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After the devastating famine of 1974, Bangladesh has successfully avoided any further disaster of its kind, surviving two close calls in 1979 and 1984 and a succession of floods in the recent years. Welcome as it, this success raises for the analyst a number of questions regarding the evolution of Bangladesh economy. One such question is whether the rural poor of Bangladesh have gained over time a more secure entitlement to food with which to survive temporary shocks. We have argued elsewhere that the non-famines of 1979 and 1984 owed themselves greatly to certain fortuitous circumstances rather than to a steady improvement in food entitlement (Osmani (forthcoming)). Yet the issue of long term evolution of food entitlement is by no means settled. Using more recent information, it has been argued in some quarters that there has been an appreciable improvement in rural poverty since Independence, especially in the decade of the eighties (World Bank (1987), Rahman and Haque (1988), BBS (1988)). In the light of these recent contributions, we shall take a fresh look at the issue of

long-term changes in food deprivation and undernutrition in rural Bangladesh, try to understand the processes underlying these changes and to glean a few lessons for public policy.

The Trend since Independence (1971):

Bangladesh's development since Independence displays a number of features which make a *prima facie* case for long-term improvement. First, during the 12-year period from 1973/74 to 1985/86, GDP has grown at an average rate of 4.4 per cent compared to the population growth of 2.4 per cent. The resulting per capita growth of 2 per cent per annum over a 12-year period implies a 27 per cent increase in average income - by no means a mean achievement, especially in view of the recent evidence that the overall income distribution has not worsened during this period.[1]

Secondly, it has been shown on the basis of official data that the real wages of both agricultural and industrial workers have improved, especially in the eighties.[2]

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[1] The evidence from nation-wide surveys of household income and expenditure has recently been analysed by Rahman *et al.* (1988) and Rahman and Haque (1988).

[2] We shall, however, argue later in this paper that the conclusion regarding rising agricultural wages in the eighties is based on wrong use of official data.

Thirdly, and this is the most striking feature of all, there has been a most remarkable change in the structure of labour force. Agriculture, which for centuries has been the mainstay of the economy, has given way to non-farm activities as the main source of employment for the new entrants to labour force; in fact, it does not seem to have absorbed any new labour at all since 1973/74. As a result, the share of agriculture in total labour force has fallen precipitously from 78 per cent in 1973/74 to 58 per cent in 1984/85.[3] A part of this shift is reflected in the sharp rate of urbanisation, but that is only a small part. The structural shift is reflected fully in the rural labour force itself - the share of agriculture in rural labour force has fallen from 85 per cent to 66 per cent during the same period. All this has happened not in the context of a stagnant agriculture, but one where the sectoral value-added has grown at the respectable rate of 2.8 per cent per annum - thanks largely to the diffusion of land-augmenting technology.[4] This scenario has, therefore, all the symptoms of a classic agrarian transformation associated with economic prosperity - one in which higher agricultural productivity both creates the market for non-agricultural products and makes it possible for labour to shift to these sectors without precipitating a

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[3] This is in sharp contrast to the mild decline in the preceding period - from 84% in 1961 to 78% in 1973/74. Source: BBS (1988a).

[4] For a comprehensive account of the Green Revolution and its impact in Bangladesh, see Hossain (1988).

wage-goods constraint. It is indeed remarkable that while during the two decades prior to Independence the price of rice rose 80 per cent faster than the general consumer price index, in the period since Independence it has risen at par with the general rate of inflation (Hossain (1988), p.37).

These symptoms of relative prosperity do appear to lend a certain degree of credence to the recent estimates of poverty. There are of course large variations, even inconsistencies, in these estimates - but this is not the occasion to enter the nitty-gritty of methodological problems. However, in order to identify a set of consistent estimates, we shall note two rather important problems which in our view rule out many an estimate. First, there is the problem of comparability between the estimates for various years. Using the official Household Expenditure Surveys (HES), different authors have made estimates for the following survey years - 1973/74, 1976/77, 1981/82, 1983/84 and 1985/86.[5] Comparing the HES estimates of per capita income, cereal consumption and calorie intake with the corresponding estimates from national accounts data, one finds that only 1973/74 and 1983/84 are most comparable in terms of consistency of bias vis-a-vis national accounts data. They are also comparable in the sense that they are both years of normal harvest - something that is not true for any of

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[5] For a review of the available evidence, see Rahman and Haque (1988) who have also made estimates of their own.

the other three years. The only problem is that compared to macro-data, the HES of 1973/74 gives a slightly lower estimate and the HES of 1983/84 gives a somewhat higher estimate of cereal consumption.[6] Assuming that macro-data have a consistent bias, if any, over the years, this will mean that the increase in calorie intake, and hence probably the reduction of poverty, between 73/74 and 83/84 will be somewhat overstated.

The second problem we have to be aware of lies in the methodology of constructing the poverty line. Some of the estimates start with a pre-specified consumption bundle satisfying a certain norm of calorie requirement and set the poverty line at that level of income which can afford to buy that bundle at a given year's prices. This procedure does not allow for substitution of commodities in response to changes in relative prices. As it happens, the relative prices of various food items have changed considerably over the years and so has the consumption basket, especially of the poor. The more expensive sources of calorie have become even more expensive and the cheap sources cheaper, with the result that the consumption basket of the poor is now weighted more heavily in favour of cheaper sources of calories

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[6] This difference is probably due to a change in survey methodology that has been made recently. The earlier surveys used the one-shot recall method to elicit information on household consumption. The surveys since 1983/84 have required the respondents to keep a daily diary of all their detailed consumption over a period of thirty days. As a result, the later surveys probably record consumption more fully than the earlier ones.

Table 1

Poverty Ratio in Rural Bangladesh

(Percentage of population below the poverty line)

year	Moderate poverty (2122 Kcal)	Extreme poverty (1800 Kcal)
1973/74[a]	62 - 68	25 -29
1983/84	57	38

Source: The estimates for 1983/84 are taken from BBS (1988). The same source also provides an estimate for 1973/74, but it also notes that calorie intake is understated for that year as some minor items were excluded from calculation. We have elsewhere made a complete estimation of calorie intake for the same year covering all the items reported in the survey (Osmani (1982)). We have used these complete figures for making our own estimates for 1973/74.

Note: a) Unlike the estimate for 1983/84 which BBS derived from raw data, we had to use group data for 1973/74. To allow for the imprecision necessarily involved in estimating (through interpolation) the poverty ratio from group data, we have expressed our own estimates in the form of a range.

than it used to be.[7] Under these circumstances, the use of a fixed consumption bundle can be seriously misleading.[8] We have, therefore, picked out only those estimates which allow for substitution in the consumption basket. In these estimates, poverty line was defined as that level of expenditure at which the required calorie norm can be met with the actual consumption pattern of the relevant year.

Table 1 shows the chosen estimates for two different norms - one corresponds to the average calorie requirement for the rural population and indicates the extent of what is called 'moderate' poverty, and the other sets the norm at 15 per cent below the average calorie requirement in order to identify what is called 'extreme' poverty. Poverty is measured here in a fairly simplistic way - as the proportion of people below the poverty line.

According to these estimates, moderate poverty has indeed gone down in the decade since 1973/74, but extreme poverty has increased at the same time.[9] As noted

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[7] For the evidence on the changes in relative prices of various food items and the corresponding change in the consumption basket, see World Bank (1987) and BBS (1988).

[8] One example is the utter confusion that has surrounded the estimate for 1981/82. By using a fixed consumption bundle, Rahman and Haque (1988) have found that poverty has gone up sharply between 1973/74 and 1981/82. Yet, on the basis of actual consumption pattern, World Bank (1987) has estimated that poverty has gone done during the same period.

[9] BBS (1988)'s own estimates, based on the same methodology as ours, agree with our result that moderate poverty has fallen, albeit more

earlier, there is reason to be believe that the improvement in 1983/84 is likely to be somewhat overstated. Nevertheless, the difference in moderate poverty is probably large enough to indicate a genuine improvement.

We have to, then, understand the processes underlying both the improvement in moderate poverty and the worsening of extreme poverty, and understand them in the context of the symptoms of prosperity mentioned earlier.

It will be instructive to begin by looking at the picture of overall availability of foodgrains - mainly rice and wheat - which still provide nearly 80 per cent of the calories in rural Bangladesh, and as much as 90 per cent for the bottom half of the population. Comparing 1973/74 with 1985/86, and taking three-year averages centering on the chosen years in order to smooth out year-to-year fluctuations, per capita consumption of foodgrains is seen to have risen only marginally from 435 gm/day to 444 gm/day - giving an annual growth rate of only 0.2 per cent. Since per capita national income has grown at the rate of 2 per cent during this period, and since the relative price of foodgrain has not risen at

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sharply; but unlike us, it finds extreme poverty to have fallen as well - from 44 per cent to 38 per cent. The difference probably arises from the fact that, unlike us, BBS did not, on its own admission, count the calorie equivalent of all the food items consumed. As a result, the BBS estimate of average calorie intake in rural Bangladesh in 1973/74 is 109 calories less than ours, which can make quite a difference at the lower end of the scale.

the same time, it would appear that most of the incremental income has accrued to those people who have very little incremental demand for foodgrains - in other words, the very rich people. The resulting worsening of income distribution is not of course revealed by the household income and expenditure surveys. But it is well-known that these surveys typically fail to capture the very rich households whose foodgrain consumption would have reached near-saturation. If the incremental income has gone mostly to these households, it is not surprising that the household surveys fail to report a worsening of income distribution.

Thus the respectable growth rate of 2 per cent in per capita national income is a symptom of prosperity alright, but when seen in conjunction with sluggish growth in foodgrain consumption, this prosperity can no longer be seen as a force towards the alleviation of poverty. It is prosperity for the rich. Under these circumstances, if some of the poor are seen to have escaped beyond the poverty line, it must have happened at the expense of making some of the poor poorer.

Most of the recent estimates of poverty, however, show that there has been an all round improvement among the poor[10]. Not only moderate poverty, but also extreme poverty is claimed to have fallen; and in the few cases where the more comprehensive Sen index of poverty was

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[10] See the review by Rahman and Haque (1988).

calculated, it was found that not only the proportion of poor people but also the gap of the poor people's income from the poverty line as well as the distribution among the poor have improved. If such an allround improvement in the plight of the poor were indeed to occur, the demand for foodgrain would have risen very fast, because these are the people who have a high income elasticity of demand for foodgrain. Given the sluggish growth in foodgrain availability, we should have then witnessed a rise in the relative price of food; but we have not.

An allround improvement would, however, still be compatible with sluggish availability and low prices of food if public provisioning of foodgrain at low prices had expanded enough to protect the consumption of the poor. But, in fact, we have seen a contraction rather than expansion in this sphere. Public distribution of foodgrains has not on the whole declined over the years, but it has increasingly taken the form of market sales with the objective of stabilising market prices. Targetted distribution to the rural poor at subsidised prices, which was never high on the agenda of priorities, has receded to almost insignificance in the recent years.[11]

All this leads us to believe that the evidence of allround improvement in poverty cannot but be illusory -

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[11] A fuller account of the public distribution system can be found in MOF (1986) and Osmani (forthcoming).

arising perhaps from the choice of non-comparable surveys and/or inappropriate methodologies. A comprehensive evaluation of these estimates cannot be attempted at the present occasion; but we have seen that by guarding against a couple of obvious pitfalls, we do arrive at a picture which is compatible with the macro scenario. This is not a picture of allround improvement in poverty, but one where some of the poor have improved their position while others have become poorer.

The Processes Behind Differential Fortune of the Poor:

It now remains to be seen what processes were involved in the making of such differential fortunes for the poor. We believe that these processes are closely linked with the structural transformation of labour force mentioned earlier. The most popular interpretation of this transformation claims that the dynamism of the overall economy since Independence (recall the 2 per cent growth rate in per capita income) has created - in keeping with Engel's law - substantial scope for employment in the non-farm sectors. The incremental labour force has shifted *en masse* to these sectors to avail of these opportunities. And in doing so, they have not only improved their own lot, but also helped their brethren who have remained tied to agriculture by reducing the pressure on land. On the one hand, the

benefit of technological progress in agriculture has accrued to a stationary agricultural labour force, thus improving their per capita income. On the other hand, the incremental labour force has improved their own lot by taking part in the dynamic non-farm sectors. This is the story that fits in most neatly with the view of overall improvement in poverty. But if, as we have argued, the view of overall improvement in poverty has to be rejected on the grounds of its conflict with macro-data on the availability and prices of foodgrains, then there must be some flaw in this story. And we are going to argue that the story, especially the part dealing with non-farm sectors, is fundamentally flawed.

There is no doubt that the non-farm sectors have displayed a remarkable dynamism in the post-Independence period, as can be seen from the fact that between 1973/74 and 1984/85 the overall economy grew at the rate of 4.4 per cent while agriculture, still the mainstay of the economy, grew at only 2.8 per cent. There can also be no doubt that a lot of workers were attracted by this dynamism. But in order to know whether the economic condition of the non-farm workers has improved over the years, we need to know a lot more than that. In particular, we have to know how the rate of growth of employment in these sectors compares with the growth of income generated by them - in other words, how the productivity of workers has changed over the years, and how the fruits of this change have been distributed among

the owners of factors of production. Sufficient information is not available to answer these questions fully, but there are enough indications of what is most likely to have happened.

Let us begin by spotting where exactly the incremental labour force has gone since 1974. We have seen that none at all went to agriculture, but not very many went to manufacturing either; the share of large-scale manufacturing in the incremental labour force was a meagre 5.4 per cent. Nearly 30 per cent went to various 'professional' categories - but there was nothing spectacular about that, for the same proportion had gone to this group also in the preceding period (1961-1974). The real change occurred in the absorption by trade, transport, construction and small-and-cottage-industries. Together, their incremental share went up from 9.3 per cent in the 61-74 period to as much as 66 per cent in the 74-85 period. The share of trade services alone went up from 4.8 per cent to 32.5 per cent - making it the single largest absorber of incremental labour force in the post-Independence period.[12] Consequently, the structural transformation that has come about in the Bangladesh economy is, despite its appearance, not of the classical type associated with economic progress. Instead of a process where peasants become industrial proletariat, we

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[12] The figures quoted in this paragraph have been worked out from the information provided by BBS (1988a).

have had one where, at a slight exaggeration, the potential peasants became petty traders.

Whether this transformation has been accompanied by a rising trend in productivity in the 'high-absorption' sectors is more difficult to judge. The usual method would be to use the value-added estimates given by the national accounts data along with the employment estimates given by population censuses and labour force surveys. The employment figures are available, and so are the sectoral value-added, but the two sets of data cannot always be used in tandem because of certain oddities of national income estimation. For instance, the value-added estimates for the small and cottage industries sector are based on the assumption of fixed productivity per worker in a benchmark year. The estimation for the transport sector assumes constant productivity per vehicle, which may not be too far from the assumption of constant productivity per worker.[13] For these reasons, it will be spurious to assess the change in productivity in these sectors on the basis of national accounts data. However, for trade services, which has been the single largest absorber of incremental labour force, and also for the construction sector, resort is taken to the commodity flow method which does not involve any assumption either about productivity or about the number of people involved

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[13] Bakht and Bhattacharya (1988) discuss the various methodological problems involved in the estimation of value-added in non-farm sectors.

Table 2

Employment and Productivity in Non-farm Sectors
(1974/75 to 1984/85)

Sector	Annual Rates of Growth (%)		Change in Productivity (per cent)
	Employment	Value-added	
Trade	14.60	5.95	(-) 58.5
Construction	31.40	8.40	(-) 85.5

Source: Employment data are from Statistical Yearbook of Bangladesh 1987, p.103; these data are based on the Population Census of 1974 and the Labour Force Survey of 1984/85. Value-added data for are from Statistical Yearbook of various years.

in the sector. It is, therefore, legitimate in these cases to use independently obtained employment figures in conjunction with value added data to estimate the change in productivity.[14]

As Table 2 shows, in both these sectors, labour absorption has progressed at a much faster rate than income, resulting in a precipitous fall in productivity. Trade, the 'dynamic' sector par excellence, has experienced a 59 per cent fall in per capita income in the ten-year period since 1974/75; construction has experienced an even more severe fall of 86 per cent!

Similar estimates cannot be made for other non-farm sectors for the reasons mentioned earlier. But a recent study on handloom industries, the largest source of employment in the cottage industry sector, shows that the wage rate of unskilled and semi-skilled workers has declined by 17 per cent during the period 1979/80 - 1986/87.[15]

Unfortunately, the inference of decline in per capita income originating from the so-called dynamic sectors cannot be checked against other possible sources

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[14] It has been argued, probably rightly, that national accounts data underestimate the value-added originating from these sectors; Bakht and Bhattacharya (1988). But unless the bias has changed over the years, for which no argument has been provided in the case of trade and construction sectors, this will not affect the direction of change in productivity.

[15] Cited in Bakht and Bhattacharya (1988), p.41.

of information. One potential source is the nation-wide household income-expenditure surveys (HES) of various years, but these surveys do not provide occupation-wise information. However, there are various bits of isolated information which give us some idea of the plight of the rural labour force engaged in non-farm activities. The HES of 1976/77 is the only one among the various rounds of HES which has been analysed occupation-wise. It shows that the households involved primarily in informal non-farm activities in rural areas is the worst-off among all groups, worse than even the landless farm workers who are traditionally believed to be the worst-off segment of the rural economy (Table 3). Another survey of nearly 4000 rural households drawn from different parts of the country in 1981 showed that the wage-labourers involved in the non-farm sector had almost an equal proportion of food-deficient households as the wage-labourers involved in the farm sector[16]. A large-scale survey of rural industries in the early eighties found that the wage rate of unskilled workers is generally lower than the wage rate of unskilled agricultural workers. Also the self-employed in petty trading and in a large part of the cottage industries sector earn a return per unit of family labour that is typically less than agricultural wage rate.[17]

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[16] The unpublished source of this information is cited in Osmani (forthcoming)).

[17] See the sources cited in Hossain (1988), p.96, fn.

Table 3

Foodgrains and Calorie Intake By Socio-Economic Class 1976/77

Class	Calorie Intake (day/cap)	Calorie Deficit (day/cap)
Landless farm workers	1519	603
Small farmers	1638	484
Medium farmers(mainly tenants)	1764	358
Medium farmers(mainly owners)	1956	166
Large farmers	2150	*
Rural informal non-farmers	1482	640
Rural formal non-farmers	2118	*
Urban informal	1708	414
Urban formal	2080	42
Average of all classes	1782	340

Notes & Sources: Occupation-wise calorie consumption figures are derived from the Household Expenditure Survey of 1976/77 conducted by the Bangladesh Bureau of Statistics, and quoted from World Bank (1985), p.4. Calorie deficit was measured by taking 2122 Kcal per capita per day as the norm.

None of this gives the flavour of a scenario where the potential entrants to agricultural labour force would be falling over themselves to join the bandwagon of non-farm sector. If they have nevertheless done so, it must be because they were desperately looking for alternative sources of employment in a situation where the pressure on land was becoming excessive. Between 1961 and 1974, nearly 66 per cent of the incremental labour force sought employment in agriculture, raising the size of agricultural labour force by 18 per cent. Yet in the early years of the seventies, agricultural production remained below the level of the sixties because of the dislocations caused by the war of Independence and a series of natural disasters. Already in the sixties, excessive pressure on land had brought down real wages in agriculture steadily over the decade. As production collapsed in the early seventies, the real wages dipped even further. Even before the famine year of 1974/75, real wages had fallen by about 40 per cent from the level of the early sixties (Khan (1983)).

The pressure to move out of land must have become irresistible under these circumstances. Yet in view of the centuries-old bondage to land in rural Bengal, it is unlikely that economic pressure alone can explain the massive shift to non-agriculture that has occurred in such a short span of time. Agriculture is not just an economic occupation, but has been for centuries the way

of life in rural Bengal. It needed a fundamental change in the socio-cultural psyche of the rural masses for them to contemplate an altogether different way of life. Sociologists have not yet investigated this phenomenon, but it is probable that this change was facilitated first by the total dislocations in residence-cum-work patterns caused by nine months of Liberation struggle in 1971 and then by the disenchantment with agriculture following the ravages of famine in 1974.

The burgeoning size of the non-farm labour force is, therefore, rightly seen as a sign of distress rather than prosperity. Moreover, the fact that the non-farm sectors, other than manufacturing, have grown at a very rapid rate since Independence is not reason enough to believe that the plight of the non-farm workers has improved over time. As we have seen, the entry of labour into these sectors has expanded at an even faster rate than the income generated by them, with the result that per capita income has fallen sharply.

The only area where genuine progress has occurred is agriculture and that is where the alleviation of poverty, if any, would be observed. In the twelve-year period since 1973/74, agricultural value-added has grown at an annual average rate of 2.8 per cent. This may not seem all that impressive in relation to population growth of 2.4 per cent, but the important thing is that agricultural labour force has not grown at all during

this period. As a result, the per capita income of those engaged primarily in agriculture must have risen at a significantly positive rate, even after allowing for the fact that some of the non-agricultural labour also participate in agriculture from time to time.

The improvement in agriculture has been triggered by the diffusion of modern technology, the phenomenon that has come to be known as the Green Revolution. Although the Green Revolution has not spread as spectacularly in Bangladesh as in several other parts of the Third World, its progress has by no means been negligible. Since its inception around 1970, the new technology has by now spread to about a third of the total acreage under cereals. In the typical conditions of Bangladeshi farms, the new technology nearly doubles the yield of paddy (from 1.6 tons/hectare to 3.3 tons/hectare). Although the cost of production is also higher, productivity rises enough to increase the return to family labour by over 60 per cent.[18]

Apart from the aggregative impact on productivity, there are several features of technological progress in Bangladesh agriculture which have a direct bearing on the entitlement of the poor.

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[18] For information on these and other aspects of the new technology, see Hossain (1988).

First, after the few initial years of uncertainty, the new technology has been embraced equally by all categories of farmers - if anything, the smaller farmers have adopted it proportionately more than the larger ones. Heavy subsidy on the critical inputs like fertiliser and irrigation, combined with State-sponsored development of irrigation facilities, has been the key to this egalitarian nature of technological diffusion (Osmani (1986)).

Secondly, unlike in several other parts of the world where Green Revolution has been accompanied by extensive mechanisation, the new technology in Bangladesh has progressed with very little mechanisation and has in fact increased the labour-intensity of agriculture considerably. It has been estimated that the spread of new technology raises the absorption of labour by 40-50 per cent per acre. This must have had a positive impact on the income and employment of the landless and land-poor agricultural wage labourers who constitute 40 per cent of the agricultural labour force.[19] Of course, wage-labourers are not the sole beneficiaries of increased labour absorption, because a part of the higher need for labour is met by increased use of the farm households' family labour. Even after allowing for that, the demand for wage labour rises by about 50 per cent on each unit of land coming under the new technology.

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[19] This estimate is from BBS (1988a).

Thirdly, it has been noted in several areas of Green Revolution (for instance, in Indian Punjab) that many of the land-poor tenant farmers have been harmed by technological progress as the landlords have evicted the tenants and brought back the land, usually for cultivation under a mechanised capitalist system. Such evictions have sometimes been observed in rural Bangladesh as well, but the dominant pattern is in fact the reverse. A recent survey has found that the diffusion of new technology has encouraged the spread of tenancy (Hossain (1988)). The larger landowners tend to rent out a part of their land to the landless and land-poor households during the season when the high-yielding varieties are sown and take it back for the rest of the year. Counter to conventional wisdom as it runs, this phenomenon is by no means difficult to explain. The clue lies in the non-mechanised labour-intensive nature of the technology as it is practised in Bangladesh. Insofar as the original impetus to the institution of tenancy came from the desire of the landlords to share the fruits of intensive labour application by landpoor people who have very little opportunity cost of labour, it is only natural that the increased labour intensity of the new technology will further encourage the spread of this institution. The result has been that the so-called functionally landless people, those who own no more than half an acre of land, not only enjoy higher wage income but also earn higher income from crop cultivation in the technologically progressive villages.

Finally, it has sometimes been suggested that Green Revolution immiserises the poor by hastening the process of landlessness. The argument is that by enriching the richer farmers more, the new technology enables them to buy up the land of the marginal farmers who are then thrown into the labour market; the resulting increase in the supply of wage-labour (possibly swollen further by the entry of evicted tenants) works to the detriment of all wage-earners including the newly landless ones. There are at least two problems with this argument. First, it is well-known that most sales of land in rural areas are in the nature of distress sales - people sell their land as a last resort to meet the emergency need for a given amount of cash. At a higher price of land, the need for a given amount of cash can be met by selling a smaller piece of land, subject to the constraint of divisibility. In other words, the supply curve of land should be negatively sloped in the context of distress sales. Therefore, by whetting the land hunger of rich farmers i.e., by shifting the demand curve to the right, the new technology will at the same time raise the price of land and reduce the volume of sales. Secondly, when the small and marginal farmers also adopt the new technology, as has happened in Bangladesh, the need for distress sales will begin to wane. For these reasons, we have elsewhere suggested the hypothesis that the new technology should retard rather than hasten the process of landlessness (Osmani and Rahman(1986), Osmani (forthcoming)).

Recently, the study on Green Revolution (Hossain (1988)), which we have been drawing so much upon, has come up with evidence in support of this hypothesis. It has been observed that the small and marginal owners of land sell considerably less amount of land in the technologically advanced villages compared to the backward ones.

These features of technological progress in Bangladesh agriculture suggest the possibility that this progress would have had a beneficial impact on the whole spectrum of the agricultural labour force. The aforementioned study on Green Revolution has indeed found that the incidence of poverty is lower among all categories of landowners (including the non-owners) in the technologically progressive villages. It is important to note that the principal mechanism through which agricultural progress has had its impact on poverty is not merely by increasing the availability of food, though that too was important, but by directly enhancing the food entitlement of all categories of people associated with agriculture.

We thus have a picture of the growth process where a stationary agricultural labour force has been blessed with the forces of enhanced entitlement, while the burgeoning non-farm labour has sunk under its own weight and suffered the forces of entitlement contraction. Economic rationality would suggest that under these circumstances one should witness a re-entry of labour

within the fold of agriculture. This is precisely what seems to be happening. Once again, the relevant evidence comes from the study by Hossain (1988): excepting the very large landowners, all other categories of people in the technologically progressive villages spend less time in non-farm activities compared to their peers in the backward villages.

Hossain himself is, however, curiously ambivalent on this issue. At one instance, he correctly observes that "As technological progress generates opportunities for additional employment in farming and increases the productivity of agricultural labour, employment in nonfarm activities is replaced by employment in agriculture" (p.95). Yet in discussing the supply of wage labour by the landless people, he concludes that "... the shift to non-agriculture in response to higher employment opportunities puts a downward pressure on the supply of agricultural labour when technology progresses" (p.98). At this point Hossain was trying to show that agricultural progress raises the demand for non-farm products through consumption linkages, which raises employment opportunities in the non-farm sector, which in turn lures workers away from agriculture. This is the dynamic view of the non-farm sector we have questioned earlier.

Hossain is apparently misled by his findings that in the landless workers' total supply of non-farm labour,

the share of labour supplied against wages is higher in the advanced villages compared to the backward ones, while the share of wage labour in total agricultural labour supply is lower (Table 51, p.98); from this he infers a shift of wage labour from agriculture to non-agriculture. But the proportion of wage labour does not tell us anything. When we look at the absolute amount of labour supplied in various activities, we find that the landless workers reduce both wage-employment and self-employment in the norm-farm sector in technologically progressive areas, and increase both types of employment in agriculture. In the non-farm sector, wage-employment falls less than self-employment, leading to a rise in the share of wage-employment, which is what misleads Hossain. The reason why wage-employment falls less has perhaps something to do with the fact that this category also includes salaried employment in the formal sector. Salaried employment is typically a regular and relatively lucrative source of income, which is why the movement back to agriculture is less pronounced among the fortunate ones having such employment. Yet on the whole, wage employment in the non-farm sector shrinks along with self-employment - a clear indication of the movement back towards agriculture.

It is important to recognise, though, that Hossain's ambivalence does reflect in reality a genuine tension between two opposing forces. Technological progress creates more rewarding employment opportunities in

agriculture, but at the same time the increased income arising from this progress also creates employment opportunities in the non-farm sector through consumption linkages. In which direction the net flow of labour will move depends on the relative strength of these two opposing forces. Apparently, the consumption linkages are much too weak compared to the new opportunities in agriculture, especially in view of the already overcrowded and economically depressed condition of the non-farm sector. That is why, the net flow is towards agriculture.

This reverse movement is seen to be happening in a set of villages where technology has progressed exceedingly well, covering over 60 per cent of the paddy land. In the country as a whole, however, the coverage is barely over 30 per cent. Not surprisingly, the reverse movement is not strong enough at the national level to stem the flow of labour away from land which started in the early seventies in a situation of extreme imbalance between man and land.

In the areas where technology has progressed very far - far enough to cause the reverse movement - there is reason to believe that the remaining non-farm workers will also enjoy the benefit of that progress. The mechanism is, however, quite different from the one envisaged by the proponents of consumption linkage. The 'linkage mechanism' operates on the demand side, while

the mechanism we have in mind operates on the supply side of the non-farm sector. With the reverse movement towards agriculture, the supply of labour to non-farm activities goes down, thereby raising the per capita income of the remaining non-farm workers. However, since technology has not advanced enough in the country as a whole to stem the outflow of labour from the farm, the supply-side effect on the non-farm sector has also not been strong enough to mitigate the fall of productivity there.

In sum, while the mitigation of poverty in the farming sector is due to technological progress in agriculture, the accentuation of poverty in the non-farm sector is due to the insufficiency of this progress.

At this point, it is necessary to qualify in an important respect our conclusion regarding the mitigation of poverty in the farming sector. We have noted earlier that the new technology raises the demand for hired labour - by about 50 per cent per unit of land that comes under the new varieties. Since the new varieties have now covered about 30 per cent of the land, the total demand for hired labour in the country as a whole would have risen by roughly 15 per cent in the post-Independence period. During this period, the supply of agricultural labour has also risen, although total agricultural labour force has remained constant. We do not know by exactly how much, because there are no benchmark figures for the early seventies when the new technology began to spread.

But we do know that in the mid-sixties a quarter of the households engaged principally in agriculture reported wage labour as their main occupation.[20] In the Agricultural Census of 1983/84, this proportion is seen to have risen to about 40 per cent; assuming a stationary agricultural labour force this implies a 60 per cent increase in the supply of wage-labour households. The estimate of households does not of course translate directly into an estimate of labour supply, and moreover the increase since the early seventies will almost certainly be less than the increase since the mid-sixties. Yet the balance of supply and demand does not seem altogether favourable for agricultural wage-labourers.

It is, therefore, quite surprising that the official data on agricultural wages show a considerable improvement in real terms in the recent years. This evidence of improvement has been cited as a contributory factor by those who have claimed poverty to have fallen all around in the eighties.[21] Yet a close inspection of the official figures reveals that this improvement is no more than a statistical quirk. The data on money wages are given separately for skilled and unskilled workers and also for all workers combined. The evidence of rising wages comes from the combined figures in which money

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[20] This estimate is based on the Master Survey of Agriculture (sixth round) of the then East Pakistan and represents the average for 1963-64 and 1964-65.

[21] For example, World Bank (1987), Rahman and Haque (1988).

wages are seen to have gone up sharply since about 1982/83. But if one looks separately at the wage rates for unskilled workers, who are by far the most dominant part, no such sharp break is noticed. What has actually happened is that until about 1982/83, the combined wage was weighted overwhelmingly in favour of the unskilled workers, as it indeed should be; but since then the skilled workers have begun to receive an overwhelming weight, and at the same time the differential between skilled and unskilled wages has also risen. As a result, the combined figures create an illusion of rising wages.[22]

We have reported in Table 4 the series of money and real wages of unskilled agricultural workers, with two different estimates of real wages - one in terms of rice equivalent and the other by deflating money wage with a rural cost of living index. The two series of real wages vary somewhat, because the relative price of rice has fallen over the years after rising sharply in the famine year. Still, we get a fairly consistent picture about the overall trend. First, excepting the famine year of 1974/75 and the drought year of 1979/80, real wages showed a certain recovery since the mid-seventies from the depths of the early seventies. Secondly, this recovery has been halted, and possibly reversed, since about the turn of the present decade. Whether the

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[22] This illusion is further reinforced by such authorities as the World Bank (1988) who report under the heading of wages for unskilled workers what is actually the combined wage rate for all agricultural labourers; Table 9.7, p.80.

Table 4

Trend in the Wage Rate of Unskilled Agricultural Labour

Year	Money Wage (Tk/day)	Real Wage Index (73/74=100)	
		Deflated by COL index	Rice Equivalent
1969/70	2.66	104	119
1973/74	6.02	100	100
1974/75	8.15	87	67
1975/76	7.94	96	111
1976/77	7.49	93	117
1977/78	9.35	100	113
1978/79	11.23	109	123
1979/80	12.24	101	100
1980/81	13.96	108	133
1981/82	15.66	100	118
1982/83	15.10	90	103
1983/84	15.25	81	94
1984/85	17.53	82	100
1985/86	20.03	90	117
1986/87	23.92	94	123

Notes and Sources: Money wage series is from Statistical Yearbook, various years. The first series of real wages was constructed by deflating the money wage series by a series of rural cost of living (COL) index. There is no continuous series available for the rural COL covering the entire period. Statistical Yearbook publishes a series from 1978/79 onwards using the consumption pattern of 1973/74 as weights. Another partially overlapping series covering the earlier period, and using the consumption pattern of the sixties, is available from World Bank (1984), p.118. We constructed a combined series by splicing the two. Rice equivalent was estimated by deflating the money wages by the wholesale price of coarse rice as obtained from various issues of Statistical Yearbook.

improvement in the final two years marks yet another recovery or is just a temporary blip remains to be seen.

What is clear is the absence of a rising trend either for the period as a whole or for the later period. In fact, whatever gains were made in the late seventies were lost in the early eighties. This may not be unrelated to the differential performance of agriculture during these two periods. The annual average growth rate of agricultural value-added fell from 3.1 per cent in the 73/74-80/81 period to 2.4 per cent in 80/81-85/86 period.

It would thus appear that although technological progress in agriculture has the potential to raise the entitlement of all categories of rural people, the spread of technology has not gone far enough to mitigate the poverty of either the agricultural wage labourers or the non-farm population. The former has probably just about held its own, but the latter has almost certainly suffered a contraction in entitlement. So, how has, then, the apparent improvement in 'moderate' poverty come about? Some of the fortunate ones among the wage-labourers as well as the non-farm workers may have crossed the line, specially in those regions where technology has spread the farthest. But the most significant beneficiaries are likely to be found elsewhere. Going back to Table 3, it will be seen that middle farmers as a whole were just hovering below the poverty line in 1976/77. Since 1976/77 was an especially

depressed agricultural year, even some of the small farmers may be said to have been not too far below the poverty line in a normal year (like 1973/74) of the early stage of technological diffusion. By the middle of the eighties, when the diffusion had spread to about a third of the cropped land, it is likely that some of the middle and not-so-small farmers may have made the transition above the poverty line.

The poverty scenario may thus be roughly summarised in the following schematic form. Some of the middle and small farmers who were just below the poverty line in the early seventies have crossed the line riding the crest of technological progress in agriculture. This is what largely accounts for the improvement in 'moderate' poverty. While the class of agricultural labourers have probably just about held its own, most of the non-farm workers, who were already at the bottom of the scale, have suffered further deprivation. That explains the rise in 'extreme' poverty. Since some of the poor have improved their lot while others have become poorer, the demand for foodgrains has not on the whole risen on the part of the poor. At the same time, most of the 2 per cent annual growth in per capita national income has gone to the very rich households who have very little incremental demand for foodgrains. So, demand for foodgrains has not risen on the whole despite impressive growth in per capita income as well as some improvement in moderate poverty. That is why, the relative price of

foodgrain has not risen, and in fact fallen compared to the preceding decades, despite sluggish growth in availability in the face of rising income. A decline in the relative price of food is normally a happy news for the poor; but in the present case the decline is really a sign of the failure to make a dent in overall poverty. This is the story that, in our view, fits in best with most of the macro and micro-level evidence at hand.

We have argued that both the limited success in alleviating 'moderate' poverty and the failure to improve the lot of the poor as a whole are related to the nature and pace of technological progress in agriculture. The nature of technological progress is such that it has the potential to raise the entitlement of all categories of rural poor. But its pace has not been sharp enough to help any but a handful of middle and not-so-small farmers to escape beyond the poverty line. This line of argument suggests that a sustained attack on the food deprivation of the poor depends critically on the ability to accelerate the tempo of technological diffusion, and that too in a manner that can maintain the egalitarian nature which has characterised such diffusion so far. Whether all this is possible is too big an issue to be addressed within the space available here. But we shall make a couple of brief remarks. These relate to certain ominous signs regarding both the egalitarian nature and the tempo of technological diffusion.

First, heavy subsidy on critical inputs and public provisioning of irrigation facilities, the two keys to egalitarian diffusion in the early years have been in the process of being abandoned, or at least severely curtailed, since the turn of the eighties.[23]

Secondly, the tempo of diffusion seems to be decelerating in the recent years. Between 1973/74 and 1980/81, nearly 3 million acres came under the new varieties, but only half as much (1.6 ml) has come between 1980/81 and 1985/86. We cannot enter here into a discussion of all the problems related to this deceleration,[24] except to reiterate a fairly common consensus that a new breakthrough cannot possibly come without a massive programme of water management and irrigation development under State auspices. Such a programme is not yet in sight, ostensibly on the grounds of resource constraints, but behind which surely lies a complex political economy of resource generation and resource allocation in the public sector.

Meanwhile, however, there is a lot more that can be done even within the constraints of available resources. Raising the income-earning capacity of the poor, through technological progress or other means, is not the only way to tackle their problem of deprivation and

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[23] The issues arising from these policy changes have been discussed in Osmani and Quasem (1985) and Osmani (1986).

[24] For an extensive discussion of these issues, see UNDP (1989) and its background reports.

undernutrition. Nutritional deprivation is not merely a matter of food intake, but also of various environmental and cultural influences which affect the health of the people. To these issues we now turn.

Undernutrition and Public Policy:

The picture regarding the change in nutritional status in the post-Independence period remains, as in the case of calorie intake and food deprivation, surrounded by a great deal of confusion. Once again, much of the confusion arises from the use of non-comparable data. But some tentative conclusions can perhaps still be drawn from the information assembled in Table 5.

By the height-for-age criterion of undernutrition, the rural children appear to have enjoyed a significant improvement in the seventies which could not be sustained thereafter. In contrast, the weight-for-height criterion shows barely any change in the seventies, but an impressive improvement in the eighties. Of these two criteria, the height-for-age measure reflects the forces of long-term nature operating on nutritional status, while the weight-for-height measure reflects more short-term changes either in food intake or in the prevalence of disease. Accordingly, the changes in terms of the first measure may perhaps be related to the long-term

changes in food entitlement we have noted in the preceding section. We have seen that agricultural income in general and agricultural wages in particular made impressive recovery in the seventies only to lose ground in the eighties. Changes in nutritional status as revealed by the height-for-age measure are consistent with this overall trend.

There are no clear explanations for the recent improvement in weight-for-height measures. But disease control may have played a part. A summary of social indicators assembled in World Bank (1987, p.183) shows that medical facilities have expanded quite impressively in the eighties, although the level of facilities still remain well below the levels reached by other low-income countries.

A number of conclusions follow from these observations. First, food deprivation plays an important role in the long-term changes in nutritional status. Secondly, independently of changes in food entitlement, undernutrition can be reduced through successful control of diseases and environmental hygiene. Thirdly, resource constraint cannot be invoked as an excuse for the low level of achievement through the second route, as the facilities provided by other low-income countries would testify.

Table 5

Changes in Nutritional Status in Rural Bangladesh

(Percentage of Children Undernourished)

Indicator	1975/76	1981/82	1985/86
Height-for-age (stunting)	73.7	57.3	56.1
Weight-for-height (wasting)	21.6	20.0	8.1

Source: Reproduced from Rahman and Haque (1988), Table B-8. The figures for 1975/76 and 1981/82 are from the surveys carried out by the Institute of Nutrition and Food Science (INFS). The figures for 1985/86 are from the Nutrition Module of the Household Expenditure Survey carried out by the Bangladesh Bureau of Statistics (BBS).

Note: 1) The height-for-age measure (stunting) defines as undernourished all those children whose height falls below 90% of the reference median height-for-age. The weight-for-height (wasting) measure takes the cut-off point at 80% of the reference median.

2) INFS (1975/76 and 1981/82) covers children in the 0-5 years age group; BBS (1985/86) covers the age group of 6 months to 6 years.

These conclusions are also supported by a wide variety of other evidence. To begin with, it is worth noting that a large part of the rural children of Bangladesh are born in a state of undernutrition irrespective of the socio-economic status of their parents. It has been estimated that nearly 48 per cent of the newborn in rural areas are the so-called 'low-birthweight' babies i.e., infants who have a birthweight of less than 2.5 kg - the minimum weight below which there is a serious danger of suffering from loss of nutritional capabilities in the future. The observed low birthweight of the newborn is presumably due to low nutritional status of the mother and lack of proper ante-natal care. Yet, it is surprising to note that the incidence of low-birthweight babies does not vary systematically with the socio-economic status of the mothers (Bairagi(1978), Canosa(1983)). Presumably, the poor state of environmental hygiene and the absence of medical care is so pervasive in rural areas that higher income alone cannot undo the adverse effects of these factors.

Yet, income is not without significance in the incidence of undernutrition. This becomes clear after a few months of the birth of a child. For the first few months of life, it has been observed, the growth <u>rate</u> of the rural children in Bangladesh does not differ significantly from that of the Western reference children. Widespread breastfeeding, by mothers of all

social categories, ensures normal growth during this period. It is only when weaning starts that growth begins to falter - partly because of increased susceptibility to infections through the ingested food and partly because of inadequate food itself. It is also at this stage that the effect of socio-economic class differentials begins to show. We present in Table 6 the results of a large-scale survey carried out by the Institute of Food and Nutrition Science (INFS) of Dhaka University in 1981/82.

The incidence of undernutrition is shown for four different income groups arranged in the ascending order of household income. According to the weight-for-age criterion (which combines both long-term and short-term influences on nutritional status), the poorer three groups are seen to have a much higher incidence of moderate/severe undernutrition among 0-5 year-old children compared to the richest group.[25]

The second interesting point to note is the incidence of undernutrition across age-groups. For the poorer three groups, there is no systematic pattern across the age-groups - except that it is the lowest among the infants (less than a year old) which is

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[25] It may seem a bit odd that the poorest group has a lower incidence of undernutrition than the two less poor groups. But this is probably explained by the much higher rate of infant mortality among the former. Since the infants with the severest undernutrition have presumably died, the incidence among the surviving children is seen to be lower among the poorest group. This explanation suggests itself even more clearly when one looks exclusively at the infants i.e., 0-11 months-olds. The inverse relationship with income is, therefore, not violated by the apparent deviation among the poorest households.

Table 6

Moderate-to-Severe Undernutrition By Income Group: 1981/82

(Percentage of children with weight-for-age below 75 per cent of Standard)

Age in months	Income Groups				
	A	B	C	D	All
0-11	35	58	52	33	46
12-23	74	71	72	58	70
24-35	57	68	64	45	59
36-47	65	78	75	42	65
48-59	70	71	86	39	68
0-59	59	68	69	43	61

Source: Taken from World Bank (1985), p.76. The results are based on the survey carried out by the Institute of Nutrition and Food Science, Dhaka University.

Note: Income groups are defined as follows. A: very poor who pay no tax; B: the poor who pay a little tax; C: the moderately well-off who pay more tax; D: the better off who pay full tax.

probably due to a much higher rate of infant mortality than child mortality. As for the richest group, low incidence among the infants is a feature that is common with the poorer groups, and is explained by the same phenomenon of infant mortality rate being higher than child mortality rate; for the rest of the age-groups, however, there is a steady declining trend.

These contrasts reveal that after starting with a similar initial disadvantage - recall the evidence of equal incidence of low birthweight across socio-economic classes - many a newborn of the well-off families gradually wear off the disadvantage as it grows; but the newborn of a poor family carries the disadvantage throughout its childhood. By the age of five, about 80 per cent of children among the three poorer groups become stunted (low height-for-age) compared to 50 per cent among the richest. Similar pattern is shown by yet another study, done for the UNICEF in 1979/80 (FREPD (1981)). This latter study further shows that the differential across income classes persists even for the older children in the 5-12 years age group.

While these studies clearly establish the role of income in attenuating the prevalence of undernutrition, several qualifications should also be noted. First, both of the aforementioned surveys demonstrate that income differential has to be enormously large in order to have any appreciable impact on undernutrition; there is no

systematic difference among the majority of households who fall below the thinly inhabited richest category. Secondly, even among the richest group, undernutrition is by no means negligible. As much as 43 per cent of children in this group are seen to suffer from moderate-to-severe undernutrition (Table 6). This shows that a lot of undernutrition is actually due to poor environmental hygiene whose adverse effects cannot be neutralised by personal income alone.

The final qualification emerges from a different study which specifically sought to answer the question of whether income is the only constraint on child nutrition in rural Bangladesh (Bairagi (1980)). As expected, income was indeed found to have a strong influence, but so was mother's education. But the most interesting aspect of this study is the observed interaction between these two variables. Without education, higher income makes only a small contribution to child nutrition; with education the same increase in income makes a considerably more marked contribution. Among the children of illiterate women, nutritional wellbeing measured as the ratio of mean weight-for-age to the Harvard standard is seen to rise from 67 to only 69 per cent as we go from the poorest to the richest income group; but with literate mothers, the improvement is from 65 to 75 per cent.

On the other hand, it was also noted that a minimum threshold of income has to be reached before education

begins to have its impact; among the poorest households, mother's education did not make any difference to nutritional status. Thus neither income nor education can in isolation do much, but when working together they do represent a considerable force in the battle against undernutrition.

In the past, far too much emphasis has been placed on the role of income alone. Yet, as we have seen in the preceding section, not a great deal has been achieved in that respect as far as the majority of the poor are concerned. The complementary role of health and education, the importance of which we have highlighted in this section, has not received as much attention as it deserves. Very often the expansion of health and education facilities can be a much more cost-effective method of combating undernutrition than expansion of income, as experience has shown in several regions of the world.[26] In a situation of resource constraint, there may be a great deal of merit in leaning more towards this neglected path.

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[26] The alternative routes to combating hunger and undernutrition have been analysed, at both conceptual and empirical levels, by Dreze and Sen (forthcoming).

References

BBS, 1988, Report of the Bangladesh Household Expenditure Survey 1985-86 (Bangladesh Bureau of Statistics, Dhaka).

BBS,1988a, Report on Labour Force Survey 1984-85 (Bangladesh Bureau of Statistics, Dhaka).

Bairagi, R., 1978, An Analysis of Malnutrition Among Young Children in Rural Bangladesh, unpublished dissertation (John Hopkins University, Baltimore).

Bairagi, R., 1980, "Is Income the Only Constraint on Child Nutrition in Rural Bangladesh?", WHO Bulletin, Vol. 1, No.5.

Bakht, Z. and D. Bhattacharya, 1988, "Non-Farm Employment and Agriculture: Scope for Complementary Growth", mimeo. (Bangladesh Institute of Development Studies, Dhaka).

Canosa, C.A., 1983, Deterioration of Nutrition in Bangladesh (WHO, Dhaka).

Dreze, J. and A. Sen, forthcoming, Hunger and Public Action (Clarendon Press, Oxford).

FREPD, 1981, The Situation of Children in Bangladesh (University of Dhaka, Dhaka).

Hossain, M., 1988, Nature and Impact of the Green Revolution in Bangladesh, Research Report no. 67 (International Food Policy Research Institute, Washington, D.C.).

Huffman, S., 1977, Determinants of Postpartum Amenorrhea in Rural Bangladesh, unpublished dissertation, (John Hopkins University, Baltimore).

Khan, A. R., 1983, "Real Wages of Agricultural Workers in Bangladesh", in A. R. Khan and E. Lee (ed.) Poverty in Rural Asia (ILO-ARTEP, Bangkok).

MOF, 1986, The Existing System of Public Foodgrain Distribution in Bangladesh and Proposal for Re-Structuring (Ministry of Food, Government of Bangladesh, Dhaka).

Osmani, S. R., 1982, Economic Inequality and Group Welfare (Clarendon Press, Oxford).

Osmani, S. R., 1986, "Pricing and Distribution Policies for Agricultural Development in Bangladesh", Bangladesh Development Studies, Vol. XIII, Nos. 3&4.

Osmani, S. R., forthcoming, "The Food Problems of Bangladesh" in J. Dreze, and A. Sen (eds.), The Political Economy of Hunger (Clarendon Press, Oxford).

Osmani, S. R. and A. Rahman, 1986, A Study on Income Distribution in Bangladesh, Research Report no. 53 (Bangladesh Institute of Development Studies, Dhaka).

Osmani, S. R. and M. A. Quasem, 1985, Pricing and Subsidy Policies for Bangladesh Agriculture, mimeo; forthcoming Research Report (Bangladesh Institute of Development Studies, Dhaka).

Rahman, A. and T. Haque, 1988, Poverty and Inequality in Bangladesh in the Eighties: An Analysis of Some Recent Evidence, Research Report (Bangladesh Institute of Development Studies, Dhaka).

Rahman, A., S. Mahmud and T. Haque, A Critical Review of the Poverty Situation in Bangladesh in the Eighties, Vols. I and II, Research Report nos. 66 and 67, (Bangladesh Institute of Development Studies, Dhaka).

UNDP, 1989, Bangladesh Agriculture: Performance and Policies (UNDP, Dhaka).

World Bank, 1984, Bangladesh: Economic Trends and Development Administration (World Bank, Washington, D.C.)

World Bank, 1985, Bangladesh: Food and Nutrition Sector Review (World Bank, Washington, D.C.)

World Bank, 1987, Bangladesh: Promoting Higher Growth and Human Development, Part II (World Bank, Washington, D.C.)

World Bank, 1988, Bangladesh: Adjustment in the Eighties and Short-Term Prospects, Statistical Appendix, (World Bank, Washington, D.C.).

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