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**Health and poverty  
in the context of  
country development  
strategy:  
a case study on  
Bangladesh.**

**Bangladesh**

**Country Paper**



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**Health and poverty  
in the context of  
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strategy:  
a case study on  
Bangladesh.**

by

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## CONTENTS

I.	HEALTH IN THE OVERALL STRATEGY FOR POVERTY ALLEVIATION .....	1
II.	PROFILE OF THE POOR AND THE POOREST .....	2
	(A) Differentiation within the poor .....	2
	(B) The face of the hard core poverty .....	4
III.	INTERFACE BETWEEN HEALTH AND POVERTY .....	6
	(A) Morbidity rate by poverty status .....	6
	(B) Health care access by poverty status .....	7
	(C) Poverty implications of ill-health .....	8
IV.	SOME BROAD POLICY IMPLICATIONS .....	11
	References .....	13
	Annexes	
Table 1	Incidence of poverty by size of land ownership, 1989-90 .....	14
Table 2	Incidence of poverty by land tenure, 1989-90 .....	15
Table 3	Incidence of poverty by education status, 1989-90 .....	16
Table 4	Incidence of poverty by occupation, 1989-90 .....	17
Table 5	Incidence of extreme poverty by occupation controlling landholding size, 1989-90 .....	18
Table 6	Characteristics of hard core poor, moderate poor and non-poor households, 1987/88 .....	19
Table 7	Morbidity rate by sex, age and economic condition: rural area .....	20
Table 8	Infant mortality rate (IMR) per 1000 live births by size of land owned (acres) and division in rural Bangladesh, 1994 .....	21
Table 9	Crude death rate (CDR) per 1000 population by size of land owned (acres) and division in rural Bangladesh, 1994 .....	22
Table 10	Source of treatment by economic categories: rural area .....	23
Table 11	Reasons for non-visiting the government health centers by allopathy users from non-government sources .....	24
Table 12	Public and private health expenditure incidence by per capita income decile in rural Bangladesh: 1994 .....	25

the same way as the other two, but with a different  $\beta$  value.

As a result of the above, the three models are distinguished by the values of  $\beta$  and  $\alpha$  and the number of parameters to be estimated.

For the three models, the following likelihood functions are obtained:

$$L_1 = \prod_{i=1}^n \frac{1}{\sigma^2} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \quad (1)$$

$$L_2 = \prod_{i=1}^n \frac{1}{\sigma^2} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \quad (2)$$

$$L_3 = \prod_{i=1}^n \frac{1}{\sigma^2} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \exp\left\{-\frac{1}{2\sigma^2} \left[ \frac{y_i - \beta x_i}{\alpha} \right]^2\right\} \quad (3)$$

where  $\sigma^2$  is the variance of the error term  $\epsilon_i$ .

The maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are obtained by maximizing the likelihood functions (1), (2) and (3).

For the three models, the maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are:

$$\hat{\beta}_1 = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n x_i^2} \quad (4)$$

$$\hat{\alpha}_1 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} \quad (5)$$

For the three models, the maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are:

$$\hat{\beta}_2 = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n x_i^2} \quad (6)$$

$$\hat{\alpha}_2 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} \quad (7)$$

For the three models, the maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are:

$$\hat{\beta}_3 = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n x_i^2} \quad (8)$$

$$\hat{\alpha}_3 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} \quad (9)$$

For the three models, the maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are:

$$\hat{\beta}_4 = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n x_i^2} \quad (10)$$

$$\hat{\alpha}_4 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} \quad (11)$$

For the three models, the maximum likelihood estimates of the parameters  $\beta$  and  $\alpha$  are:

$$\hat{\beta}_5 = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n x_i^2} \quad (12)$$

$$\hat{\alpha}_5 = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} \quad (13)$$

## **I. HEALTH IN THE OVERALL STRATEGY FOR POVERTY ALLEVIATION**

The poverty alleviation strategy adopted by the Government is based essentially on three mutually supporting approaches. The first and foremost is to influence poverty indirectly via the growth channel. Development of physical infrastructures such as road, electrification, and modern irrigation are examples of growth-oriented programs. The second approach is to raise the direct capability of the poor via increased social sector allocations (education and health). The spread of primary education and expanded programs for immunization in the recent years are relevant examples in this regard. The last but not the least, governments also attempt to help directly in mitigating the severity of poverty via public safety net schemes. Food for Works and Vulnerable Group Development for the extreme poor households are examples of the third kind. Many of these programs are implemented through the collaboration of government and NGO agencies.

Despite some modest progress in poverty reduction in recent years, there are several areas of policy concern which are important to take into account in the context of the Fifth Population and Health project. Of all the measures that are currently under implementation, curative health care for the poor in both rural and urban areas remains in the most dismal state. It is not only an issue of quality (which is also important in case of other programs such as primary and secondary education), but also one of quantitative access. The sheer absence of any urban health infrastructure is a case in point. The access of the rural population to public health care is extremely limited, being restricted to 12 per cent of rural households. This proportion has remained remarkably stable over the years, at least during the period since the mid eighties.

The above realization has brought to the fore the issue of health care as an integral part of the national poverty alleviation strategy. What is the level of access by various groups of the poor to different health care providers? How successful is the existing network of public health facility in reaching the poor and mitigating the stress of the health-hazards? What is the consequence of having ill-health for a faster and sustained poverty alleviation? While comprehensive answer to these issues requires a much detailed review, we shall discuss some of the first-order concerns relating to the nexus of health and poverty.

### **Summary points**

\* Although a three-prong approach to poverty via growth, direct interventions in education and health, and safety net transfer programs is widely recognized, the actual progress made on the health front is highly unsatisfactory.

\* It is postulated that the lack of adequate attention to health concerns has adverse poverty implications both in the short and the long-term.

## II. PROFILE OF THE POOR AND THE POOREST

Before we proceed to discuss the health implications of poverty, it is useful to know the profile of the poor. Who constitute the poor? What are their socio-economic characteristics? Is there differentiation within the poor community? These are some of the questions which lie at the heart of the following discussion. The empirical evidence is mainly drawn from rural surveys supplemented by broad observations culled from the urban scenario. This has been conditioned by two principal considerations. *First*, an urban poverty situation is a relatively under-researched area and comparable urban data do not exist on many counts not the least of which is the absence of a standard poverty profile according to per capita income (consumption) classification.<sup>1</sup> *Second*, about 90 per cent of the poor still live in rural areas, which requires that special emphasis be given to analyzing the rural conditions.

### (A) Differentiation within the poor

Using a number of criteria (i.e., income/calorie measure, self-categorization of households according to surplus/deficit status, living standard indicators, etc), one can examine whether a sharp differentiation exists within the poor community. All of these measures are, however, scarcely available for a given survey year and survey agency. The 62-village panel survey periodically carried out by the Analysis of Poverty Trends (APT) project of Bangladesh Institute of Development Studies (BIDS), for instance, provides income-based poverty estimates but do not present consumption (calorie)-based estimates. The Household Expenditure Surveys (HES) of the Bangladesh Bureau of Statistics (BBS) present both income- and calorie-based estimates but do not use the self-categorization indicator. Similarly, until recently, the housing indicator (which is more directly expressive of the poverty scale compared to the income or self-evaluation indicators) is also missing in HES as a means for identifying the poor. Despite these differences in terms of emphasis between various agencies, sharp differentiation within the poor community can be seen through the prism of every single indicator.

The BIDS survey provides a recent estimate of rural poverty measured in the income space. It reveals that about 52 per cent of the rural population lived in absolute poverty in 1994. This poor population is divided into two distinct groups— moderate poor (29 per cent) and hard core poor (23 per cent). In other words, in 1994 about 44 per cent of the poor population fell into the category of 'hard core' poor.

The most recent HES that is currently available relates to 1991/92 which allows to construct poverty estimates by the direct calorie intake method. Following this approach, one may identify several layers among the poor. BBS, for instance, considers two extreme poverty lines: one corresponds to 1805 calories per day per person (i.e., about 85 per cent of the absolute poverty line of 2122 calories per day per person); the other line corresponds to 1600 calories per day per person (i.e., about 75 per cent of the absolute poverty line). Despite the arbitrariness involved in ascertaining the second extreme poverty line, it relays an alarming message. Even if one takes 1600 calories per day person as the cut-off mark for severest poverty, the proportion of rural population living below that line would be 18.3 per cent in 1991/92. As a proportion of the total rural poor in 1991/92, this translates into an alarming figure

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<sup>1</sup>The recently concluded ADB-sponsored study on urban poverty is, perhaps, the only exception in this regard. But the poverty estimates presented in this study seem to be biased rather to the high side (about 60 per cent, which is substantially higher than even the current level of rural absolute poverty of 48-52 per cent). At least, this is the preliminary impression that one gets when the findings of this study are analyzed in the backdrop of Household Expenditure Surveys (HES) of the Bangladesh Bureau of Statistics (BBS).

of 38 per cent.

The above picture of sharp differentiation among the poor is also confirmed by the perception survey. According to the self-categorization of the respondents of the BIDS survey, in 1994 the number of rural households who lived in chronic deficit throughout the year was 19 per cent, while households facing occasional deficit stood at 32 per cent.

The housing indicator identifies an even more extreme level of distress. This is done by using the BIDS survey data. The housing status is defined by considering the roof/wall characteristics of the structure as well as the number of rooms in a house. This yields 4 categories: (i) jhupri, (ii) single structure house, (iii) thatch and more than one room, and (iv) other more durable types. In 1989/90, the "single structure" category represented 23 per cent and the "Jhupri" category represented 9 per cent of rural households. If one focuses on the hard core poor (defined in income space) residing in these two categories at the bottom end of the housing scale, one may capture the most vulnerable segment (the poorest of the poor) within the rural poor. This segment constituted about 13 per cent of rural households and represented 23 per cent of the rural poor.

Access to minimum clothing is another identifying indicator for capturing the extreme expression of poverty. Proportion of rural population without two sets of minimum clothing was assessed at 15 per cent in 1989/90; those without any winter clothing was as high as 22 per cent.

While various identifying indicators point to the existence of significant differentiation within the poor community, it is difficult to conclude which of these best captures the extent of disparity among the poor. The choice of particular method of estimating poverty may have significant implication for assessing the *size* of the hard core poor population (an obvious item of concern for the policy-makers). The 1991/92 HES carried out by BBS may be used to illustrate the nature of the problem. Thus, according to the direct calorie intake method, the proportion living in moderate poverty (1805-2111 calories per person per day) in that year was 18 per cent. This is much lower than the estimated share of the hard core poor (defined up to 1805 calories per person per day) which was assessed at 28 per cent. However, if one goes by the yardstick of income measure, the rural poor population becomes almost evenly divided into moderate and hard core poor groups (24 and 26 per cent, respectively).

The upshot of the above is to point out the large gap that exists between the poor and the poorest in rural Bangladesh. The poorest are not small in number or to be viewed as a localized phenomenon limited to particular regions. They are spread across the country. The next section explores their demarcating characteristics vis-a-vis the moderate poor and the non-poor.

### **Summary points**

- \* A significant differentiation exists within the poor irrespective of the criteria one chooses for demarcating the poor (income, consumption, housing, clothing, etc).
- \* In designing health interventions, particular emphasis needs to be placed on reaching the extreme poor who represent about 44 per cent of the total poor as per the income criteria.

## **(B) The face of the hard core poverty**

The poor are defined in this section in the income space. The absolute poverty line of taka 4790 per person per year in 1989/90 prices has been used to differentiate the poor from the non-poor; the extreme poverty line corresponds to about 60 per cent of the absolute poverty line. The main variables that have been used in this section for identifying the population who comprise the hard core poor are: land ownership, land tenure, principal occupation, level of education, and gender status (see annex, tables 1 through 6).

Nearly 53 per cent of the hard core poor are concentrated in households having no cultivated land and 90 per cent in households owning less than 1.5 acres. This suggests that hard core poverty inflicts mostly landless and marginal landowning households. This is not surprising since land still remains the most important income earning asset within the rural economy. One implication of this finding is that the current (NGO) practice of targeting households owning up to 0.5 acres may still miss a considerable section of the hard core poor. About 37 per cent of the latter reside in the landsize group of 0.5-1.5 acres. There is a need to bring these households under poverty alleviation programs.

Access of land through the tenancy market does not improve the extreme poverty situation of the landless households. The incidence of hard core poverty is almost the same for the landless non-cultivator households as for the pure tenant farmers (47 vis-a-vis 44 per cent) who rent their entire holding. These two categories considered together constitute 41 per cent of rural households but contain 60 per cent of the hard core poor. In contrast, the mixed tenants and the owner cultivators are mostly represented by the moderate and the non-poor. Thus, only 15 to 17 per cent of the population belonging to these households are "hard core" poor. It is possible that, lacking capital as well as networking capacity, most of the extreme poor households are competed out in the tenancy market by the more entrepreneurial sections belonging to the moderate and the non-poor groups.

Among various occupational groups the cultivator households have the lowest incidence of poverty. Only 16 per cent of the population in the cultivator households are hard core poor and another 25 per cent— moderate poor. At the other end, households who depend entirely on manual labor, such as agricultural and non-agricultural wage workers, transport and construction workers have the highest incidence of poverty, particularly hard core poverty. Non-farm households with capital (trader) and better quality human resources (service holder) occupy an intermediate position in terms of poverty ranking and are substantially better off than the wage laborers (47-53 per cent compared with 84-86 per cent).

An overwhelming proportion of the hard core poor (75 per cent) are located in marginal cultivator and wage labor households. Within the category of wage labor, non-agricultural households have lower incidence of hard core poverty than agricultural labor households. A further differentiation can be observed within the agricultural wage labor households as well: workers who have better health and are better endowed with mental and physical skills generally hire out for piece-rated work which have much higher return to labor compared to work which is valued at a daily wage rate. The share of contract labor for piece-rated work is increasing over time and now constitutes about 30 per cent of those who supply their labor to the agricultural labor market. A recent comparison between various categories of agricultural workers shows that the average wage income for piece-rated workers is about 30 per cent higher than that earned by those working for a daily wage.

The level of education is also found to be an important correlate of hard core poverty. Households whose heads had no formal schooling contain 60 per cent of the hard core poor while those with "above secondary" education, only 5 per cent. Nearly 88 per cent of the hard core poor remain in households who are either illiterate or have attended only primary schools. The importance of education is amply demonstrated by these findings.

A significant gender dimension is associated with the phenomenon of hard core poverty. While 28 per cent of male-headed households fall within the hard core poor, the corresponding figure for female-headed households is 33 per cent. On average, it is seen that females have a nutritional intake only 88 per cent that of males and 46 per cent of the wage-rate earned by males. Only 29 per cent of females are literate compared to 45 per cent males. Female-headed and female-managed households constitute about one-tenth of rural households and represent perhaps the most vulnerable social group within rural society.

This provides us the context within which the issues related to the health-poverty interface need to be articulated and contested. This is attempted in the subsequent section.

### **Summary Points**

- \* There are important correlates of hard core poverty. They provide a useful guide for identifying the poorest as potential beneficiaries of public health-related interventions.
- \* The hard core poor own little land but this is not necessarily restricted to the lowest land-size group. While 53 per cent of the hard core poor belong to the above group, another 37 per cent belong to the marginal category owning less than 1.5 acres. Thus, the current (NGO) practice of targeting households owning up to 0.5 acres may still miss a considerable section of the hard core poor. There is a need to bring these households under poverty alleviation programs.
- \* The hard core poor have very little link with the tenancy market and almost entirely comprise illiterates who earn their livelihood mainly as low productive agricultural wage labor. They reside in single structure and extremely fragile (jhupri) houses.
- \* A large section of these households are female-headed or female-managed and experience additional vulnerability as women, over and above the problem of severe income poverty.

### III. INTERFACE BETWEEN HEALTH AND POVERTY

#### (A) Morbidity rate by poverty status

Here we consider the rate of morbidity for all types of illnesses. The 62-village survey of BIDS carried out in 1994 has been used for the purpose. The overall morbidity rate is defined as the proportion of sick household members during one month preceding the survey.<sup>2</sup> It is estimated at 12.5 per cent in the rural area. Several aspects are noteworthy in this regard (Annex Table 7).

*First*, morbidity varies considerably by age. The period prevalence rate of morbidity (referring to a one-month period) and age have a U-shaped relationship indicating concentration of high morbidity risk at the two ends of life. The morbidity rate for the elderly aged 60+ is about 24 per cent and that for children aged under 5 is 22 per cent. The morbidity risk of the rural people starts declining after age 5 and the process continues up to age 29 and then takes an upward trend. From age 30 the morbidity risk increases monotonically with an acceleration after age 59.

*Second*, there is some variation in morbidity rate by poverty status. The morbidity rate for acute illness is about 15 per cent in the case of the hard core poor which is considerably higher than the matched figure for the moderate and non-poor (about 12 per cent). The greater vulnerability of the hard core poor is also revealed in the incidence of repeated and major illness.<sup>3</sup> This has strong implication for the income-earning capacity of the hard core poor. The latter's only income-generating asset is the labor power which is mostly employed in hard manual work and hence, the added importance of maintaining better health for this group.

The higher proneness of the hard core poor households to diseases and sickness is also reflected in the BBS data. Prevalence of morbidity per 1000 rural population in 1994 was 147 in case of households owning more than 5 acres of land which may be contrasted to 175 observed for households with less than 50 decimals of land. Such sharp differentiation in morbidity will predictably entail higher mortality rates in the poorer groups. Thus, as per the BBS data, infant mortality rate recorded in case of landless and functionally landless households (owning up to 0.5 acre of land and largely corresponding to hardcore poverty) is more than two times higher than the matched level observed in the large landowning groups (90-95 vis-a-vis 40). The same applies to the indicator of crude death rate as well (Annex tables 8 and 9).

*Third*, both the moderate and the non-poor categories face almost similar risk from diseases. This may be one indication that, after a certain income interval, the non-food physical environment still may be the major determinant of health status in rural area.

#### Summary points

- \* Poverty is associated with higher incidence of sickness and diseases. Both BIDS and BBS data point to the much higher morbidity and mortality rates among the hard core poor vis-a-vis moderate and the non-poor.

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<sup>2</sup>For further discussion, see Begum (1996).

<sup>3</sup>The information on sickness was collected through three separate inquiries: (a) acute illness of the household members during one month preceding the date of enumeration; (b) the repeated illnesses of the members not enumerated in the first inquiry i.e. members who are not ill during the preceding month but fall sick off and on from one or the other diseases; and (c) major illnesses suffered by the members during the last year (see, Begum 1996).

\* Both the moderate and the non-poor categories face almost similar risk from diseases indicating that, after a certain income interval, the non-food physical environment still may be the major determinant of health status.

### **(B) Health care access by poverty status**

What is the current status of health care access by different groups of the poor in rural areas? Health care is defined broadly in this section and includes modern allopathy as well as crude *totka* and spiritual healing which have little scientific basis.

The most striking aspect that emerges from the available evidence relates to the very limited access to public health care facilities (Annex Table 10). In general, the level of access varies little across poverty status, averaging at about 12 per cent for acute illness. For major illness, the access level is higher (about 23 per cent). More disturbing is the fact that the public sector role is shrinking over time. In 1984, about 20 per cent of the total rural treatment for acute illness was done in the public sector. This declined to 13 per cent in 1987 while the recent estimate for 1994 is just 12 per cent (Begum 1996).

What are the factors underlying the poor performance of public health care facility in rural areas? It appears that the supply side constraints play the dominant role here. According to one estimate, about 30 per cent of the Thana Health Complex (THC) lack adequate equipment and supplies of pharmaceutical. The absenteeism of the doctors is rampant: 3 out of 9 doctors are physically present in THCs, and that, too, for only a limited period of time. The problem of inadequate personnel management is also linked to the poor incentives for the urban-centric doctors with higher medical degrees to work in the rural areas. This is related to the overall problem of incentive compatibility of the institutional design and can be traced back to the abolishment of the very important intermediate tier of health service personnel, i.e., the paramedics.

The above trends are confirmed through a perception survey carried out in the late eighties (Annex Table 11). "Inadequate attention given by the physician" is cited as the major reason for non-visit to public health facility (representing 28 per cent of responses), followed by lack of medicine (26 per cent of responses). Another 24 per cent cited poor quality of services involving long waiting time, absenteeism, ineffective treatment, charge of "extra" fees. While more needs to be documented on the quality of medicare as applied to rural and urban areas, there are strong impressions that the quality of public health care accessed by the urban poor is no better. Indeed, in one respect, urban public health care even lags behind its rural counterpart. In rural areas, there is a public health infrastructure at thana and union levels (THCs, sub-centers, dispensaries, maternity centers), and a referral system can be developed linking these levels with the district hospitals. Such infrastructure is virtually non-existent in urban areas. This results in tremendous load on the existing outpatient facility in the public hospitals which could have been reduced by lower tier medicare facilities (say, at the Ward level). Such a practice adversely affects both the access and the quality aspects.

If one focuses on the health care providers in the private sector, several trends are discernible. In general, the most notable development in this sector pertains to the emergence of medicine shops as a major actor in the area of rural private health. About 17 per cent of private treatment is provided by this source which is only next to the weight of quack allopathy practitioners. Another notable feature of current health care practice of rural people is that the *totka* and spiritual healing which used to enjoy much popularity earlier have virtually lost ground for the management of illness: these sources accounted for 9 per cent of the total treatment for

acute illness in 1984; it has come down sharply to only 2 per cent in 1994. At the other end, only 21 per cent of private treatment is provided by qualified individual practitioner (Begum 1996). The stunning absence of NGOs or private clinics is also notable.<sup>4</sup> This suggests that the predominant suppliers of the rural health care are still the unqualified and untrained ones. Outside the sphere of public health care, rural population has only limited option for accessing quality services. This is particularly true for the hard core poor who can hardly afford to pay for the visits to quality private medicare.

Some variation in access can be noted among the poverty groups. As expected, the share of private treatment provided by qualified private practitioners is much lower in the case of the hard core poor compared with the moderate and non-poor (13 vis-a-vis 19-27 per cent for the category of acute illness). This is matched by higher prevalence of totka and unqualified allopathy practitioner as sources of private medicare for the hard core poor. Hence, it is safe to conclude that not only the hard core poor are more prone to sickness and disease, the average quality of health care accessed by them is worse compared to their more privileged counterparts. This is suggestive of the vicious circle of "morbidity-ill-care- morbidity" that characterizes the existential destiny of the hard core poor.

### **Summary points**

- \* The access to public health care in rural areas is extremely limited, about 12 per cent for acute illness and 23 per cent for major illness. Even at that low level, the access to public health is declining over time.
- \* The level of access varies little by rural poverty status reflecting in general the primacy of the supply side constraints.
- \* In general, the public health has suffered in a major way from the abolishment of the very important intermediate tier of health service personnel, i.e., the paramedics.
- \* The quality of public health access is very poor. This is true not only for rural areas, but also applies to urban areas. The quality issue, however, needs to be studied in greater details.
- \* From the policy point of view, the situation with regard to the urban poor seems to be in an even more precarious state. In rural areas, after all, there is a health infrastructure, and a referral system can be potentially developed linking the lower (thana/union) levels with the district levels. Such infrastructure is virtually non-existent in urban areas. This results in tremendous load on the existing outpatient facilities in the public hospitals which could have been reduced by lower tier medicare facilities (say, at the Ward level).

### **(C) Poverty implications of ill-health**

So far the discussion has centered around only one aspect of the health economics of being poor, namely, how poverty affects the likelihood of getting sick and receiving quality health care service at affordable price for the treatment of such sickness. In this section, we

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<sup>4</sup>The case of qualified individual practitioners is not without some irony, however. The widely held view is that many of these practitioners are actually in the pay-roll of rural public health centers, but work most of the time as private doctors, often in their own medical shops.

shall consider the reverse causation, i.e., how lack of adequate health care places the rural households at even greater risks of slippage into the downward spiral of poverty.

We start by exploring the cost of the burden that private treatment expenditures impose on the rural poor. Households are ranked by per capita income and grouped into ten deciles. Average private expenditure per household on medical treatment is computed for each decile and expressed as a percentage of total household income. We also did the similar "incidence" exercise for estimating the "gross" benefits from public health allocations that are currently received by different rural income groups.<sup>5</sup>

Several aspects of the health-poverty interface are notable from this exercise (Annex Table 12). *First*, the hard core poor households (corresponding to the lowest two income deciles) currently spend 7-10 per cent of their income to cover private health expenses which is a sizable burden by any reckoning. If this burden can be relieved through greater targeting and provision of public health care, this would have substantial poverty alleviating effects.

*Second*, this is just one aspect of the income erosion. The other, more critical, aspect of it lies in the acute vulnerability of the poor households to sudden and unanticipated health-related shocks, leading to the loss of income and employment, and increased indebtedness. Health-related shock represents an important determinant of the downward mobility along the poverty spiral. Thus, additional analysis of panel data reveals that health hazard-related risk-events explain, on average, 16 per cent of causes of deterioration experienced by households during the 1990-94 period. For non-poor households who slipped into hard core poverty, the share of health-related causes is as high as 21 per cent. The importance of the health factor is also considerable (explaining 18 per cent of causes) for those among the moderate poor who descended into hard core poverty in the subsequent period (Sen 1996).

*Third*, underlying the adverse dynamic effects of ill-health on poverty is the way the households cope with the sudden and unanticipated crisis events. Data are available at the average rural household level. Only in 15 per cent of the cases, the option of soft credit mobilization can be obtained (Rahman 1996). Negative methods of coping such as asset sale are recorded in 15 per cent of the cases, while other forms of dissaving explain 60 per cent of coping mechanisms. High interest borrowing is recorded in only a few cases (4 per cent), implying the limited role that rural informal credit plays in providing risk-insurance. Thus, the almost exclusive reliance on disinvestment and dissaving has long-term adverse consequences for recovery, upward mobility and poverty alleviation.

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<sup>5</sup>The latter estimate is relatively tentative in nature, though the emerging trends seem plausible. The assessment is based on an "incidence analysis" of public health expenditures (for a general review, see Dayton and Demery 1994, Hammer et al 1992, Hausmann and Rigobon 1993). To measure the direct income benefit from public health, two types of data are needed, namely, macro budgetary data containing information on gross allocations on health facilities, and household level service-use data. The most difficult part is to get fiscal information by required level of disaggregation. Information on household "use" of the services is measured from the primary survey data such as those collected by the survey of 62 villages carried out by BIDS. For the health expenditure incidence, the relevant indicator to consider is the number of annual visits of household members to government facility. The survey-based figure of average annual visits per rural person has been used to approximate the total visits to government health facility by rural population, as recorded in 1994. Combining this information with macro budgetary data, one can estimate the "gross" subsidy per (rural) visit to government health facility (estimated to be taka 211 in 1994). Once the estimate of subsidy per health visit is known, one can calculate the total amount of benefits accruing to various income deciles using the survey information on the utilization of health facility. This is, of course, based on the assumption that unit costs are the same for the various income levels which is hardly satisfactory. However, such disaggregated data are not currently available.

*Fourth*, a comparison of the relative proportion of public and private health expenditures indicates that benefits through public health still cover a small part of the health care demand. The amount of "gross" benefits derived from public health spending represents only 0.5 per cent of average rural household income (Annex Table 12). The pattern of distribution of public health spending, however, shows a certain degree of progressivity. Benefit from the latter source, as proportion of income, is found highest for the poorest (2.9 per cent) which declines almost secularly to 0.2 per cent in case of the top two deciles. This shows the potential re-distributive benefits associated with effective expansion of public health programs in rural areas.

### **Summary Points**

- \* Poor health imposes a significant burden on the poor. Such burden represents 7-10 per cent of the hard core poor's income. If this burden can be relieved through greater targeting and provision of public health care, this would have substantial poverty alleviating effect.
- \* Acute vulnerability of the poor households to sudden and unanticipated health-related shocks leads not only to the loss of income and employment, but also to increased indebtedness associated with the raising of coping costs. Poor health thus reduces the long-term accumulation and hence, growth capacity of the poor.
- \* Health hazard-related risk-events explain, on average, 16 per cent of causes of deterioration along the poverty spiral experienced by households during the 1990-94 period. For non-poor households who slipped subsequently into hard core poverty, the share of health-related causes is as high as 21 per cent. While such slippage may origin in the stochastic nature of events, for many of these households it may well turn out to be a route to permanent poverty.
- \* Benefit from the public health spending is quite low, representing only 0.5 per cent of rural household income. The incidence of such spending, as proportion of income, however displays a certain progressivity. It is found highest for the poorest decile (2.9 per cent), declining almost secularly to 0.2 per cent in the case of the top two deciles. This shows the potential re-distributive benefits associated with effective expansion of public health programs.

#### IV. SOME BROAD POLICY IMPLICATIONS

The preceding review points to several aspects of the health-poverty interface. *First*, the focus on income is just not enough for sustainable poverty alleviation. The routine approach to poverty alleviation through various growth-promoting (including micro credit) policies misses out a very important dimension of the income erosion problem facing the poor households. The threat of income erosion constantly exerts downward pressures along the poverty spiral. *Second*, lack of adequate health care represents a particular source of income erosion for the poor, particularly the hard core segment of it. The burden of income loss represents about a tenth of hard core poor's income. The dynamic implications of ill-health are even greater: health hazard-related risks explain 16 per cent of all cases of downward movement along the poverty spiral. *Third*, to a large extent, such risks also explain the vulnerability of the *tomorrow's poor*. Thus, even for households who are otherwise classified as non-poor as per the income criteria, ill-health has emerged as a prime concern and an important explanator of downward mobility.

It is in the above context that one needs to re-think the current strategy of poverty alleviation with its nearly total reliance on giving access to non-farm micro credit, training and the like through NGOs. Many of these programs lack any explicit focus on health, particularly in its curative dimension. While access to credit/training helps the poor to generate additional incomes, the net impact of such policies is often nearly wiped out (or, at least greatly reduced) by the lack of adequate insurance mechanism against health-related risks. This may provide an important explanation as to why despite the proliferation of micro credit programs, their net impact on poverty reduction at the aggregate level has been marginal.<sup>6</sup> We argue that all routes matter: what is needed is a mix of income generation and risks-insurance policies aiming at a faster reduction of poverty. In concrete terms, it would translate into an effective combination of health and micro credit (along with education) interventions targeted specifically to the poor.

Another major lacuna in the current thinking on poverty alleviation lies in the stunning lack of knowledge about possible health implications of the various sectoral policies that currently pass under "development". Many of these policies are implemented without considering the possible negative externalities associated with ill-health. Expansion of primary education without a minimum provision for school-based health care, sanctioning of industrial units regardless of their pollution contents, the highly inadequate system for the safety of industrial workers, deteriorating quality of the so-called "safe" tubewell water, etc are some of the cases in point. Even for the readymade garments sector which employs over 600,000 women workers and earn over 65 per cent of the country's exports, there are no direct health care policies. But the issue goes beyond just identifying the potential areas of health-distress in the profile of on-going sectoral policies and interventions.

A greater health awareness in the design of the sectoral policies will also help to promote positive health actions in many unexplored ways and areas. To what extent is health awareness built in the current primary and secondary education curricula? How can one strengthen public health awareness through mass media? What roles can local governments (including the City Corporations) play in ensuring a clean environment? At the moment we can only pose these questions. There is hardly any study in Bangladesh which looked into the

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<sup>6</sup>This can be judged by various data. According to the household expenditure survey of BBS, rural poverty declined by only 1 per cent during the entire eight year period between 1983/84 and 1991/92, i.e., at a time when most of the NGOs have gone into credit operations (Ravallion and Sen 1996). The 62-village surveys carried out by the APT Project of BIDS also show the rate of poverty reduction to be rather modest: rural headcount declined by only 6 per cent in the seven year period between 1987 and 1994 (Hossain 1996).

impact of sectoral policies on health.

As noted in the review, public health care is in a very dismal state in both rural and urban areas. The incentive compatibility of the institutional arrangement for public health is yet to be worked out, as revealed in the endemic problem of absenteeism of the doctors at rural THC. The abolishment of the paramedics as a very important tier of health personnel management had a far reaching adverse consequence for the rural poor's health care.

What are the options that exist beyond routine drives to improve upon the existing quality of public health? The involvement of NGOs in the field of curative health care is still in the stage of infancy and the strategic thinking on this score lacks a sense of direction and dynamism. The same applies to the potential case of promoting local social development activities with focus on community health care, exploiting existing "social capital". The role of local government in this vital area of public life has been restricted to the minimum, if not virtually non-existent. How to re-orient the public agencies, NGOs and local communities to address the health concerns of the poor is something for which we do not yet possess a definitive institutional answer, but it surely represents a question marked with urgency that needs to be articulated and contested further.

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## Annex

**Table 1**  
**Incidence of poverty by size of land ownership, 1989-90**

Land ownership group (acres)	Extreme poverty		Extreme and moderate poverty	
	Incidence of poverty (per cent)	Share of the poor (per cent)	Incidence of poverty (per cent)	Share of the poor (per cent)
No cultivated land	47.0	53.0	78.3	43.9
Up to 0.49	42.3	19.1	71.4	16.0
0.5 - 1.49	24.8	17.4	60.9	21.2
1.5 - 2.49	11.8	4.5	44.5	9.1
2.5 - 4.99	8.4	4.1	31.2	7.7
5.0 and more	3.4	1.5	9.1	2.1
Total	27.5	100.0	55.4	100.0

Source: Hossain (1995). Analysis of Poverty Trends Project, BIDS: 62 Village Survey.

**Table 2**  
**Incidence of poverty by land tenure, 1989-90**

Land tenure group	Extreme poverty		Extreme and moderate poverty	
	Incidence of poverty (per cent)	Share of the poor (per cent)	Incidence of poverty (per cent)	Share of the poor (per cent)
Landless non-cultivator	46.7	47.9	78.8	39.2
Pure-tenant	44.0	13.1	78.7	11.7
Tenant-owner	24.7	9.7	60.8	11.9
Owner-tenant	16.5	6.6	38.4	7.6
Owner cultivator	14.9	22.6	39.3	29.6
<b>Total</b>	<b>27.5</b>	<b>100.0</b>	<b>55.4</b>	<b>100.0</b>

Source: Hossain (1995). Analysis of Poverty Trends Project, BIDS: 62 Village Survey.

**Table 3**

**Incidence of poverty by education status, 1989-90**

Education level of the head	Extreme poverty		Extreme and moderate poverty	
	Incidence of poverty (per cent)	Share of the poor (per cent)	Incidence of poverty (per cent)	Share of the poor (per cent)
No formal schooling	37.5	60.1	68.5	54.5
Primary	22.2	28.2	56.0	32.3
Secondary	16.9	7.9	35.9	7.6
Above secondary	10.4	4.5	26.7	5.6
Total	27.5	100.0	55.4	100.0

Source: Hossain (1995). Analysis of Poverty Trends Project, BIDS: 62 Village Survey.

**Table 4**  
**Incidence of poverty by occupation, 1989-90**

Principal occupation	Extreme poverty		Extreme and moderate poverty	
	Incidence of poverty (per cent)	Share of the poor (per cent)	Incidence of poverty (per cent)	Share of the poor (per cent)
Agricultural wage labor	54.5	30.6	84.5	23.6
Non-agricultural wage labor	42.8	16.6	85.6	15.4
Cultivator	16.1	28.1	40.9	35.4
Trader	19.9	6.9	53.2	9.2
Services	27.8	10.9	47.1	9.2
Others	38.5	6.9	61.5	7.2
Total	27.5	100.0	55.4	100.0

Source: Hossain (1995). Analysis of Poverty Trends Project, BIDS: 62 Village Survey.

**Table 5**

**Incidence of extreme poverty by occupation controlling  
landholding size, 1989-90**

(Percent of population)

Occupation	Landholding size (acres)			
	Less than 0.50	0.5 - 2.49	2.5 - 4.99	5.00 and above
Cultivator	54.1	18.9	7.5	3.0
Wage labor	57.9	39.9	*	*
Traders	25.6	13.6	12.2	14.6
Service	35.8	20.5	17.1	16.4
Others	49.5	25.5	21.8	4.3

Source: Hossain (1995). Analysis of Poverty Trends Project, BIDS: 62 Village Survey.

Table 6

**Characteristics of hard core poor, moderate poor and  
non-poor households, 1987/88**

Variables	Extremely Poor	Moderately Poor	Non-Poor
<b>Land and new technology</b>			
Land owned (acre)	1.02	1.14	2.15
Land cultivated (acre)	1.59	1.85	2.72
Proportion of area under tenancy (%)	23.1	25.0	21.5
Proportion of area under modern variety rice (%)	30.9	37.1	45.1
Proportion of area irrigated (%)	24.2	26.1	35.1
<b>Demographic characteristics</b>			
Family size	6.53	5.96	5.85
Percent of family			
Children below age 10	34.6	31.6	24.2
Males above age 10	33.3	35.0	42.7
Adult males (16 years and over)	24.1	26.8	33.4
Child-Woman ratio	78.7	69.2	56.9
<b>Education</b>			
Proportion of students in age group 6-15 (%)			
Male	52.8	63.0	70.0
Female	43.0	56.5	61.8
Proportion of illiterate adult members (%)	85.5	63.6	47.0
Proportion of literate adult members with higher education (%)	9.7	14.4	24.7

Source: Hossain and Sen (1992)

**Table 7**

**Morbidity rate by sex, age and economic condition: rural area**

	Rate per 100		
	Acute illness	Repeated illness	Major illness
All	12.5	9.1	4.0
<u>Sex</u>			
Male	12.0	7.8	4.0
Female	13.1	10.6	4.1
<u>Age (years)</u>			
0-4	22.1	9.2	2.1
5-14	10.1	4.1	1.3
15-29	8.1	3.6	3.7
30-44	12.9	11.6	5.6
45-59	15.7	22.1	7.6
60+	23.6	30.9	10.2
<u>Economic condition</u>			
Hardcore poor	14.6	9.4	4.7
Moderate poor	12.4	8.7	3.7
Non-poor	11.6	9.0	3.9

Source: Begum (1996). Analysis of Poverty Trends Project, 62 Village Resurvey, 1995.

**Table 8**

**Infant mortality rate (IMR) per 1000 live births by size of land owned (acres) and division in rural Bangladesh, 1994**

Size of land owned (Acres)	Total	Division				
		Barisal	Chittagong	Dhaka	Khulna	Rajshahi
Total	84.5	102.1	79.3	82.0	79.4	85.9
0.00 - 0.04	95.2	104.2	86.8	91.2	102.3	102.1
0.05 - 0.49	90.3	105.1	82.8	81.6	93.6	98.6
0.50 - 2.49	89.7	112.0	81.2	89.5	65.6	89.9
2.50 - 4.99	41.1	71.4	50.9	48.5	60.6	28.6
5.00 +	39.9	85.1	44.1	25.0	37.0	21.3

Source: BBS (1996).

Table 9

Crude death rate (CDR) per 1000 population by size of land owned (acres) and division in rural Bangladesh, 1994

Size of land owned (Acres)	Total	Division				
		Barisal	Chittagong	Dhaka	Khulna	Rajshahi
Total	8.9	9.7	9.0	9.1	8.7	8.5
0.00 - 0.04	11.8	12.8	10.9	12.4	14.6	11.4
0.05 - 0.49	10.3	11.7	8.6	9.1	13.7	11.8
0.50 - 2.49	9.0	9.3	9.6	9.1	8.1	8.5
2.50 - 4.99	6.0	6.0	6.2	7.3	3.1	6.1
5.00 +	5.7	5.6	5.4	8.5	7.4	5.1

Source: BBS (1996).

Table 10

## Source of treatment by economic categories: rural area

(% household)

	Hardcore Poor	Moderate Poor	Non- Poor
<u>Acute illness (last treatment)</u>			
A. Government health facilities	11.9	12.5	11.7
B. Non-government health facilities	88.1	87.5	88.3
(i) Private clinic	.8	1.9	1.3
(ii) Qualified practitioner	12.7	19.2	27.2
(iii) Unqualified practitioner	44.6	43.8	32.0
(iv) Homeopathy	5.2	3.4	3.6
(v) Kabiraji/Unani	3.6	3.0	5.2
(vi) Pharmacy	17.5	15.5	17.3
(vii) NGO	-	-	-
(viii) Totka	2.0	-	-
(ix) Own knowledge/Other	1.6	.7	1.6
<u>Major illness (main treatment)</u>			
A. Government health facilities	25.3	21.5	22.9
B. Non-government health facilities	74.7	78.5	77.1
(i) Private clinic	.4	2.5	2.6
(ii) Qualified practitioner	28.9	35.4	41.8
(iii) Unqualified practitioner	24.0	17.7	15.7
(iv) Homeopathy	2.4	-	2.0
(v) Kabiraji/Unani	8.4	8.9	7.2
(vi) NGO	1.2	2.5	-
(vii) Totka	-	1.3	-
(viii) Own knowledge/Other	2.4	-	1.3

Source: Begum (1996). Analysis of Poverty Trends Project, 62 Village Resurvey, 1995.

Table 11

Reasons for non-visiting the government health centers by allopathy users from non-government sources

Reason	Percentage
Government health centre is far away and communication with the health centre is bad	9.2 (62)
Long waiting time	4.9 (33)
Doctors are not available often	1.9 (13)
Inadequate attention given by the physician*	28.1 (186)
Medicines are not available	25.7 (172)
Government health centers ask for money	12.7 (85)
Treatment is no good	3.7 (25)
Other	13.6 (91)
All	100.0 (669)

\* Includes answers like "doctors do not examine the patients carefully" or "doctors do not listen to the patients".

Note: Figures in parentheses indicate number of cases.

Source: Khan et al. (1988).

**Table 12**  
**Public and private health expenditure incidence by per capita**  
**income decile in rural Bangladesh: 1994**

(Annual figure in taka)

Decile	Per Capita income	Per Capita private health expenditure	Per Capita public health expenditure	(2) as % of (1)	(3) as % of (1)	(3) as % of (2)
	(1)	(2)	(3)	(4)	(5)	(6)
1	1693.58	173.50	48.71	10.2	2.9	28.0
2	2911.38	202.19	33.51	6.9	1.2	16.6
3	3678.96	208.29	46.20	5.7	1.3	22.2
4	4457.10	170.80	13.87	3.8	0.3	8.1
5	5361.35	187.40	67.46	3.5	1.3	36.0
6	6352.07	205.56	30.75	3.2	0.5	15.0
7	7930.18	194.14	32.59	2.4	0.4	16.8
8	9986.57	251.23	25.97	2.5	0.3	10.3
9	14291.59	297.74	27.50	2.1	0.2	9.2
10	26915.58	626.57	51.66	2.3	0.2	8.2
All	8317.66	251.11	37.82	3.0	0.5	15.1

Note: Public health spending includes only current expenditures.

Source: Estimated from the primary data collected by the Analysis of Poverty Trends (APT) project of BIDS.