needy paid per visit in NGO facilities is significantly higher (Taka 19, approx. US\$ 0.32).

Type of facility	Needy					Non-Needy				
	N	Mean	Median	Minimum	Maximum	N	Mean	Median	Minimum	Maximum
Medical College Hospital	70	8	6	2	40	50	8.3	6	6	40
District Hospital	53	6.3	5	0	13	43	41.4	5	0	1,500
Upazila Health Complex	120	2.2	0	0	80	141	10.8	0	0	800
Below Upazila	35	0	0	0	0	67	0	0	0	2
NGO	10	19	20	10	20	65	17.8	20	10	20
Total	288	4.7	3	0	80	366	13.3	2	0	1,500

4.49 Unofficial fees, including tips (*bakshish*), are most prevalent at the upazila health complex, followed by the medical college hospitals. In nominal terms, the amount of *bakshish* paid is the highest in the medical college hospitals (Table 4.16).

Type of facility	Yes		No		Total	
	Count	Percent	Count	Percent	Count	Percent
Medical College Hospital	5	4	116	96	121	100
District Hospital	1	1	95	99	96	100
Upazila Health Complex	15	3	510	97	525	100
Below upazila	0	0	303	100	303	100
NGO	0	0	75	100	75	100
Total	21	2	1,099	98	1,120	100

4.50 Although patients supposedly are to receive free medicine in public facilities, many studies reveal that is not the case. Among the patients interviewed under this study, over 80 percent received free medicine. Facilities below the upazila level are better performers in this regards (Table 4.17).

Type of facility	Yes		No		Total	
	Count	Percent	Count	Percent	Count	Percent
Medical College Hospital	100	83	21	17	121	100
District Hospital	78	81	18	19	96	100
Upazila Health Complex	413	79	112	21	525	100
Below upazila	284	94	19	6	303	100
NGO	54	72	21	28	75	100
Total	929	83	191	17	1,120	100

4.51 When asked to rank their level of satisfaction for the services received, the majority of the patients did not express a strong negative or positive experience (Table 4.18). Over 80 percent ranked the services as “satisfactory” while 6 percent rated “highly satisfied” and 11 percent termed “dissatisfied.” None of the 75 NGO service recipients were “dissatisfied” with the services received.

Type of facility	Extremely satisfied		Satisfied		Dissatisfied		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Medical College Hospital	13	11	92	76	16	13	121	100
District Hospital	1	1	91	95	4	4	96	100
Upazila Health Complex	26	5	430	82	69	13	525	100
Below upazila	23	8	243	80	37	12	303	100
NGO	4	5	71	95	0	0	75	100
Total	67	6	927	83	126	11	1,120	100

## Chapter 5. Conclusions and Policy Options

*This chapter reviews information from different sections of the study and suggests policy options to strengthen the targeting effort through newer techniques and approaches which would complement the government's and NGOs' existing efforts to increase utilization of social services by the poor. This effort is made in the context of making health expenditures pro-poor through geographical and PMT-based budgetary allocations and as way of achieving the Poverty Reduction Strategy priorities.*

### I. Replicating Design Strategies

5.1 The government program can replicate innovative design strategies used by NGOs which have been successful in reaching the poor. The government-NGO partnership experience in service delivery has been a very positive one, as demonstrated by the Urban Primary Health Care Project (UPHCP). The experience of the public-private partnership (PPP), as shown by the experimental PPP project in Brahmanpara, Comilla, also has been a favorable one. The PPP project has developed an integrated health service delivery model which combines health care provision through community-based schemes with available resources from the public and private (both traditional and modern) sectors. This model needs to be strengthened and replicated. Lessons learned and steps necessary to introduce and implement various targeting tools discussed in this report are summarized below.

### II. Government Resource Allocation

5.2 The findings suggest that while innovative and effective programs are being implemented for reaching the poor, there are opportunities to introduce newer techniques and approaches that would complement the existing efforts. An assessment of the government's spatial allocation of health funding by districts was carried out in Chapter 3, particularly allocations by the MOHFW. Judged according to equity considerations, the evaluation concludes that there is room for significant improvements in government resource allocation. Later in that chapter, an objective and transparent formula for resource distribution by administrative districts was presented along with an illustration of proposed nominal (Taka) allocation.

5.3 The findings of this study indicate that PMT can be introduced in selected areas and locations of Bangladesh for identifying poor households objectively and without high administrative costs. Existing or new government and NGO programs are likely to find the approach complementary to their present approaches and practices.

5.4 **Government resource allocation by location:** Current government allocation of resources is centrally controlled, and primarily facility based. With high dispersion in facilities across the country, often because of historical reasons, the present allocation is inequitable whether judged by needs or by per capita. There is a clear need for improved allocation on equity considerations.

5.5 **Documenting expenditure allocation procedures of the MOHFW:** The MOHFW annually allocates a large volume of budgetary resources, funded from revenue and Annual Development Program (ADP) resources. The allocations include a large number of diverse

line items. Their distribution among the ultimate recipient facilities is complicated and difficult to track for central monitoring and evaluation. To make allocations more transparent, the procedures followed by allocating authorities at various operational levels should be clearly documented and the inter-relation of various levels of allocating authorities distinctly articulated. This would also help to analyze and to remedy deviations of intended allocations from the objectives of spatial equity and to strengthen targeting of allocations to the poor.

**5.6 Access to Databases:** The Financial Management and Audit Unit (FMAU) database of the MOHFW provides a breakdown of the ministry's allocation and disbursement of funds. The computerized database being developed is a very useful source of information. To increase its effectiveness, greater accessibility to the database for researchers and policy makers is recommended. The FMAU has room for improvements in further disaggregating information by functions (types of services), as well as by location. Such information would allow a more objective analysis and possible adjustments in fund allocation that would bring greater benefit to the poor areas. There are high expectations relating to the usefulness of the Local Level Planning (LLP) database. Its availability and accessibility, like the FMAU database, would be useful for policy prescriptions.

### **III. Proxy-Means Test Formula**

**5.7 Implementing the proxy-means test formula (PMT):** The findings of the study will support the objective of making health expenditures pro-poor through geographical and PMT-based budgetary allocations in response to the challenges defined in the Country Poverty Reduction Strategy. The PMT model can undoubtedly complement ongoing efforts to identify the poor to offer certain health packages and safety nets. Several steps are essential in launching a PMT exercise, which may subsequently be replicated.

**5.8 Marketing PMT to stakeholders:** The study documents current efforts made by the government and NGO programs for identify poor areas and to target the poor. The approaches adopted so far typically involves gathering knowledge about poor households from several informants, often relying on subjective information. In contrast, the PMT model can be administered more objectively and without relying on observations or information from multiple sources. Many of the development partners would find the PMT model attractive in their programming efforts. Workshops and seminars, along with appropriate documentation relating to PMT, would contribute to various stakeholders' appreciation of this technique for targeting the poor and to consider it as a possible option in their programming efforts. Targeting the poor requires reliable and up-to-date information on areas, households, and current resource allocation by government and NGO programs. A more coordinated effort in information sharing amongst development partners is therefore strongly recommended.

**5.9 Identify impoverished area:** Based on the amount of resources available, targeted recipient beneficiaries in an administratively manageable area should be identified. The area could be selected slums of an urban town or city, or several villages of a union or upazila in a rural setting. Information or insights on extremely poor areas can be obtained from one or more GOB projects or activities. For instance, information on households of urban slums can be obtained from the implementing NGOs of the Asian Development Bank's Urban Primary Health Care Project or USAID's Food Security project, which is being implemented by CARE/Bangladesh. UNICEF as well as WFP have their respective projects that profile the

socio-economic conditions in various areas. Several Bangladeshi NGOs, with their extensive network and programming efforts, can also provide insights on hard-to-reach locations.

**5.10 Conduct household survey:** As highlighted earlier in the report, the level of poverty as well as household income or expenditure varies between administrative districts. The consumption baskets of goods and services also differ between urban and rural settings. The PMT model developed under this study is based on a nationwide 1999-2000 household income and expenditure survey database, and therefore the explanatory (discriminatory) factors are gross estimates. Albeit not absolutely essential, a survey of households' income and expenditure in a targeted programming area is suggested for greater accuracy of the predictive power of the PMT model.

**5.11 Proxy-means test and government resource allocation:** To achieve spatial equity, the concept of geographical targeting simultaneously with the current practice of resource allocation by facilities should be promoted within the MOHFW. In turn, geographical targeting should be used as an instrument to strengthen the targeting of health care resources to the poor. One of the means to achieve spatial equity is through formula allocation by geography as analyzed in this paper. To strengthen direct targeting to the poor, geographical allocation could also be linked with PMT-based allocations at the facility levels within a specific geographical area. Formula allocation would identify and rank the areas and PMT could be used to allocate resources at the facility level within the identified area. Linking PMT allocation and geographical allocation would operationalize the PMT and formula allocation.

#### **IV. Poverty Maps**

5.12 Poverty maps provide spatial representation and geographical distribution of poverty and other indicators of human welfare, and constitute detailed geographical profiles of poverty across a country. They can be used by the government as a guide to the division of publicly funded healthcare resources among districts or other administrative areas as a first step in targeting healthcare resources to the poor. Use of poverty maps in allocating health care resources results in:

- Introducing the concept and practice of geographical allocation of resources within the MOHFW and its resource allocation set-up;
- Improving and validating geographical targeting of MOHFW resources across districts and other administrative areas;
- Assisting in visually highlighting current inequality in the geographical distribution of facilities and the resultant allocation of resources based on facilities (as measured by the per capita district allocations, for example);
- Assisting in making MOHFW resource allocation more transparent, equitable and accountable;
- Facilitating cooperation and coordination among institutions and facilities across districts; and
- Encouraging local level participation in allocation and utilization of health care resources.

5.13 Poverty maps should be available not only for larger administrative areas but increasingly also for smaller administrative areas. Higher resolution poverty maps, i.e., maps showing distribution of poverty across smaller administrative areas (such as upazilas in Bangladesh) can help in detecting and uncovering smaller poverty pockets and thereby assist in further improvement of geographical targeting of resources. At the MOHFW provider facility level, targeting can be further improved if the poor health care seekers are identified and separated through proxy-means test.

## **V. Proposed Options for Geographical Resource Allocation Mechanisms**

5.14 The current system of allocation of health care resources funded by the revenue and development budgets is by facilities and not directly by geographical areas. The derived or implied geographical allocation appears to be in conflict with the goal of equity in allocation of publicly provided health care resources.

5.15 Analysis of the health care resources actually allocated in fiscal years 2000-01 and 2001-02, for which data are available from the FMAU database, shows that more affluent districts were allocated more resources per capita compared to poorer districts. Figure 3.5 showing the per capita MOHFW district health care expenditure and the district head count ratio (HCR) also highlights the geographical inequity. One reason for this apparent inequitable geographic distribution of publicly funded health care resources is the greater demand of the richer districts, where larger numbers of public facilities are located compared to the poorer districts. Many poorer upazilas are still without any upazila health complex, which deprives poorer inhabitants living in those upazilas from the direct benefit of the essential services package (ESP) and other upazila health complex administered public health care expenditures.

5.16 Specifically, the current allocation of health care resources demonstrates the following characteristics:

- The largest allocations are for the national healthcare facilities located in the Dhaka Metropolitan Area and the neighboring districts;
- Besides Dhaka, allocation to districts and upazilas are by in-patient facilities (as measured by the number of beds) and the size of staff in post, which are again correlated. It leads to wide differences in district per capita allocation of both revenue and development resources;
- The differences between districts are not related to health needs, which is shown by comparing the correlation analyses of per capita allocation with health need proxies such as IMR, U5MR, SMR, density of population etc.;
- Health care needs cannot be objectively defined and, therefore, cannot be directly estimated. Health care needs can only be estimated approximately by using proxies.

5.17 Under the present situation, allocations based on simple per capita expenditures would not be equitable. The literature review suggests that formulas aimed at improving or modifying the per capita geographical allocations would be more equitable and pro-poor if they take into account health care needs of the population that are based on appropriate proxies.

## **VI. Other Considerations for Geographical Allocation**

5.18 Factors that affect the need for health care services in a particular geographical area can be divided into two groups: (a) the size and structure of the population in the area concerned; and (b) other socio-economic factors.

5.19 Of the population factors determining the health care needs in an area, the most crucial is the population size. The size of the population together with the age and gender structure would largely determine the volume and level of the services required, other things (such as disease pattern, for example) being equal. Requirements for services as measured by the national health expenditure (NHE) or the total national spending on health care tend to be the highest for the very young (under 1 year), the women of child bearing age and the elderly (Bangladesh National Health Accounts, 1999-2001).

5.20 The above conclusion is based on aggregate national level data. Nevertheless, in practice these factors vary little between districts and even upazilas. Health care needs also vary within age and gender groups. Distribution of poverty and inequality tends to have strong links with mortality and morbidity patterns. Location factors, such as hilly terrain in the border areas of Bangladesh also tend to expose certain groups of people to higher risks of disease (such as hill malaria). Since statistics on the actual prevalence of disease by districts are incomplete and difficult to generate, it would be necessary to use proxy for district morbidity pattern for the purpose of resource allocation. The standardized mortality rate (SMR) appears to be a good proxy in this respect. SMR is used as a proxy for morbidity in a number of countries including South Africa and the United Kingdom.

5.21 With improvement in the enumeration of demographic and other vital statistics, the district mortality and other vital statistics generated by the recently strengthened Sample Vital Registration System (SVRS) of the Bangladesh Bureau of Statistics (BBS) are fairly reliable to capture inter-district variations. SVRS can also provide SMRs by districts which take into account the inter-district variations in age and gender structures. In fact, use of crude mortality rate would be inaccurate, since a district might record a higher mortality rate as a result. As an example, a larger elderly population itself would indicate a relatively successful health care system rather than relative deprivation. Other two proxies are district-wide infant mortality rate (IMR) and maternal mortality ratio (MMR). Since a greater portion of the burden of mortality in different districts are infant and maternal deaths at child birth, and that the current health policy aims at improving health care for these groups, these two proxies are acceptable candidates.

5.22 Since the costs of providing health care services vary from area to area, it is also necessary to take into consideration the costs of care in allocation of resources across districts. Factors determining costs are complex and include district differences in staffing costs, differential transport costs and variations in local prices of food, etc. Ideally, these factors should be included in a medical price index that can be used to adjust allocations. In the absence of such an index and other measures of local costs, density of population is suggested as a proxy for local cost variations. While the density factor captures a part of the local cost differential, it does not take into account other cost-drivers such as higher salary levels or cost of supplies in one district compared to another. However, application of the national pay scales and central procurement of most of the supplies imply that costs of inputs

are broadly similar across the country and the use of density as a proxy for local cost differentials is justified.

## VII. Proposed Formula for Resource Allocation

5.23 To obtain allocations for each district the proxies identified for need and cost factors are used. In addition, the Human Development Indicator (HDI) and the Human Poverty Index (HPI) can also be used as the two basic development and poverty measures to modify the current method of allocation. The need and cost factors as well as other indicators are used to adjust the district population (as given by the Population Census 2001 and used as an illustrative bench mark figure) up or down. The adjusted population is used as a basis for proportional allocation. A district whose need and cost factors or other poverty related indicators are above average would have its population adjusted above the average and would have larger proportional allocation. The opposite occurs in more developed districts where average costs and needs would be lower than the average costs and needs as measured by the proxies.

5.24 For any district, the total target allocation can be given as the product of need and cost factors by the following formula, which was originally formulated by Peacock and Smith in 1995 and used in the Bangladesh context for the first time by Ensor in 2001:

District target allocation  $T = \text{Per Cap} \times \text{POP district} \times (1 + a) \times (1 + n) \times (1 + c)$

Where:

- Per Cap is the MOHFW's total budget divided by the total national population;
- POP district is the population of the district;
- 'a' is the district age/gender adjustment factor -- proxy by burden population;
- 'n' is the need adjustment factor -- proxy by standardized mortality rate;
- 'c' is the cost adjustor -- proxy by head count ratio;

5.25 For the country as a whole, each of the factors sums to zero. Positive value for a district indicates an above national average indicator, while negative values indicate a below average level indicator. For the purpose of actual allocation, Dhaka and the three districts of Chittagong Hill Tracts need to be excluded. People from other districts travel to Dhaka to receive treatment at the Dhaka Medical College Hospital (DMCH) and other specialized facilities concentrated in the metropolitan city. Per capita allocation to Dhaka is several times larger than the national average and as a matter of public policy, its allocation needs to be separately determined along with allocations to the three districts of the Chittagong Hill Tracts region.

5.26 Results of the allocation obtained by using the formula are presented in Table 5.1. The impact on resource allocations by first allocating according to population and then allocating by population adjusted for HDI, HPI, SMR, cost (as represented by the district density of population), and other indicators is presented in the following table.

<b>Table 5.1. Existing and Proposed Resource Allocation</b>							
<b>Division</b>	<b>District</b>	<b>Existing Per capita expenditure</b>	<b>Est PCEXP (HC)</b>	<b>Est PCEXP (BP)</b>	<b>Est PCEXP (Density)</b>	<b>Est PCEXP (SMR)</b>	<b>Est PCEXP (All)</b>
Barisal	Barguna	109	91	42	44	100	19
Barisal	Barisal	205	84	124	80	99	92
Barisal	Bhola	71	127	97	47	94	61
Barisal	Jhalokati	284	79	36	87	97	27
Barisal	Patuakhali	88	105	77	43	92	36
Barisal	Pirojpur	88	90	57	80	93	42
Chittagong	Bandarban	226	115	16	6	103	1
Chittagong	Brahmanbaria	68	82	147	117	91	143
Chittagong	Chandpur	73	71	126	124	88	109
Chittagong	Chittagong	118	61	300	117	79	190
Chittagong	Comilla	101	64	255	141	92	237
Chittagong	Cox's Bazar	71	111	104	67	99	85
Chittagong	Feni	94	58	63	123	116	59
Chittagong	Khagrachhari	197	114	27	18	97	6
Chittagong	Lakshmipur	74	69	84	97	105	66
Chittagong	Noakhali	71	76	148	68	114	97
Chittagong	Rangamati	231	87	25	8	104	2
Dhaka	Dhaka	31	28	301	557	81	428
Dhaka	Faridpur	177	86	87	80	97	65
Dhaka	Gazipur	61	60	89	106	93	59
Dhaka	Gopalganj	100	80	62	73	104	42
Dhaka	Jamalpur	42	119	106	98	96	133
Dhaka	Kishoreganj	83	106	156	90	112	185
Dhaka	Madaripur	87	92	61	93	97	57
Dhaka	Manikganj	134	90	66	89	101	60
Dhaka	Munshiganj	97	62	63	128	89	50
Dhaka	Mymensingh	114	122	257	97	86	292
Dhaka	Narayanganj	74	49	96	293	89	137
Dhaka	Narsingdi	71	88	105	158	97	158
Dhaka	Netrokona	82	122	117	66	96	102
Dhaka	Rajbari	91	89	48	80	97	37
Dhaka	Shariatpur	88	98	63	86	101	60
Dhaka	Sherpur	75	115	65	88	94	69
Dhaka	Tangail	84	94	157	90	75	111
Khulna	Bagerhat	107	80	76	36	20	24
Khulna	Chuadanga	70	100	43	81	94	36
Khulna	Jessore	68	74	109	91	80	65
Khulna	Jhenaidaha	51	93	70	76	94	52
Khulna	Khulna	171	74	103	51	92	40
Khulna	Kushtia	85	96	79	103	89	77
Khulna	Magura	102	103	40	74	99	34
Khulna	Meherpur	92	80	25	78	112	19
Khulna	Narail	98	90	36	66	97	23
Khulna	Satkhira	73	93	87	423	92	352
Rajshahi	Bogra	151	99	132	98	103	147

Division	District	Existing Per capita expenditure	Est PCEXP (HC)	Est PCEXP (BP)	Est PCEXP (Density)	Est PCEXP (SMR)	Est PCEXP (All)
Rajshahi	Dinajpur	109	118	124	73	99	118
Rajshahi	Gaibandha	79	131	106	92	98	142
Rajshahi	Joypurhat	139	108	36	84	89	32
Rajshahi	Kurigram	78	134	90	73	91	89
Rajshahi	Lalmonirhat	75	116	56	84	89	55
Rajshahi	Naogaon	83	143	108	66	98	111
Rajshahi	Natore	75	124	68	76	100	72
Rajshahi	Nawabganj	73	147	69	79	99	89
Rajshahi	Nilphamari	78	127	79	93	105	110
Rajshahi	Pabna	101	117	100	86	96	108
Rajshahi	Panchagarh	87	110	41	56	93	26
Rajshahi	Rajshahi	206	126	96	89	97	116
Rajshahi	Rangpur	157	123	121	101	121	202
Rajshahi	Sirajganj	70	131	134	101	94	186
Rajshahi	Thakurgaon	77	124	60	63	113	59
Sylhet	Habiganj	79	84	100	63	94	56
Sylhet	Moulvibazar	70	77	88	54	89	37
Sylhet	Sunamganj	71	91	121	51	96	60
Sylhet	Sylhet	173	69	146	69	89	68

Data source: FMAU Database and Bangladesh Bureau of Statistics (BBS), 2000.

Note: Est PCEXP: Estimated Per Capita Expenditure  
HCR: Head Count Ratio  
BP: Burden Population (less than 15 years and greater than 65 years)  
SMR: Standardized Mortality Rate

5.27 Table 5.2 compares the prevailing government district level allocation with the derived or proposed allocation. As mentioned earlier, the suggested apportioning has been computed by considering such variables as head count ratio (HCR), burden population (BP), population density and standardized mortality rate (SMR). As evidenced in Table 5.2, there would be a significant shift in resource allocation from the present scenario if the proposed resource allocation formula is adopted.

Division	District	Existing Per capita expenditure	Proposed Per capita expenditure	Rank of Existing Per capita expenditure	Rank of Proposed Per capita expenditure
Barisal	Barguna	109	19	16	60
Barisal	Barisal	205	92	5	24
Barisal	Bhola	71	61	51	35
Barisal	Jhalokati	284	27	1	56
Barisal	Patuakhali	88	36	28	52
Barisal	Pirojpur	88	42	29	47
Chittagong	Bandarban	226	1	3	64
Chittagong	Brahmanbaria	68	143	59	11

**Table 5.2. A Comparison of Existing and Proposed Resource Allocation**

<b>Division</b>	<b>District</b>	<b>Existing Per capita expenditure</b>	<b>Proposed Per capita expenditure</b>	<b>Rank of Existing Per capita expenditure</b>	<b>Rank of Proposed Per capita expenditure</b>
Chittagong	Chandpur	73	109	48	20
Chittagong	Chittagong	118	190	14	6
Chittagong	Comilla	101	237	20	4
Chittagong	Cox's Bazar	71	85	52	27
Chittagong	Feni	94	59	25	39
Chittagong	Khagrachhari	197	6	6	62
Chittagong	Lakshmipur	74	66	46	32
Chittagong	Noakhali	71	97	53	23
Chittagong	Rangamati	231	2	2	63
Dhaka	Dhaka	31	428	64	1
Dhaka	Faridpur	177	65	7	33
Dhaka	Gazipur	61	59	61	40
Dhaka	Gopalganj	100	42	22	48
Dhaka	Jamalpur	42	133	63	14
Dhaka	Kishoreganj	83	185	35	8
Dhaka	Madaripur	87	57	31	42
Dhaka	Manikganj	134	60	13	36
Dhaka	Munshiganj	97	50	24	46
Dhaka	Mymensingh	114	292	15	3
Dhaka	Narayanganj	74	137	47	13
Dhaka	Narsingdi	71	158	54	9
Dhaka	Netrokona	82	102	37	22
Dhaka	Rajbari	91	37	27	50
Dhaka	Shariatpur	88	60	30	37
Dhaka	Sherpur	75	69	43	30
Dhaka	Tangail	84	111	34	17
Khulna	Bagerhat	107	24	18	58
Khulna	Chuadanga	70	36	56	53
Khulna	Jessore	68	65	60	34
Khulna	Jhenaidaha	51	52	62	45
Khulna	Khulna	171	40	9	49
Khulna	Kushtia	85	77	33	28
Khulna	Magura	102	34	19	54
Khulna	Meherpur	92	19	26	61
Khulna	Narail	98	23	23	59
Khulna	Satkhira	73	352	49	2
Rajshahi	Bogra	151	147	11	10
Rajshahi	Dinajpur	109	118	17	15
Rajshahi	Gaibandha	79	142	38	12
Rajshahi	Joypurhat	139	32	12	55
Rajshahi	Kurigram	78	89	40	25

<b>Division</b>	<b>District</b>	<b>Existing Per capita expenditure</b>	<b>Proposed Per capita expenditure</b>	<b>Rank of Existing Per capita expenditure</b>	<b>Rank of Proposed Per capita expenditure</b>
Rajshahi	Lalmonirhat	75	55	44	44
Rajshahi	Naogaon	83	111	36	18
Rajshahi	Natore	75	72	45	29
Rajshahi	Nawabganj	73	89	50	26
Rajshahi	Nilphamari	78	110	41	19
Rajshahi	Pabna	101	108	21	21
Rajshahi	Panchagarh	87	26	32	57
Rajshahi	Rajshahi	206	116	4	16
Rajshahi	Rangpur	157	202	10	5
Rajshahi	Sirajganj	70	186	57	7
Rajshahi	Thakurgaon	77	59	42	41
Sylhet	Habiganj	79	56	39	43
Sylhet	Moulvibazar	70	37	58	51
Sylhet	Sunamganj	71	60	55	38
Sylhet	Sylhet	173	68	8	31

Data source: FMAU Database and Bangladesh Bureau of Statistics (BBS), 2000.

5.28 One disadvantage of a formula approach is that it does not take into account the special or transitory need of a district that arise from excessive flooding or the onset of a particular epidemic. In such cases, part of the annual budget could be reserved so that the reserved resources could be disbursed in differently from the main formula approach. This is currently done through the block allocation method which should not be encouraged in a sector-wide approach. A better approach would be to devise a separate formula for allocating specific elements of the budget.

5.29 The resource allocation formula principally aims at allocating the recurrent element of the budget -- both revenue and development. Allocation of funding for capital development is a more complex issue since explicit account needs to be taken of the past level of investment. In order to take the past investments into account, the current status of the network of facilities would have to be assessed and valued. Future allocations need to take into account the state of valuation of the capital stock and investments made in priority areas. In view of the complexity of the issues involved, capital allocation needs to be kept separate from the formula allocation.

### **VIII. Illustrative Steps towards Implementing PMT in Bangladesh**

5.30 **Goal:** Target health sector subsidies to the poor.

5.31 **Objectives:**

- (i) Develop a cost effective instrument that would identify poor and non-poor households within a limited geographical area

- (ii) Introduce a voucher system for the identified poor to be eligible to receive subsidized health services
- (iii) Document the methodologies and practices used to develop and implement the targeting-poor model.

### **Implementation Plan**

5.32 The proxy-means test formula (PMT) model developed in this study shall serve to enrich the existing tools and techniques for targeting the poor. Several steps are necessary to implement the PMT. These steps include:

5.33 **Identification of a target area:** Both on technical and administrative grounds, the PMT model is recommended for application within a limited geographical or administrative area. It could be implemented in selected impoverished slums of an urban town or city, or it may be used in a rural union<sup>46</sup>. Households within the determined geographical area would be classified into two categories: (a) poor and (b) non-poor.

5.34 **Household consumption expenditure survey (optional):** A household consumption expenditure survey in the targeted area is recommended, subject to the availability of funds. Instead of applying the national coefficients of key factors affecting household expenditure, a localized survey would yield more reliable estimates. This would also assist in updating the proposed PMT model for that area. The survey instrument may be developed based on the Bangladesh Bureau of Statistics' Household Income Expenditure and (HIES) 1999-2000 and Household Demographic Survey (HDS) 1999-2000.

5.35 **Identification of the poor:** Either based on the HIES database or on the recommended localized survey, the consumption expenditure coefficients of key parameters are to be applied to compute individual household scores. The scores shall be derived from information to be generated through structured individual interviews. Households will be asked a series of questions, most of which will be binary in nature, which are primarily proxy to their income. A vector of scores will be generated corresponding to each of the households interviewed. Based on policy objectives and the availability of resources to offer the subsidy, a cut-off point shall be determined to select the proportion of the populace to be included in the program. Based on the cut-off point, individuals interviewed shall be classified into two categories: (a) those poor eligible for the subsidies; and (b) the non-poor, who will not be included in the program.

5.36 **Implementation of PMT:** In order to make this technique useful at the field level, an instruction manual has been prepared (Annex III). This manual explains the model variables, and provides instructions on how the calculation procedures are to be administered. The processes would lead to an arithmetic estimation of a "score" for each individual interviewed. This manual would allow the field level staff to identify poor individuals without any subjective bias. The field level staff will ask for information on selected explanatory variables and calculate the per capita consumption for that individual. Subsequently, the per capita consumption will be compared with a predetermined threshold level. If the calculated

---

<sup>46</sup> A union comprises of several villages, and is the lowest tier of Bangladesh's administrative units.

per capita consumption is less than or equivalent to the predetermined threshold level then the individual will be treated as poor. Otherwise he/she will be considered as unqualified to receive the subsidized or free services.

5.37 **Administering vouchers:** Once the eligible households are identified, they may be provided with an identification card. The poor would use the card to receive selected health services at subsidized rates.

5.38 The listing of the two categories of households is to be maintained professionally. The database has to be transparent and accountable, and should be verified and updated periodically. The database may also be accessed to validate or to correct the actual economic status of individuals who were incorrectly categorized in terms of their eligibility. For instance, an individual enjoying usage of the voucher may have purposely provided wrong information. In such a scenario, the information in the database may be corrected, and the identification card withdrawn.

5.39 **Risks and assumptions:** The Ministry of Health and Family Welfare's (MOHFW) cooperation and assistance is essential for introducing the PMT model in the public health sector. The MOHFW's good office may also be used to involve the NGOs which work in the health sector to participate in such endeavors. Actual implementation of a pilot program may be undertaken solely by the MOHFW or through contracting out to the non-public sector.

5.40 The introduction of a PMT model has its administrative challenges. Close monitoring and accountability are essential for its success. Predictably, many of those identified as non-poor, and therefore not eligible for the benefits, would express dissatisfaction with such a program. Local level personal and political pressures may be imposed for including selected undeserving individuals into the program. Strong government and community participation can dissuade such imposition or demands. The PMT model, as described in the report, acknowledges that a small percent of deserving poor households may be incorrectly left out of a program. Institutional arrangements should be in place to ensure that such individuals are subsequently included in the support activity.

## IX. Final Remarks

5.41 It is important to mention that the PMT is a tool that can be used to support existing targeting schemes. It should be noted that certain design elements are critical to the success of any program, and this applies to the PMT model as well. These are (a) determining the level of benefit (or value of voucher); (b) incentive effects of the interventions, necessitating careful selection of the design so as not to create incentives for individual choices that contribute to poverty or cause inefficient resource allocations (e.g., on work, private transfers or savings); (c) determining the benefit duration (e.g. exit criteria, time limits or graduation policies). Therefore, systematic monitoring or enforcing program conditions are essential to ensuring successful implementation of the PMT model.

5.42 The PMT has advantages and disadvantages relative to other approaches such as community based targeting, geographic targeting, simpler categorical targeting, or some mix of these methods. The main advantage of the PMT is its simplicity to estimate the formula using self-reported estimated income or expenditures, as well as verifiable asset-based indicators. Besides it is an excellent tool to assess how household data can be used to identify characteristics of poor households. The main disadvantage of the PMT is the challenge posed

in the sustainability and cost of supervision and monitoring of the test implementation. In all cases, adequate institutional arrangements at the community and central government are required to ensure successful implementation of the tool. A follow-up study should be undertaken to determine how precise the model is in to identify poor households measuring exclusion and inclusion errors, and which are the suitable institutional arrangements for effective and transparent functioning of a pro-poor strategy, including the implementation of such a model and other targeting schemes.

5.43 Implementation issues are the key element to be considered to assess the performance of PMT. For example Grosh, Coady and Hoddinott (2004) noted that the choice of the method is not the only factor explaining the effectiveness of targeting. The study used the information from 122 interventions drawn from 48 countries to show that the mean/proxy tested programs as well other methods can work well but not always (one fourth of programs are regressive) and there is not a clearly preferred method (there are 80% variation among them). Grouping by targeting method explains only 20 percent of difference in effectiveness of targeting. In addition, while the PMT is a transparent and accurate approach, it has measurement problems as income tests. For example, sometimes there is a problem of hiding assets if checks are not random and therefore it may be difficult to verify whether households have TVs, mobiles or not. Thus, for PMT to work, the challenge is to select characteristics that are less likely to be modified to obtain the benefit.

5.44 Even if the household targeting model is validated it is clear from the existing data that that households/ individuals with similar characteristics but residing in different neighborhoods do not enjoy the same degree of well-being. This indicates the importance of spatial poverty targeting. The study makes the point with evidence that poor districts receive lower per capita public health expenditure allocation than their richer cohorts, suggesting the regressive nature of public health spending and scopes for improving spatial poverty targeting. The question for further work is to define whether the focus should be given at the district, sub-district, or union level. This is because districts of Bangladesh have very large population—indeed larger than many countries in terms of population size. Spatial poverty mapping done properly can be a very powerful tool for estimating poverty at the sub-district level or below.

5.45 Finally, it is essential that the MOHFW interacts and liaises with other sectors to coordinate efforts to design a safety net system that has a more unified targeting approaches, and the establishment of proper institutional arrangements for effective and transparent functioning of a pro-poor strategy for the HNP sector including the implementation of such a PMT model and other targeting schemes. One thing to be avoided is to set up different targeting methods and capacities for targeting across the various Ministries. The optimal situation is to invest public resources in safety nets programs with an unified targeting approach and clear priorities of where to invest and which line Ministry should manage the effort of providing subsidies to the vulnerable groups. In this framework, coordination and complementarities among targeting tools and approaches will be essential to help the GOB in developing the institutional capacity and to make it work.



## Bibliography

Ahmed, H.U. *Financial Services for the Poorest of the Poor: The Experience of Palli Karma-Sahayak Foundation*, PKSF, Dhaka.

Bangladesh Bureau of Statistics (BBS), 2000. *Statistical Yearbook of Bangladesh*, 21<sup>st</sup> Edition.

BRAC, 2004. *Stories of Targeting: Process Documentation of Selecting the Ultra Poor for CFPR/TUP Program*, CFPR-TUP Working Paper Series No. 1, BRAC Research and Evaluation Division and Aga Khan Foundation Canada.

Castaneda, Tarsicio, Kathy Lindert, Luisa Fernandez, 2003. *Implementing Targeted Programs with Proxy Means Testing, Systems: International Evidence from Latin America*, a summary report.

Coady, David, Margaret Grosh and John Hoddinot 2004, *Targeting of transfers in developing countries: review of lessons and experiences*. The International Bank for Reconstruction and Development / The World Bank – IFPRI.

Data International, 1998. *Bangladesh National Health Accounts 1996/97*, Report prepared for the Health Economics Unit, Ministry of Health and Family Welfare, Government of Bangladesh.

Data International, 2003. *Bangladesh National Health Accounts, 1999-2001*, Report prepared for the Health Economics Unit, Ministry of Health and Family Welfare, Government of Bangladesh.

Data International, Nepal Health Economics Association and Institute of Policy Studies, 2001. *Equity in Financing and Delivery of Health Services in Bangladesh, Nepal and Sri Lanka: Results of the Tri-country Study*, Report prepared for European Union (EU).

Demombynes, Gabriel, Chris Elbers, Jenny Lanjouw, Peter Lanjouw, John Mistiaen, and Berk Ozler, 2002. *Producing an Improved Geographic Profile of Poverty, Methodology and evidence from three developing countries*, World Institute for Development Economics Research (WIDER) Discussion Paper Number 2002/39.

Economic Research Division, 2003. *Bangladesh: A National Strategy for Economic Growth, Poverty Reduction and Social Development*.

Ensor, Tim, Atia Hossain, Priti Dave Sen, Liaquat Ali, Shamin Ara Begum, and Hamid Moral, 2003. *Geographic Resource Allocation in Bangladesh*, Health Economics Unit, Research Paper Number 21.

HDRC, 2004. *Formative Research on Reaching the Poorest in NSDP Clinic: Identification of Perceptions and Barriers of the Poorest in Accessing NSDP Services*, Human Development Research Center, Dhaka.

Hill, J, 2003. *Facilitating Child Centered Community Development Approach: A Case Study of Gazipur Program Unit 1996-2002*, Plan Bangladesh, Dhaka.

Huq, Mohammed, Nazmul, 2004. *Benefit Incidence Analysis of Public Healthcare Subsidies: Methods and Preliminary Results from Equitap Study*, Paper Presented at Bangladesh Flagship Workshop, The World Bank.

Huq, Mohammed, Nazmul, 2004. *Out of Pocket Health Expenditure in Bangladesh - A Burden on Poor*, Unpublished Research Paper.

International Food Policy Research Institute (IFPRI), 2002. *Weighing What's Practical: Proxy Means Tests for Targeting Food Subsidies in Egypt*, Food Consumption and Nutrition Division (FCND) Discussion Paper Number 132.

Marie Stopes International, 2003. *Viewpoint: Developing a Participatory Poverty Grading Tool*.

Matin, I. and Halder, S.R, 2002. *Combining Targeting Methodologies for Better Targeting of the Extreme Poor: Some Preliminary Findings from BRAC's CFPR/TUP Program*, Research and Evaluation Division, BRAC, Dhaka.

Matin, I. and Yasmin, R., 2004. *Managing Scaling-Up Challenges of a Program for the Poorest: Case Study of BRAC's IGVGD Program*, Scaling Up Poverty Reduction: Case Studies in Microfinance, Consultative Group to Assist the Poor, World Bank Financial Sector Network, Washington D.C., Scaling Up Poverty Reduction Conference, Shanghai.

Ministry of Health and Family Welfare (MOHFW) and Plan Bangladesh, 2001. *Identification of the Vulnerable: Women, Children and Hard Core Poor*, Operations Research Conducted by Program Coordinating Cell, Ministry of Health and Family Welfare, in Collaboration With Plan International Bangladesh, Dhaka.

Ministry of Health and Family Welfare (MOHFW), 2003. *Conceptual Framework for Health, Nutrition and Population Sector Program (HNPS)*.

Ministry of Health and Family Welfare (MOHFW), 1998. *HPSP Program Implementation Plan, Part I*.

Ministry of Women and Children Affairs (MOWCA), 2003. *Food Security for Vulnerable Group Development (VGD) Women and their Dependents (FSVGD)*, Report on NGO Reflection/Orientation Workshop 11-13 May 2003, Department of Women's Affairs.

NSDP, 2004. *Guideline for Participatory Identification of the Poorest/Least Advantaged*, Community Response Team, NSDP, Dhaka (*in Bangla*).

Palli Karma-Sahayak Foundation (PKSF), 2004. *Annual Report 2003*.

Peacock, S., and P. Smith. 1995. *The Resource Allocation Consequences of the New NHS Needs Formula*. Discussion Paper 134, Centre for Health Economics. York, U.K.: University of York.

Plan Bangladesh, 2002. *Plan Bangladesh's Approach for Child Centered Community Development*.

Rawlings, B., Laura, Gloria M. Rubio, 2003. *Evaluating the Impact of Conditional Cash Transfer Programs: Lessons from Latin America.*

Sen, Binayak and Zulfiqar Ali, 2003. *Spatial Inequality in Social Progress in Bangladesh.*

SIRIUS Marketing and Social Research Ltd., Dhaka, 2002. *Market Study of Capacity Building Services in Bangladesh, Final Report.*

The World Bank, 2003. *Waivers and Exemptions for Health Services in Developing Countries.*

The World Bank, *Proxy Means Tests for Targeting Social Programs Simulations and Speculation*, LSMS Working Paper Number 118.

Van Doorslaer, E., O'Donnell, O. et al. 2004. *Paying out-of-pocket for health care in Asia: Catastrophic and poverty impact. EQUITAP WP#2.*

United Nations International Children Emergency Fund (UNICEF), Bangladesh Bureau of Statistics (BBS), 2000. *Asha 2000, The Status of Women and Children.*

United Nations Development Program (UNDP), 2004. *Human Development Report 2004.*



## **Annexes**



**List of Annexes:**

- Annex I Questionnaires
- Annex II Summary of Identification and Targeting Mechanism of Selected Organizations
- Annex III Instruction Manual for Proxy-Means Test Model
- Annex IV Application of Proxy-Means Test Model
- Annex V Multivariate Analysis of Resource Allocation
- Annex VI(a) Poverty Map by Districts and Upazilas
- Annex VI(b) Relative Food Insecurity Map by Districts and Upazilas

## Annex I: Questionnaires

### Targeting Resource for the Poor in Bangladesh Field Testing of Proxy-means Model Questionnaire for Exit Patients

Patient Status Code: [1] = In patient [2] = Out patient	Code	
--	------	--

#### Section 1: Background Information of Respondent

v1	Name of Respondent		
v2	Name of Patient		
v3	Sex of Patient Code: [1] = Male [2] = Female	Code	
v4	Name of District		
v5	Name of Upazila		
v6	Name of Village		
v7	Location Code: [1] = Urban; [2] = Rural	Code	

#### Section 2: Health Status and Treatment

v8	Type of facility Code: [1] = Medical College Hospital [4] [2] = District Hospital [5] = NGO [3] [6] = Other (specify )	Code	
v9	Type of sickness Code: [1] = Diarrhea [6] = Palpitation [2] = Fever [7] = Breathing trouble [3] = Pain [8] = Weakness [4] = Injury [9] = Dizziness [5] = Blood pressure [10] = Other (specify )	Code	
v10	Who consulted Code: [1] = Doctor [4] = Other support staff [2] = Nurse [5] = Doctor and others [3] = Health assistant [6] = Don't know	Code	
v11	Did you pay? Code: [1] = yes; [0] = No	Code	
v12	If yes, how much?	Taka	
v13	Did you pay any bakshish to get service? Code: [1] = yes; [0] = No	Code	
v14	If yes, how much?	Taka	
v15	Did you get any medicines from public facilities? Code: [1] = yes; [0] = No	Code	
v16	Did you pay for medicines? Code: [0] = No, [1] = Yes, totally, [2] = Yes, partially, [3] = Not applicable	Code	

v17	If yes, how much?	Taka	
v18	How long did you have to wait to be examined?	Minutes	
v19	Level of satisfaction [1] = Extremely dissatisfied [2] = Dissatisfied [3] = Neither satisfies nor dissatisfies [4] = Satisfied [5] = Extremely satisfied	Code	

**Section 3: Family Profile**

v20	Family size	Number	
v21	Highest year of schooling of any member of household	Year	
v22	Any household member aged above 15 years never attained school Code: [1] = yes; [0] = No	Code	
v23	Number of earning member	Number	
v24	Average monthly family income	Taka	
v25	Earned monthly income	Taka	
v26	Non-earned monthly income	Taka	

**Section 4: Housing**

v23	Number of rooms	Number	
v24	Source of drinking water (own) Code: [1] = Supply water [2] = Tubewell [3] = Pond / River [4] = Well [5] = Waterfall / Spring [6] = Other	Code	
v25	Type of latrine Code: [1] = Sanitary [2] = Pacca latrine (Water seal) [3] = Pacca latrine (Pit) [4] = Kacha latrine (Permanent) [5] = Kacha latrine (Temporary) [6] = Open field [7] = Other	Code	
V26	Main construction material of the walls Code: [1] = Brick / cement [2] = C.I. Sheet / wood [3] = Mud brick [4] = Hemp / hay / bamboo [5] = Other	Code	
v27	Main construction material of the roof Code: [1] = Cement [2] = C.I. Sheet / wood [3] = Tile / wood [4] = Hemp / hay / bamboo [5] = Other	Code	
v28	Does the household have an electricity connection? Code: [1] = yes; [0] = No	Code	

**Section 5: Inventory of Household Assets**

v29	Has telephone/mobile? Code: [1] = yes; [0] = No	Code	
v30	Has freezer? Code: [1] = yes; [0] = No	Code	
v31	Has fan? Code: [1] = yes; [0] = No	Code	
v32	Has motorcar? Code: [1] = yes; [0] = No	Code	

v33	Has drawing room furniture? Code: [1] = yes; [0] = No	Code	
v34	Has wrist watch? Code: [1] = yes; [0] = No	Code	
v35	Has clock? Code: [1] = yes; [0] = No	Code	
v36	Has sewing machine? Code: [1] = yes; [0] = No	Code	
v37	Has dining room furniture? Code: [1] = yes; [0] = No	Code	
v38	Has TV? Code: [1] = yes; [0] = No	Code	

Name of Interviewer: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

**Targeting Resource for the Poor in Bangladesh  
Field Testing of Proxy-means Model  
Questionnaire for Households**

Household Id (FSDC code): \_\_\_\_\_

**Section 1: Background Information of Respondent**

v1	Name of Respondent		
v2	Sex of Respondent Code: [1] = male; [2] = Female	Code	
v3	Name of District		
v4	Name of Upazila		
v5	Name of Village		
v6	Location Code: [1] = Urban; [2] = Rural	Code	

**Section 2: Health Status and Treatment**

v7	Did you or any household member suffered from illness during last 12 months? Code: [1] = yes; [0] = No	Code	
v8	Type of sickness Code: [1] = Diarrhea [6] = Palpitation [2] = Fever [7] = Breathing trouble [3] = Pain [8] = Weakness [4] = Injury [9] = Dizziness [5] = Blood pressure [10] = Other	Code	
v9	Which of the following were consulted for the illness? Code: [1] = Self treatment [5] = Private clinic/hospital [2] = Unqualified/ traditional [6] = Public hospital [3] = Salesmen of Drug store [7] = NGO facility [4] = Private doctor	Code	
v10	Have you sought any treatment at a public facility in past one year? Code: [1] = yes; [0] = No	Code	
v11	If no, why not? Code: [1] = Problem was not serious [7] = Nobody at home to take care of [2] = Treatment cost too much [8] = No one was there to accompany [3] = Distance is long [9] = It is a hassle to go outside [4] = Afraid to find having a serious case [10]=Didn't know where to go [5] = Afraid to take action [11]=Other [6] = Nobody at home paid any attention	Code	
	<b>If yes</b>		
v12	Did you pay? Code: [1] = yes; [0] = No	Code	
v13	If yes, how much?	Taka	

v14	Did you pay any bakshish to get service? Code: [1] = yes; [0] = No	Code	
v15	If yes, how much?	Taka	
v16	Did you get any medicines from public facilities? Code: [1] = yes; [0] = No	Code	
v17	Did you pay for medicines? Code: [0] = No [1] = Yes, totally [2] = Yes, partially	Code	
v18	If yes, how much?	Taka	
v19	How long did you have to wait to be examined?	Minutes	
v20	Level of satisfaction [1] = Extremely dissatisfied [4] = Satisfied [2] = Dissatisfied [5] = Extremely satisfied [3] = Neither satisfies nor dissatisfies	Code	

**Section 3: Family Profile**

v21	Family size	Number	
v22	Highest year of schooling of any member of household	Year	
v23	Any household member aged above 15 years never attained school Code: [1] = yes; [0] = No	Code	
v24	Number of earning member	Number	
v25	Average monthly family income	Taka	
v26	Earned monthly income	Taka	
v27	Non earned monthly income	Taka	

Sl. No.	Age (in years)	Sex 1=Male 2=Female	Educational Qualification (Years of schooling)	Major Occupation	Working hours/week 0 = 0 hour 1 = 1-39 hours 2 = 40 & above

(\*Occupation code: 1=Agriculture, 2=Teacher, 3=Service, 4=Small land owner, 5=Day laborer, 6=Business, 7=Unemployed, 8=Disable, 9=Homemaker, 10=Student, 11=House wife, 12 = Others)

**Section 4: Housing**

V22	Number of rooms	Number	
V23	Source of drinking water (own) Code: [1] = Supply water [4] = Well [2] = Tubewell [5] = Waterfall / Spring [3] = Pond / River [6] = Other	Code	
V24	Type of latrine Code: [1] = Sanitary [4] = Kacha latrine (Permanent) [2] = Pacca latrine (Water seal) [5] = Kacha latrine (Temporary) [3] = Pacca latrine (Pit) [6] = Open field [7] = Other	Code	
V25	Main construction material of the walls Code:	Code	

	[1] = Brick / cement [2] = C.I. Sheet / wood [3] = Mud brick	[4] = Hemp / hay / bamboo [5] = Other		
V26	Main construction material of the roof Code: [1] = Cement [2] = C.I. Sheet / wood [3] = Tile / wood	[4] = Hemp / hay / bamboo [5] = Other	Code	
V27	Does the household have an electricity connection? Code: [1] = yes; [0] = No		Code	

**Section 5: Inventory of Household Assets**

V28	Has telephone/mobile? Code: [1] = yes; [0] = No		Code	
V29	Has freezer? Code: [1] = yes; [0] = No		Code	
V30	Has fan? Code: [1] = yes; [0] = No		Code	
V31	Has motorcar? Code: [1] = yes; [0] = No		Code	
V32	Has drawing room furniture? Code: [1] = yes; [0] = No		Code	
v33	Has wrist watch? Code: [1] = yes; [0] = No		Code	
V34	Has clock? Code: [1] = yes; [0] = No		Code	
V35	Has sewing machine? Code: [1] = yes; [0] = No		Code	
V36	Has dining room furniture? Code: [1] = yes; [0] = No		Code	
V37	Has TV? Code: [1] = yes; [0] = No		Code	

Name of Interviewer: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

## Annex II: Summary of Identification and Targeting Mechanisms of Selected Organizations

**Table 1: Summary of Identification and Targeting Mechanisms of Selected Organizations**

Program/Organization	Activity	Target group	Selection criteria	Mechanism of identification and targeting
Food Security for Vulnerable Group Development Women and their Dependants (FSVGD) Project.	Provision of food aid to vulnerable women at the rate of 30 kg of wheat per month per beneficiary.	Women who are household heads; widowed, divorced, separated and abandoned women; wives of sick, inactive and disabled husbands	Landlessness or ownership of land of less than 0.15 acre, including homestead; income of less than Taka 300 per person per month; lack of productive assets; occupation of casual or day labor	Union VGD Committee identifies and selects beneficiaries at local level; Upazila VGD Committee approves; VGD committees at district and national levels coordinate and implement selection process.
Palli Karma-Sahayak Foundation (PKSF)	Provision of micro credit funds to partner NGOs; developing best practices for the micro credit sector; provision of institutional and capacity building support to partner NGOs; advocacy of appropriate policies and regulations for micro credit sector.	Rural poor; urban poor; hard core poor; micro credit borrowers.	Mostly landless but a few with landholdings of up to 30 decimals; unemployed or earning less than a dollar a day, or dependent on temporary job; and sometimes without a place to sleep; deserted or separated women-headed households; disabled and elderly; parents of former child laborers; former sex workers; domestic help or beggars; seasonal wage earners or daily laborers without any skills or experience. (Financial Services for the Poorest Project (FSPP).	Partner NGOs conduct household surveys using questionnaire designed by PKSF. Collected information is matched with selection criteria to examine eligibility of surveyed households. Conditions of eligible households are physically observed and verified by program managers before beneficiaries are finally selected and approved.
NGO Service Delivery Program (NSDP)	Delivery of essential services package, including child health care, family planning and reproductive health; behavior change communication and marketing; limited curative care, and communicable diseases control.	Population in catchment areas of partner NGOs, with special focus on the poor and vulnerable.	Households are grouped into four categories – rich, middle class, poor and poorest – on the basis of: monthly income, occupation, land ownership, asset ownership, possession of clothes, food habit, medical facilities, education, and number of family members.	NSDP uses the Participatory Rural Appraisal (PRA) methods of social mapping and wealth ranking for identifying the poor. Once the poor households are identified, PRA techniques of health seeking mobility map and Venn diagram are used to target services to the poor.
Challenging the Frontiers of Poverty Reduction – Targeting the Ultra Poor (CFPR-	Provision of exclusive package to selected ultra-poor consisting of: (a) enterprise development training and subsequent transfer of assets for	Specially targeted ultra poor (STUP) in all the upazilas of Kurigram, Rangpur and	Households are grouped into “rich” and “poor” categories. The poor are broadly characterized by the following: not owning land or	The program uses a four-stage targeting mechanism comprising: (a) rapport building, (b) PRA meeting; (c) survey and preliminary selection; and (d) final

<b>Program/Organization</b>	<b>Activity</b>	<b>Target group</b>	<b>Selection criteria</b>	<b>Mechanism of identification and targeting</b>
TUP) Program of BRAC	facilitating income generating activities; (b) essential health care services; and (c) community mobilization program to ensure security of assets and community support for beneficiaries.	Nilphamari districts, all of which have high incidence of poverty.	owning only homestead; working as day laborers, small traders or begging for a living; not owning any livestock or asset; and living in straw houses. Detailed program-set criteria are used for making preliminary and final selection of beneficiaries.	selection. Techniques used include PRA methods of social mapping and wealth ranking together with survey and physical verification of targeted households.
Marie Stopes Clinic Society (MSCS)	Provision of a wide range of health care services, including mother and child health, family planning, treatment of sexually transmitted infections, and general health. Also, provision of training to government, non-government and private sector providers for strengthening national health capacity.	Urban poor, homeless, young people aged 10-12 years, injecting drug users, men having sex with men, commercial sex workers and their clients, and factory workers.	Households are categorized into four groups – very poor, poor, middle, and rich – on the basis of following indicators: living space, house structure, rental status, cooking facilities, average meals per day, frequency of quality food intake, occupation, and monthly income.	For identifying and targeting the urban poor, MSCS uses a participatory method comprising the following stages: conducting focus group discussion, identifying poverty indicators, determining poverty levels, using a scoring system, grading households according to poverty levels, drawing social maps, and targeting services.
Plan Bangladesh	It implements the following programs: Community Health Care Program, Community Learning Program, Family Economic Security Program, and Enabling Environment Program.	Plan's central focus is on the child, primarily child rights, under the clusters of child survival, child development, child protection and child participation.	Vulnerable households are identified against following poverty indicators: housing condition, occupation, daily income/wages, land ownership, food intake, clothing,	Identification of the poor is done by groups of school-going children aged 12-14 years, facilitated by program staff. Identified households are validated by adults of the community and representatives of local government. PRA methods are used.
Public Private Partnership Program (PPP) implemented by NICARE and Ministry of Health and Family Welfare (MOHFW).	The program aims to combine health care provided through community-based schemes with resources available from the public and private sectors. PPP has three components: (a) Community-based Health Scheme, (b) Funding and Commissioning Partnership, and (c) Provider Partnership.	Poor and vulnerable people.	Households are categorized into the following groups: very rich, rich, middle class, poor, landless poor, and helpless landless poor. The poverty indicators used include: landownership, housing condition, occupation, food security, and income.	PPP has developed a Participatory Poverty Assessment mechanism, which uses the following PRA techniques: transect walk, social mapping, well-being analysis, focus group discussions, seasonal calendar, and Venn diagram. The assessment is done in 4 days by a four-member team.

Program/Organization	Activity	Target group	Selection criteria	Mechanism of identification and targeting
Public NGO Partnership Program implemented by Bangladesh Population and Health Consortium (BPHC) – now called Partner in Health and Development (PHD)	BPHC supports 36 locally based NGOs mostly in rural areas. Partner NGOs deliver essential services package to rural people, particularly the poor, women and children, who live in hard-to-reach and disadvantaged areas.	Poor and vulnerable people.	Households are grouped into four categories – poorest, poor, middle, and upper middle and rich – on the basis of per capita annual expenditure.	With the help of a questionnaire developed by BPHC, partner NGOs conduct surveys of households in their catchment areas and collect expenditure data for grouping households into poverty categories. BPHC uses a sliding-scale pricing strategy which enables the poor to get free services through a family health card scheme.

### ***Annex III: Instruction Manual for Proxy Means Test Model***

The Proxy Means Test (PMT) model is a scientific technique that has received increased attention and success in countries of different regions. It has been tried out to ration and deliver selected social services to the poor. It is relatively easy to administer because of its simplicity, low dependence on multiple sources for identifying the targeted beneficiary, and has little room for subjective observations. The international review of PMT and the review of the existing government and NGO social programs targeting the poor suggest the good timing to introduce and implement the tool in Bangladesh

PMT system generates a score for households based on easy to observe characteristics such as location and quality of dwelling, ownership of durable goods, and demographic structure, education and occupation of households. These easily observable characteristics are utilized as proxy for the socio-economic welfare of the households/individuals by estimating per capita consumption/expenditure of that household. Moreover, based on the resources available to offer the subsidy and policy objectives of proportion of the populace including in the program, a cut-off point is to be determined. Based on the cut-off point, individuals interviewed are classified into two categories: (a) those eligible for the subsidies, *a la* the poor, and (b) the non-poor, who will not be included in the program. In other words, if the calculated per capita consumption is less than or equivalent to the predetermined threshold level then the individual will be treated as poor. Otherwise he/she will be treated as unqualified for the subsidized/free health care services. A brief description of the Proxy Means Test implementation process is outlined below:

#### **Step 1: Registration**

In order to identify the poor efficiently and objectively, the health seekers are instructed to go through a registration process. The field level staff will ask for information on selected proxy variables that will be used for estimating the poverty status of the patients. An illustrative registration form is presented below:

#### **Registration Form**

##### **Section 1: Background Information and Family Profile**

1	Name of patient _____		
2	Name of patient's father _____		
3	Present address _____		
4	Permanent address _____		
5	Sex	Code: [1] = Male [2] = Female	Code
6	Age		Age
7	Marital status		Code
8	Main occupation of the family		Code
9	Number of earning member		Number
10	Average monthly family income		Taka

**Section 2: Housing and Inventory of Household Assets**

11	Family size		Number	
12	Highest year of schooling of any member of household		Year	
13	Any household member aged above 15 years never attended school		Code	
14	Has electricity	Code: [1] = yes; [0] = No	Code	
15	Has telephone/mobile	Code: [1] = yes; [0] = No	Code	
16	Has freezer	Code: [1] = yes; [0] = No	Code	
17	Has TV	Code: [1] = yes; [0] = No	Code	
18	Has electric fan	Code: [1] = yes; [0] = No	Code	
19	Has dining room furniture	Code: [1] = yes; [0] = No	Code	
20	Has drawing room furniture	Code: [1] = yes; [0] = No	Code	
21	Has hemp/hay/bamboo wall	Code: [1] = yes; [0] = No	Code	
22	Has hemp/hay/bamboo roof	Code: [1] = yes; [0] = No	Code	
23	Has no private toilet	Code: [1] = yes; [0] = No	Code	
24	Has supply water	Code: [1] = yes; [0] = No	Code	

Name of Interviewer: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

**Step 2: Identifying Eligibility of the Patient**

**Calculation of Score**

In order to identify the eligible patients for the public health care subsidy, the first step is to calculate the per capita consumption for the individuals by adding the products of input variables and the corresponding coefficients and the model constant. This can be formulated as follows:

$$S_i = C_i \times V_i$$

Where

$S_i$  = Score of  $i^{\text{th}}$  variable

$C_i$  = Coefficient of  $i^{\text{th}}$  variable

$V_i$  = Value of  $i^{\text{th}}$  variable

Finally, the Total Score = Constant +  $\sum S_i$

For illustration, the PMT calculations for a household from the HIES sample is provided in Table A4. The coefficients are obtained from the final PMT model (Column 3). The responses on the selected indicators/variables are provided in column 4. Scores (Column 5) are calculated for the selected households by multiplying the values of the variables for the respective households with the coefficient values.

**Table A4: Proxy Means Test Result from HIES Sample**

Column 1	Column 2	Column 3	Column 4	Column 5
i	Variables in the Model	Coefficients $C_i$	Value $V_i$	Score $S_i$
1	Household size	-1.4	11	-16

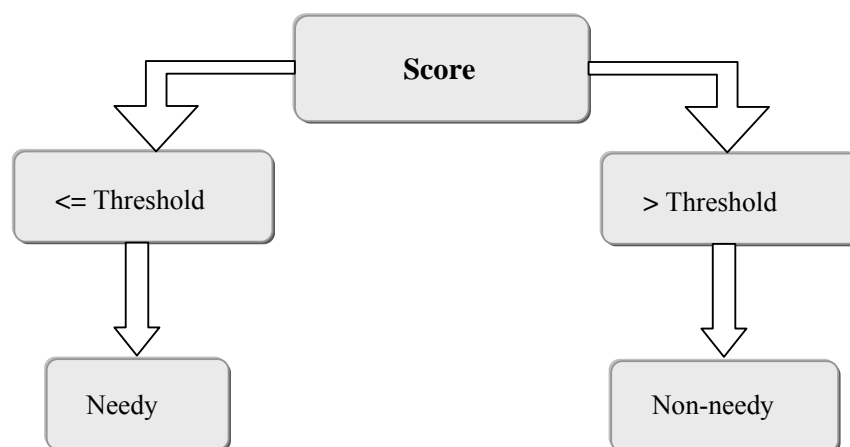
Column 1	Column 2	Column 3	Column 4	Column 5
i	Variables in the Model	Coefficients $C_i$	Value $V_i$	Score $S_i$
2	Highest year of schooling of any member of the household	0.8	9	7
3	Any family member aged above 15 years never attended school	-3.3	1	-3
4	Has electricity	2.6	0	0
5	Has telephone/mobile	42.5	0	0
6	Has freezer	17.6	0	0
7	Has TV	4.2	0	0
8	Has electric fan	3.8	0	0
9	Has dining room furniture	4.2	0	0
10	Has drawing room furniture	6.2	0	0
11	Has hemp/hay/bamboo wall	-1.5	0	0
12	Has hemp/hay/bamboo roof	-1.2	1	-1
13	Has no private toilet	-4.0	0	0
14	Has supply water	10.8	0	0
	Constant	29		
	Total Score	16		

Finally, the total score is obtained by adding the value of the PMT model constant (Taka 29) and the scores for each selected indicators. The resulting total score is nothing but the estimated consumption per capita per day for that household.

### Identification of Eligible Persons

The calculated per capita consumption is compared with a predetermined threshold level. If the calculated per capita consumption is less than or equivalent to the predetermined threshold level then the individual will be treated as eligible for the public health care subsidy. A decision tree is presented in Figure A2.

**Figure A2: Decision Tree for Identifying the Eligible Person**



In this effort, the resulting cut-off point becomes Taka 26.25 per capita per day. The total score of the household is then compared with the cut-off point of Taka 26 to determine the eligibility of that household to be a beneficiary of a health service. In the above illustration, since the total estimated score for the household of Taka 16 per capita per day is less than the predetermined threshold level (Taka 26.25 per capita per day), any individual from that household is identified as “*Needy*” for the public health care subsidy.

The listing of the eligible households is to be maintained professionally. The database has to be transparent and accountable, and can be verified and updated periodically. The database may also be accessed to validate or to correct the actual economic status of individuals who were incorrectly identified in terms of their eligibility. For instance, an individual enjoying usage of the voucher may have had purposively provided wrong information. In such a scenario, the information in the database may be corrected, and the identification card withdrawn.

## **Annex IV: Application of the Proxy Means Test Model for Targeting the Poor – An Illustration**

### **An Illustration**

#### **I. Background**

Under the World Bank-funded study entitled “Targeting Resources for the Poor in Bangladesh: Development of Guidelines and Tools,” a review of health programs and practices in Bangladesh as well as spatial allocation of resources was undertaken. The review revealed that there exists considerable inequitable distribution of government allocation across administrative districts of Bangladesh when judged by health needs and poverty and morbidity indicators. The study prescribes a more equitable formula for resource reallocation across districts.

**Goal:** Target health sector subsidies to the poor.

#### **Objectives:**

- (i) Develop a feasible resource allocation mechanism that would ensure health sector equity across different administrative areas
- (ii) Develop a cost effective instrument that would identify the poor and the non-poor households within a limited geographical area
- (iii) Introduce a voucher system for the identified poor to be eligible to receive subsidized health services

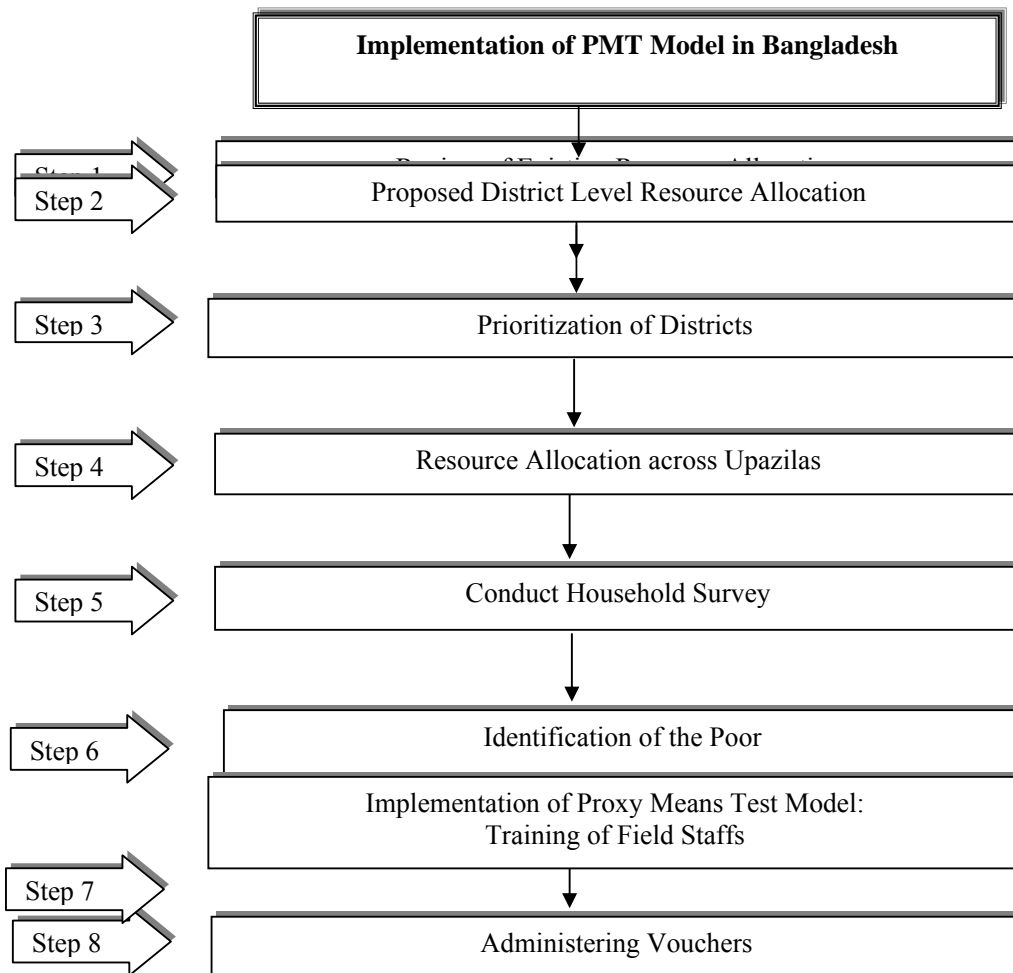
This study espouses that targeting resources to the poorer districts and upazilas is attainable in a more objective and transparent manner,. The study builds a Proxy Means Test (PMT) model for Bangladesh, using data from Bangladesh Bureau of Statistics’ Household Income and Expenditure Survey (HIES), 1999-2000. Subsequently, it validates the robustness of the PMT model by undertaking a field survey of households.

This note provides a guideline for field level implementation of the PMT model in selected impoverished administrative districts of Bangladesh. It draws from the findings as well as the lessons learned under the study in suggesting various steps and techniques essential towards successful implementation of such a program.

#### **II. Implementation of the PMT Model in Bangladesh – An Illustration**

Figure A1 identifies the proposed eight steps necessary towards implementation of the PMT model. The steps can be classified into two phases. Phase 1, drawing from the findings of the study, assesses the status of resource allocation across the 64 administrative districts of Bangladesh. Subsequently, it proposes a more equitable allocation based on a formula derived under the study. Under Phase 2, an illustration of the administration of the PMT model is presented. Brief summaries of each of the eight steps are presented in the subsequent section.

**Figure A1: Implementation of PMT Model -- A Schematic Presentation**



**Phase 1: Equitable Resource Allocation**

**Step 1: Review of Existing Resource Allocation**

The current system of allocation of health care resources funded by the Ministry of Health and Family Welfare (MOHFW) is by facilities and not by geographical areas. The derived or implied geographical allocation appears to conflict with the goal of equity in allocation of publicly provided health care resources. Analysis of the health care resources actually allocated reveals that more affluent districts are allocated more resources per capita compared to the poorer districts. One reason for this apparent geographical inequitable distribution of the publicly funded health care resources is the greater pull of the richer districts, where larger numbers of public facilities are located compared to the poorer districts. Many poor upazilas are still without any Upazila Health Complex (UHC), depriving the poorer inhabitants of such upazilas the direct benefit of the Essential Services Package (ESP) and other UHC administered public health care expenditures.

## Step 2: Proposed Districts Level Resource Allocation

To arrive at a more equitable resource allocation for each administrative district of Bangladesh, proxies identified for need and cost factors can be applied. In addition, Human Development Indicator (HDI) and Human Poverty Index (HPI) can also be used as the two basic development and poverty measures to modify the current method of allocation.

For any district, the total target allocation can be suggested as the product of need and cost factors by applying the following formula, which was originally formulated by Peacock and Smith in 1995 and used in the Bangladesh context for the first time by Ensor in 2001:

$$\text{District target allocation } T = \text{Per Cap} \times \text{POP district} \times (1 + a) \times (1 + n) \times (1 + c)$$

where:

Per Cap is the MOHFW total budget divided by the total national population,

POP district is the population of the district

'a' is the district age/gender adjustment factor – proxy by burden population

'n' is the need adjustment factor -- proxy by standardized mortality rate

'c' is the cost adjustor -- proxy by Head Count Ratio

Proposed per capita allocation per district has been derived by using the above formula. Accordingly, Table A1 presents the prevailing allocation (column 3) across districts and the allocation derived by applying the above formula (column 4). The derived allocation redistributes resources among the 64 districts whereby the relatively poor districts (judged by Head Count Ratio) with high incidence of morbidity would be eligible for higher per capita allocation. Under the assumption that no additional resources at the national level are available, districts with above average health and poverty indicators would thereby receive less resources.

Reduction of government funds to existing facilities is administratively and politically very difficult, at least in the short run. Under the assumption that the above average districts in terms of economic and health status would continue to receive existing allocation and poorer districts with high morbidity receive additional resources, an administratively feasible allocation pattern by district has been derived (column 5). The administratively feasible allocation provides minimum additional funds to the poorer districts in such a way that they are at par with the rest on equity consideration. It is estimated that per capita allocation would increase from Taka 96 to Taka 130.

As evident in Table A1, the districts have been classified into 4 categories, based on the poverty status (Head Count Ratio). A total of 15 districts have been classified as “Very Poor”, while 13 are viewed as “Poor”. Of the remaining districts, 21 are considered “Less Poor” and 15 termed as “Non Poor.” The Human Development Index (HDI) and Human Poverty Index (HPI), in addition to the poverty status, collectively contribute towards the proposed or administratively feasible allocation decision process. For instance, Jamalpur district has very low ranking under each of the 3 criteria, while Sirajganj’s HDI performance is not as acutely depressing.

**Table A1: A Comparison of Existing and Proposed Resource Allocation**

Division (col 1)	District (col 2)	Existing per capita allocation (col 3)	Proposed per capita allocation (col 4)	Administrative y feasible allocation (col 5)	Poverty status (col 6)	Rank HDI (col 7)	Rank HPI (col 8)
Dhaka	Jamalpur	42	94	94	Very Poor	64	63
Rajshahi	Sirajganj	70	132	132	Very Poor	30	58
Barisal	Bhola	71	43	71	Very Poor	43	49

<b>Division</b> <b>(col 1)</b>	<b>District</b> <b>(col 2)</b>	<b>Existing per capita allocation</b> <b>(col 3)</b>	<b>Proposed per capita allocation</b> <b>(col 4)</b>	<b>Administrative y feasible allocation</b> <b>(col 5)</b>	<b>Poverty status</b> <b>(col 6)</b>	<b>Rank HDI</b> <b>(col 7)</b>	<b>Rank HPI</b> <b>(col 8)</b>
Rajshahi	Nawabganj	73	63	73	Very Poor	60	61
Rajshahi	Natore	75	51	75	Very Poor	34	31
Rajshahi	Thakurgaon	77	42	77	Very Poor	46	46
Rajshahi	Kurigram	78	63	78	Very Poor	61	59
Rajshahi	Nilphamari	78	78	78	Very Poor	62	57
Rajshahi	Gaibandha	79	101	101	Very Poor	32	37
Dhaka	Netrokona	82	72	82	Very Poor	49	51
Rajshahi	Naogaon	83	79	83	Very Poor	40	20
Rajshahi	Dinajpur	109	84	109	Very Poor	28	29
Dhaka	Mymensingh	114	207	207	Very Poor	41	35
Rajshahi	Rangpur	157	143	157	Very Poor	55	55
Rajshahi	Rajshahi	206	82	206	Very Poor	15	30
Khulna	Chuadanga	70	26	70	Poor	31	19
Chittagong	Cox's Bazar	71	60	71	Poor	45	56
Dhaka	Sherpur	75	49	75	Poor	58	64
Rajshahi	Lalmonirhat	75	39	75	Poor	27	42
Dhaka	Kishoreganj	83	131	131	Poor	57	41
Rajshahi	Panchagarh	87	18	87	Poor	39	36
Barisal	Patuakhali	88	26	88	Poor	8	16
Rajshahi	Pabna	101	77	101	Poor	14	48
Khulna	Magura	102	24	102	Poor	42	27
Rajshahi	Joypurhat	139	23	139	Poor	20	43
Rajshahi	Bogra	151	104	151	Poor	37	26
Chittagong	Khagrachhari	197	4	197	Poor	63	52
Chittagong	Bandarban	226	1	226	Poor	59	62
Khulna	Jhenaidaha	51	37	51	Less Poor	29	21
Chittagong	Brahmanbaria	68	101	101	Less Poor	35	53
Dhaka	Narsingdi	71	112	112	Less Poor	26	39
Sylhet	Sunamganj	71	43	71	Less Poor	52	60
Khulna	Satkhira	73	250	250	Less Poor	24	18
Sylhet	Habiganj	79	40	79	Less Poor	38	32
Dhaka	Tangail	84	79	84	Less Poor	51	23
Khulna	Kushtia	85	55	85	Less Poor	44	45
Dhaka	Madaripur	87	40	87	Less Poor	36	34
Barisal	Pirojpur	88	30	88	Less Poor	7	2
Dhaka	Shariatpur	88	43	88	Less Poor	33	50
Dhaka	Rajbari	91	26	91	Less Poor	56	54
Khulna	Meherpur	92	13	92	Less Poor	50	25
Khulna	Narail	98	16	98	Less Poor	21	17
Dhaka	Gopalganj	100	30	100	Less Poor	22	15
Khulna	Bagerhat	107	17	107	Less Poor	9	13
Barisal	Barguna	109	13	109	Less Poor	6	8
Dhaka	Manikganj	134	43	134	Less Poor	47	40

Division (col 1)	District (col 2)	Existing per capita allocation (col 3)	Proposed per capita allocation (col 4)	Administrative y feasible allocation (col 5)	Poverty status (col 6)	Rank HDI (col 7)	Rank HPI (col 8)
Dhaka	Faridpur	177	46	177	Less Poor	48	33
Barisal	Barisal	205	65	205	Less Poor	12	10
Chittagong	Rangamati	231	1	231	Less Poor	54	44
Dhaka	Dhaka	31	304	304	Non Poor	1	3
Dhaka	Gazipur	61	42	61	Non Poor	2	24
Khulna	Jessore	68	46	68	Non Poor	10	7
Sylhet	Moulvibazar	70	26	70	Non Poor	53	47
Chittagong	Noakhali	71	69	71	Non Poor	18	28
Chittagong	Chandpur	73	77	77	Non poor	16	14
Chittagong	Lakshmipur	74	47	74	Non poor	13	22
Dhaka	Narayanganj	74	97	97	Non poor	3	9
Chittagong	Feni	94	42	94	Non poor	23	6
Dhaka	Munshiganj	97	35	97	Non poor	17	11
Chittagong	Comilla	101	168	168	Non poor	25	4
Chittagong	Chittagong	118	135	135	Non poor	5	12
Khulna	Khulna	171	28	171	Non poor	4	5
Sylhet	Sylhet	173	48	173	Non poor	19	38
Barisal	Jhalokati	284	19	284	Non poor	11	1
<b>Bangladesh</b>		<b>96</b>	<b>96</b>	<b>130</b>			

Source: FMAU Database and Bangladesh Bureau of Statistics (BBS), 2000

Note: Very Poor (HCR $\geq$ 37%); Poor (HCR <37%  $\geq$ 31%); Less Poor (HCR <31%  $\geq$ 25%)  
Non-Poor (HCR<25%)

### Step 3: Prioritization of Districts

Judged by the resource allocation formula, Table A2 lists the top five districts that deserve enhanced allocation. These districts belong to the “Very poor” category. Actual amount of resources that would be necessary for each of the respective districts is derived by multiplying the population with the per capita proposed allocation. Under the administratively feasible allocation assumption, on an average Taka 363 million would be required annually to bring equity to these five districts.

**Table A2: Estimated Additional Funds Required for Very Poor Districts  
(in million Taka)**

Division	District	Population	Existing allocation	Proposed allocation	Administrative feasible allocation
Dhaka	Jamalpur	2,106,040	88	199	199
Rajshahi	Sirajganj	2,673,060	187	353	353
Rajshahi	Nilphamari	1,562,160	122	122	122
Rajshahi	Gaibandha	2,129,700	168	215	215
Dhaka	Mymensingh	4,460,120	508	924	924

#### Step 4: Resource Allocation across Upazila

As an illustration, for deriving upazila level proposed allocation, a single “Very Poor” district, Sirajganj, is being studied. For upazila-wise allocation, the following steps are suggested:

- Obtain district total allocation by multiplying the per capita allocation with district population
- Obtain total population by upazilas
- Apportion existing and proposed district resources to the upazilas according to their share in district total population

Based on the above procedures, Table A3 has been prepared. It is estimated that an additional fund of Taka 166 million is required for the nine upazilas collectively under the Sirajganj district. Based on availability of funds and implementation capacity, one or more upazilas can be targeted for increased allocation of healthcare resources.

**Table A3: Estimated Additional Funds Required by Upazilas of Sirajganj District (in million Taka)**

District	Upazila	Poverty status	Population 2001	Existing allocation	Administratively feasible allocation	Additional funds needed
Sirajganj	Kazipur	Very poor	266,960	19	35	17
	Sirajganj Sadar	Very poor	482,580	34	64	30
	Royganj	Very poor	266,980	19	35	17
	Tarash	Very poor	167,700	12	22	10
	Kamarkhanda	Very poor	127,660	9	17	8
	Ullahpara	Very poor	437,480	31	58	27
	Belkuchi	Poor	298,200	21	39	18
	Chauhali	Very poor	155,720	11	21	10
	Shahjadpur	Very poor	469,780	33	62	29
Total			2,673,060	187	353	166

#### Phase 2: Targeting the Poor

##### Step 5: Conduct Household Survey

As highlighted earlier in the report, the level of poverty as well as household income or expenditure vary between administrative districts, and the consumption baskets of goods and services are different between urban and rural settings. The Proxy Means Test (PMT) model developed under this study is based on a nationwide 1999-2000 household survey database, and therefore the explanatory (discriminatory) factors are gross estimates. Albeit not absolutely essential, for greater accuracy of the predictive power of the PMT model, a survey of households' income and expenditure over a targeted programming area is suggested. It is recommended that the PMT model be introduced in one of the nine upazilas of Sirajganj. Accordingly, the household survey may be limited to the selected upazila.

##### Step 6: Identification of the Poor

Either based on the HIES database or on the recommended localized survey, the consumption expenditure coefficients of key parameters are to be applied to compute individual household scores. The scores shall be derived from information to be generated through structured individual interviews. Households will be asked a series of questions, most of which will be binary in nature, and will primarily serve as proxy to their income. A vector of scores corresponding to each of the households

interviewed will be generated. Based on the availability of resources for providing subsidy and policy objectives of proportion of the populace including in the program, a cut-off point shall be determined. Based on the cut-off point, individuals interviewed shall be classified into two categories: (a) those eligible for the subsidies, *a la* the poor, and (b) the non-poor, who will not be included in the program.

### **Step 7: Implementation of PMT: Training of Field Staffs**

In order to make this technique useful at the field level, an instruction manual has been prepared and presented in Annex V. This manual explains the model variables and provides instructions on how the calculating procedures are to be administered. The processes would lead to an arithmetic estimation of a “score” for each individual interviewed. This manual will allow the field level staff to identify poor individuals without any subjective bias. The field level staff will ask for information on selected explanatory variables and calculate the per capita consumption for that individual. Subsequently, the per capita consumption will be compared with a predetermined threshold level. If the calculated per capita consumption is less or equivalent to the predetermined threshold level then the individual will be treated as poor. Otherwise, he/she will be treated as unqualified for the subsidized or free services. Although this manual is well instructive, we propose to organize a training workshop for the field level staff for their better understanding of the procedure.

### **Step 8: Administering Vouchers**

Once the eligible households are identified, they may be provided with an identification card. The poor would use the card to receive selected health services at subsidized rates. The selection of an impoverished upazila would ensure that additional amount of resource per capita would be made available. As per the PMT model, the additional fund shall be disbursed only among the targeted poor, who thereby shall receive more than the per capita allocation provided to the targeted upazila.

The listing of the two categories of households is to be maintained professionally. The database has to be transparent and accountable, and can be verified and updated periodically. The database may also be accessed to validate or to correct the actual economic status of individuals who were incorrectly identified in terms of their eligibility. For instance, an individual enjoying usage of the voucher may have had purposively provided wrong information. In such a scenario, the information in the database may be corrected, and the identification card withdrawn.

## **III. Risks and Assumptions**

To implement the administratively feasible allocation, an additional 35 percent of resources are needed for district-wise reallocation for reducing health sector inequality. The Ministry of Finance of the Government of Bangladesh has to make additional funds available to the health sector or the Ministry of Health and Family Welfare’s (MOHFW) would have to cut costs to supplement district level allocation.

Cooperation and assistance of MOHFW are essential for introducing the PMT model in public sector health services. MOHFW’s good office may also be used in involving health sector NGOs to participate in such endeavors. Actual implementation of a pilot program may be undertaken solely by MOHFW or through contracting out to the private sector.

The introduction of a PMT model has its administrative challenges. Close monitoring and accountability are essential for its success. Predictably, many of those identified as non-poor, and therefore not eligible for the benefits, would express dissatisfaction with such a program. Local level personal and political pressures may be imposed for including selected undeserving individuals into the program. Strong government and community participation can dissuade such imposition or demands. The PMT model acknowledges that a small percent of deserving poor households may be incorrectly left out of a program. Institutional arrangements should be made to ensure that such individuals are subsequently included in the support activity.

## *Annex V: Multivariate Analysis of Resource Allocation*

The model we tried is as follows:

$$y_t = y_{t-1} + \text{HCR}_t + \text{BP}_t + \text{SMR}_t + \text{HDI}_t + e_t$$

Where

- $y_t$  = Current year's per capita allocation
- $y_{t-1}$  = Last year's per capita allocation
- $\text{HCR}_t$  = Head Count Ratio at year t
- $\text{BP}_t$  = Burden people at year t
- $\text{SMR}_t$  = Standardized Mortality Rate at year t
- $\text{HDI}_t$  = Human Development Index at year t
- $e_t$  = Random error term distributed normally with zero mean and unit standard deviation and is additive over time.

The analysis of the above regression model indicates that the current year allocation is significantly explained by the past year allocation (Table A5). Although the overall regression model is statistically significant, the exogenous variables  $\text{HCR}_t$ ,  $\text{BP}_t$ ,  $\text{SMR}_t$ ,  $\text{HDI}_t$  have no significant influence on resource allocation.

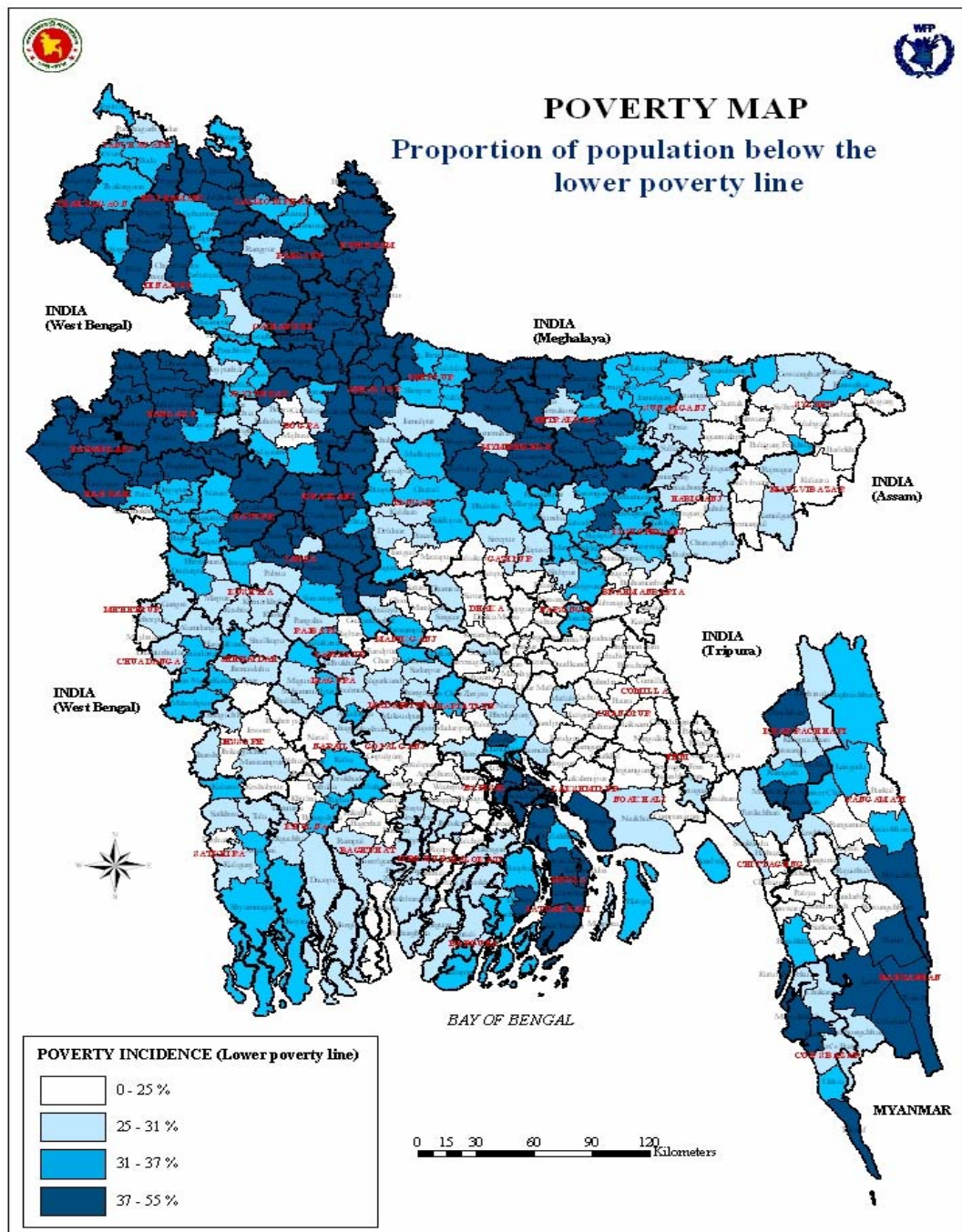
**Table A5: Summary Statistics of Regression Model**

<b>Coefficients</b>	<b>B</b>	<b>Std. Error</b>	<b>t</b>	<b>Sig.</b>
Last year's per capita allocation (2000-2001)	.636	.103	6.160	.000
Head count ratio (HCR)	-.135	.669	-.202	.841
Burden people (BP)	-.000019	.000	-.706	.483
Standardized Mortality Rate (SMR)	12.656	7.478	1.692	.096
Human Development Index (HDI)	-.542	.758	-.715	.477

Dependent Variable: Current year's per capita allocation (2001-2002)

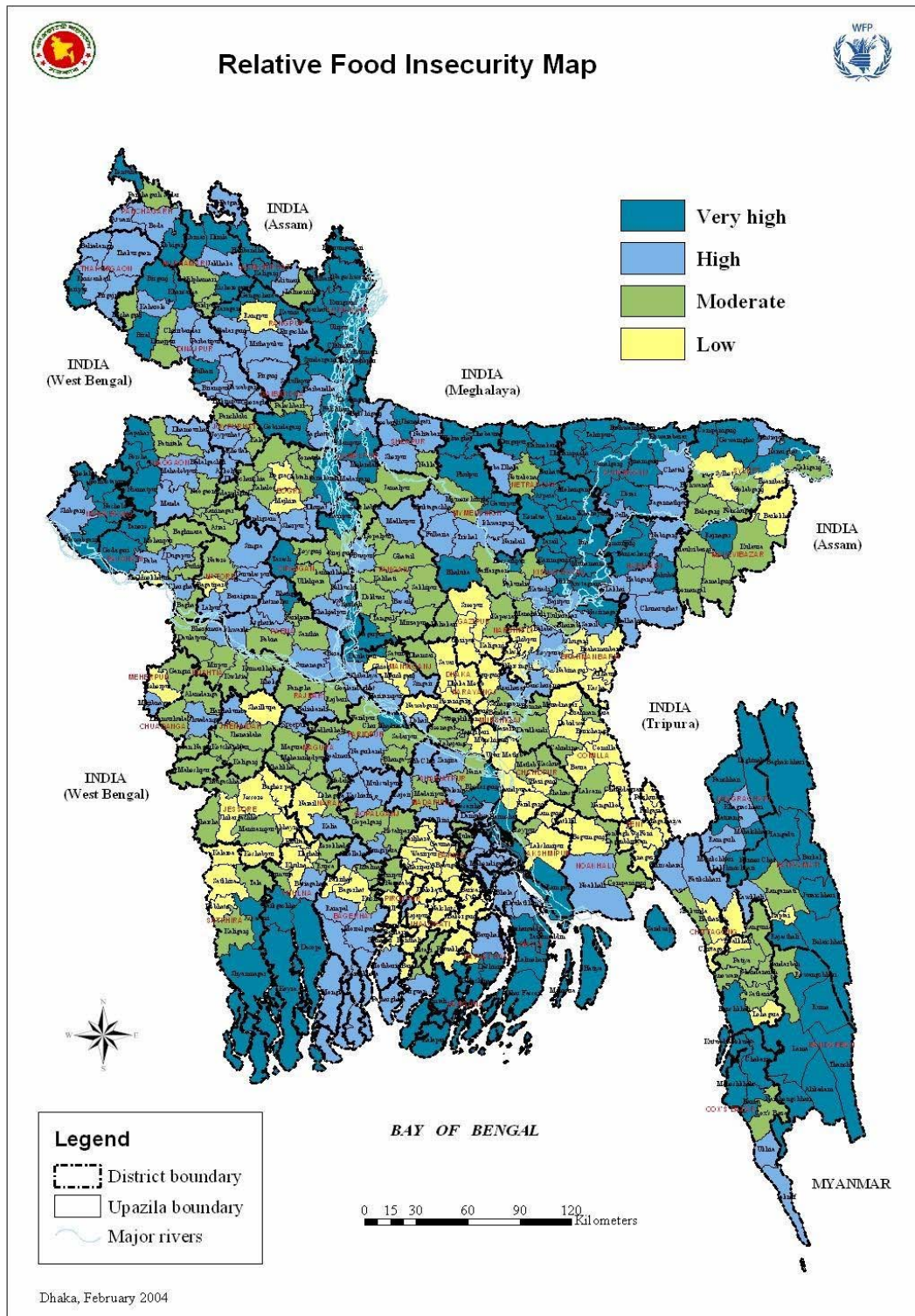
F-statistics = 99.44\*\*,  $R^2 = 0.896$ , Number of observations = 64

## Annex VI (a) Poverty Map by Districts and Upazilas



Source: World Food Program (WFP)

## Annex VI (b) Relative Food Insecurity Map by Districts and Upazilas



Source: World Food Program (WFP)

### **World Bank *Bangladesh Development Series* publications**

1. Bangladesh PRSP Forum Economic Update – Recent Developments and Future Perspectives, paper no 1, November 2005.
2. End of MFA Quotas: Key Issues and Strategic Options for Bangladesh Ready Made Garment Industry, paper no 2, December 2005.
3. Bangladesh Country Water Resources Assistance Strategy, paper no 3, December 2005
4. Comparative Advantages of Public and Private Health Care Providers in Bangladesh, paper no 4, December 2005
5. Targeting Resources for the Poor in Bangladesh, paper no 5, December 2005
6. Improving Trade and Transport Efficiency – Understanding the Political Economy of Chittagong Port, paper no 6, December 2005
7. Revitalizing the Agricultural Technology System in Bangladesh, paper no 7, December 2005

All *Bangladesh Development Series* papers are available at [www.worldbank.org.bd/bds](http://www.worldbank.org.bd/bds)

**THE WORLD BANK**

1818 H Street, N.W.

Washington,

D.C. 20433, USA

Tel: 1-202-473-1000

Fax: 1-202-477-6391

[www.worldbank.org](http://www.worldbank.org)

**WORLD BANK OFFICE DHAKA**

Plot: E-32, Agargaon,

Sher-e-Bangla Nagar,

Dhaka-1207, Bangladesh

Tel: 880-2-8159001-28

Fax: 880-2-8159029-30

[www.worldbank.org.bd](http://www.worldbank.org.bd)

