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Introduction

When hunger is as pervasive and as persistently so as in Bangladesh, the food problem ceases to be just one aspect of the economic problem. It becomes indistinguishable from the totality of the development problem itself. While an analysis of this totality is beyond the scope of a single paper, we shall at least try to highlight the major forces impinging on the problem of hunger - both in the past and in the future. Moreover, in an attempt to bring some kind of order to the diversity of the issues involved, we shall organise the discussion around two themes.

The first theme relates to the long-term process of the genesis of hunger and its persistence. We shall attempt to identify the structural forces determining the long-term trend of hunger and the changes therein. An interesting issue in this context is the relationship between persistent hunger and famine. It has been observed, and rightly so, that while famine has of late become a recurrent feature in some parts of Africa, Bangladesh has successfully avoided a recurrence of famine since 1974, despite a couple of close calls. Does this success indicate an improvement in the underlying trend of persistent hunger? If not, how does one explain the avoidance of famine particularly in the years 1979 and 1984 when crop damage was comparable to that of

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1974? In trying to answer these questions, we hope to be able to shed some light not only on the question of what is happening to persistent hunger in Bangladesh, but also on whether the country is becoming increasingly or decreasingly susceptible to famine.

The second theme relates to the future - how is the future likely to be shaped by the policies being implemented at present. Of particular interest here is a decisive shift that has occured in the recent past in the orientation of food policy in particular and development strategy in general - away from government control and towards a greater reliance on market forces. We shall critically examine the implications of this shift in strategy vis-a-vis alternative policy options.

But first we begin by giving a brief account of the incidence of hunger in Bangladesh.

Magnitude and Distribution of Hunger in Bangladesh

The most common method of estimating the magnitude of hunger is to calculate the percentage of people with a calorie-deficient diet. Using this method and taking FAO recommendations as the standard of calorie requirement, a recent Nutrition Survey has found that 76 percent of the rural population of Bangladesh are unable to consume enough calories (INFS 1981/82). This survey was based on actual measurement of food consumed within a household. Another survey, using the same FAO norms but based on information on household expenditure on food, has estimated that 79 percent of the rural households did not have enough income in 1981 to afford a calorie-adequate diet (Table 1).

Since rural population constitutes over 90 percent of the total population, the above figures clearly indicate the

Table 1

Occupation-wise Distribution of Hunger in Rural Bangladesh: 1981

Occupation group	Percentage of households with inadequate food	Share of the group in total rural households (%)	Share of the group in inadequately rural households (%)
	(1)	(2)	(3)
Farming	72.5	40.7	37.2
Service	77.4	6.3	6.2
Business	60.9	16.6	12.7
Agricultural wage labour	96.6	25.6	31.3
Non-agricultural wage labour	95.5	9.3	11.2
Others	71.7	1.5	1.4
All	79.3	100.0	100.0

Notes and source: This table has been drawn from the first draft of an ongoing Ph.D. dissertion by M. Rahman (forthcoming). It is based on an expenditure survey of over 4000 rural households drawn from different parts of Bangladesh.

pervasiveness of hunger in Bangladesh. But it is by no means confined to rural areas only. An occupation-wise breakdown of per capita calorie intake in 1976/77 shows that the urban informal sector, which constitutes 60 percent of urban population, has a per capita calorie intake 15 % below the FAO norm (Table 2). Even the urban formal sector is not free from hunger, although per capita calorie intake of this group is above the FAO norm. As the Nutrition Survey of 1981/82 has found, the average calorie intake of industrial workers, who constitute a sizeable part of the urban formal sector, was only 74 % of requirement.

Before proceeding further, several limitations of these estimates need however be pointed out.

First, the estimates depend crucially on the norm of calorie requirement. The difficulties of determining this norm are well-known and the traditional approach (as embodied in the FAO recommendations) has come under severe criticism recently. But unfortunately the debate has not yet resolved any of the difficult issues and it seems that the use of a cut-off norm is bound to involve some amount of ambiguity.[1] Definitive estimates of hunger are thus difficult to provide, even leaving aside the problem of data reliability. Nevertheless, one may note that the qualitative conclusion regarding the severity of hunger in Bangladess is not substantially changed under alternative methodologies, such as taking a cut-off point at 80 percent of average requirement, a popular way of correcting for the critisism that the average norm does not allow for interpersonal and intra-personal variation in requirement. It may be seen from Table 2 that landless agricultural workers, small farmers and rural informal workers in the non-farm sector, who together constitute nearly 50 percent of rural population,

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1. A review of this debate can be found, inter alia, in Osmani (1984) and Srinivasan (1983).

Table 2

Foodgrains and Calorie Intake by Socio-economic Class: 1976/77

Class	Percent of population	Average income per month (Tk)	Calories (day/capita)	Percent of calories foodgrain
Landless farm workers	21	897	1,519	92
Small farmers	12	894	1,638	92
Medium farmers (mainly tenants)	12	1,119	1,764	91
Medium farmers (mainly owners)	13	1,285	1,956	90
Large farmers	10	1,659	2,150	89
Very large farmers	4	2,789	2,087	87
Rural informal non-farmers	11	850	1,482	91
Rural formal non-farmers	7	1,840	2,118	88
Urban informal	6	1,039	1,708	90
Urban formal	4	2,612	2,080	82
Average for all classes	100	1,281	1,782	90

Calorie requirement (day/capita): 2020

Source: Table 1, p.4 of World Bank (1985)

have an average calorie intake which is either below or close to the lower cut-off point (i.e. 80 per cent of average requirement).

Secondly, while the estimation of calorie-deficit implies measurement of hunger from the input side, it may be argued that measuring the outcome directly in terms of physical undernutrition may be more appropriate. Not only will this help to avoid the troublesome issue of specifying requirement; but conceptually the more important point is that the food problem, insofar as it is a problem, consists after all in the harm it does to the 'functioning' and 'capabilities' of a person; and the measures of undernutrition can be taken as a measure of such 'functioning'.[2] Unfortunately, however, the scientific status of the traditional (anthropometric) measures of undernutrition as an index of 'functioning' is no less in doubt today than the concept of calorie requirement itself.[3] Yet, for whatever they are worth, these traditional measures too confirm the pervasiveness of food problem in Bangladesh. Food deficit has a most immediate and visible impact on the nutritional status of children; and the Nutrition Survey of 1981/82 shows that over 60 percent of rural children in the under-five age group suffer from second or third degree malnutrition (INFS 1981/82).[4] Mortality is also very high in this age-group; it is estimated that nearly 50 percent of all mortality in Bangladesh occurs in this cohort. The severity of malnutrition (in terms of weight-for-height measures) subsides in the age-group of 5-14 years; but the

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2. For a welfare-theoretic justification of the 'capabilities' approach, see Senn (1985).

3. See Beaton (1983) for a critical view of excessive reliance on anthropometry as a measure of undernutrition.

4. A similar incidence of malnutrition is reported by UNICEF/FPREPD (1981).

prevalence of stunting persists among three-quarters of these children due to the cumulative effects of long-term nutritional deprivation.[5]

Thirdly, even as an input-based measure, calorie-deficit is an incomplete guide to the severity of food problem. At best, calorie-deficit indicates the 'quantity' of the food problem; but no less important is 'quality' i.e., the ability of the diets to provide all nutrients in the right amounts. It has been estimated that of all the occupational groups enumerated in Table 2, only the urban formal group, comprising a tiny 4 percent of the population of the country, consume diets which are adequate in both quantity and quality. This they are able to achieve by virtue of their relatively diversified diet which consists of both cereals and non-cereals in the right proportion. On the other hand, large farmers and other rich people in the rural areas who on the average consume adequate calories in terms of quantity tend to derive an excessive proportion of their calorie from cereals which are poor in micronutrients and minerals. As a result, their diet tends to be qualitatively inadequate (World Bank 1985). However, it has also been noted that given the dietary pattern in Bangladesh, those who consume adequate calories also in general consume adequate protein (Osmani 1982). Thus a focus on quantity

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5. It is of course well recognised that inadequate intake of calorie is not the only and sometimes not even the most important cause of physical undernutrition. Diseases related to environmental health conditions such as sanitation and the quality of drinking water are also a major determining factor of malnutrition in the developing countries. But it is also true that lack of food accentuates the effects of such disease-induced malnutrition. As a result, those with a poorer entitlement to food are more vulnerable to physical malnutrition. See World Bank (1985) for a review of studies showing positive association between malnutrition and economic status in Bangladesh.

serves at least to cover the two most important nutrients.[6]

One other aspect of the food problem, which is of great importance but cannot be covered in this paper, is the problem of intra-family distribution of food. There is some evidence of systematic bias against females in the distribution of food within the family (Chen et al. 1981). The effect of this bias is also reflected in the outcome i.e. in the relative nutritional status of males and females. The Nutrition Survey of 1981/82 has noted for example that both in the pre-school and school-age cohorts, female children suffer from a greater degree of chronic and acute malnutrition than the male children (INFS 1981/82). Limitation of space prevents us from exploring the socio-economic basis of this sex-bias in the distribution of food.

We shall however have a good deal more to say on another kind of distribution - the occupational distribution of hunger. One can see from Tables 1 and 2 that rural wage-labourers, both in farm and non-farm sectors, are the most severely deprived among all socio-economic groups. But food deprivation is not confined to these groups only; it is widely distributed among both wage-labourers and the self-employed, and similarly among both producers and non-producers of food.

The phenomenon of food deprivation thus encompasses different segments of the labour force who have very different modes of acquiring entitlement on food. As column 3 of Table 1 shows, just over one-third of all those who cannot afford an adequate diet in the rural areas comprises of direct producers of food i.e. the farmers. Another

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6. For a discussion of the issues and evidence related to the deficiency of other nutrients in Bangladesh, see World Bank (1985).

one-third, though being involved in the production of food as agricultural labourers, do not acquire food through the production process, but from the market. The other one-third, who are primarily engaged in the non-farm sector, also have to rely mainly on the market to realise their food entitlement. Thus market exchange plays a crucial role in determining the food entitlement of nearly two-thirds of the underfed people in the rural areas.

It may be noted that even the farmers among the underfed are not entirely independent of the market. It has been estimated that as much as 50 percent of the farmers have a net deficit even in a normal crop year (Ahmed 1981). They are perforce compelled to buy food from the market in the lean season. Part of the money to buy this food comes from wage labour which is known to account for almost half the family income of small farmers. Thus both the wage rate and the price of food turn out to be crucial market variables in determining the food entitlement of the farmers as well.

This simple analysis already reveals the great complexity of the problem of food entitlement in Bangladesh. Three rural groups - small farmers, wage-labourers and a large part of the non-farm sector - are severely afflicted by food deprivation, but each has a different acquisition problem. As a result, the structural forces as well as various policies and programmes operating in the economy may affect them differently through different channels. Indentification of these channels and their operation over time is of crucial importance in understanding the long-term process of persistent hunger, to which we now turn.

Trend of persistent hunger: The long-term process of Entitlement Contraction

The Statistics of Persistent Hunger

We may begin by looking at the aggregate picture of foodgrain production and its availability. It may be seen from Table 3 that between 1960/61 and 1983/84 total production of cereals expanded at the rate of 2.3 per cent, while population grew in the same period at the somewhat higher rate of 2.7 per cent. Per capita production has thus declined over time. However, when production is combined with imports (and adjusted for changes in government stocks), per capita availability is seen to be not much different in the early Eighties (if anything, slightly higher) compared to what it was two decades ago (Table 4).

Cereals of course give only a part of the picture, albeit by far the major part (around 90 per cent of total calorie intake at present). The other part, relating to non-cereal food crops, presents a particularly grim picture. While per capita availability of cereals has not changed much, taking the last two decades as a whole, per capita production and availability of the major non-cereal food crops (such as pulses, oilseeds, potato and sugar) has declined drastically over this period (Hossain 1985b). The result, as revealed by the Nutrition Surveys, is an overall decline in per capita calorie intake in the rural areas - from 2251 calories per day in 1962/64 to 1943 calories in 1981/82 (INFS 1981/82).

The trend for the overall period, however, gives a somewhat misleading picture of the race between food and mouth. The race was lost only during the years immediately following the War of Liberation in 1971 when production was seriously disrupted by the accumulated effect of political turmoil and a series of natural disasters. In order to get a

Table 3

Comparative Rates of Growth of Cereal Production and Population (percent per annum)

Period	Foodgrain	Population
1960/61 - 1983/84	2.3	2.7
1960/61 - 1969/70	3.7	3.1
1975/76 - 1983/84	3.0	2.4

Notes: 1) Cereal includes both rice and wheat
2) Rate of growth of foodgrain production refers to trend rate of growth

Source: Statistical Yearbook of Bangladesh various years.

Table 4

Production and Availability of Cereals (yearly average for different time periods)

Period	Production (million tons)	Availability (lbs per capita per day)
1960/61 - 1964/65	8.76	0.984
1965/66 - 1969/70	9.72	0.958
1972/72 - 1976/77	10.38	0.948
1977/78 - 1980/81	12.22	0.958
1981/82 - 1984/85	13.70	1.008

Source: MOF (1986); Tables A2.1 and A2.2

better appreciation of the underlying trend, it is therefore necessary to exclude these turbulent years and look separately at the Sixties and the period since mid-Seventies. This is done for cereals in Table 3, and it may be seen that the production of cereals has been able to keep ahead of population growth in both the sub-periods. Not just production, per capita availability too has been moving on a rising trend in the Seventies (Table 4). As for non-cereal food crops, one finds a somewhat mixed picture - with the per capita availability of pulses continuing to decline but that of potato and sugar either rising or stagnating (Hossain 1984a).

What then is the overall trend of per capita calorie availability in the recent subperiod i.e. during the period since the mid-seventies? On this there is a bit of conflicting evidence. According to two Nutrition Surveys, per capita calorie intake in rural Bangladesh has declined from 2094 calories per day in 1975/76 to 1943 calories in 1981/82 (INFS 1981/82). However, the picture is reversed if instead of using the Nutrition Survey of 1975/76 one uses the Household Expenditure survey of 1976/77 as the base, which shows rural per capita calorie intake to be only 1768 calories per day (World Bank 1985, Table 1). There is of course a problem of comparability between the two kinds of surveys; [7] yet the main reason behind the difference between the figures for 1975/76 and 1976/77 would appear to lie in random fluctuations in agricultural production - 1975/76 was a year of bumper crop, while 1976/77 was a below average year when viewed against the overall trend. If, as a rough compromise, one takes the average of the estimates for the

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7. The Household Expenditure Surveys are much bigger in scale and are hence subject to a lower sampling error. But the Nutrition Surveys probably contain less of measurement errors, as they estimate calorie intake from direct measurment of food consumed within a household, whereas the Expenditure Surveys rely on memory recall by the respondents.

two years as representing the picture in the mid-seventies, one finds very little change in per capita calorie intake between then (1931 calories) and 1981/82 (1943 calories).

When this finding is combined with the evidence presented earlier on the rising trend of per capita cereal availability and mixed peformance of non-cereal food crops, one feels inclined to take the view that per capita calorie availability has not probably declined in the post-Liberation period. Whether it has improved, one cannot say for sure given available data.

If these statistics of aggregate availability appear a bit shaky, they are at least on firmer grounds than those on the long-term trend of hunger. The latter requires quite detailed information on the distribution of food intake, which is available only for a few points in time. Analysis of changes in hunger and poverty has usually involved comparison between pairs of some of these points in time. One may of course try to deduce the long-term trend by piecing together these point-to-point comparisons. But there are two difficulties here that one must guard against.

First, the data sets of different studies are not always comparable. For instance, for the Sixties and upto the mid-Seventies one could use nationally representative large-scale surveys of household income and expenditure. The last such survey for which results are available in sufficient details relates to 1976/77. For the period since then, one has to rely on much smaller surveys such as the Nutrition Survey of 1981/82 or some village survey of which there are plenty but most of which are too small to represent the national picture (we have used one of the largest of such surveys in constructing Table 1). The second difficulty is that the various point-to-point comparisons often use different methodologies, including different requirement norms. As a consequence of such discrepancies in

data sets as well as methodology, the numbers thrown up by different studies are not often comparable.

However, one can still make some progress by piecing together information on the direction in which the level of hunger has changed. In other words, we are assuming that the findings about the **direction** of change are much more robust than the **numbers** themselves. As a result, if hunger is seen to have increased between time periods A and B according to one study, and increased again between B and C according to another, we hope to be able to say that hunger has increased between A and C, although we shall not know by how much.

Following this procedure, it is possible to conclude that the long-term trend of hunger in Bangladesh is one of persistent deterioration. According to a comparative study of the time periods 1963/64 and 1973/74, the magnitude of food deprivation (as measured by the Sen index of poverty) increased over time in rural Bangladesh (Osmani 1982). A subsequent study on income distribution showed that rural inequality had worsened between 1973/74 and 1976/77 while per capita income had also declined a little, indicating that the poorer segments faced an absolute decline in their living standards (Osmani and Rahman 1984). In fact, taking the longer period from 1963/64 to 1976/77, the same study also noted that while per capita income in real terms actually declined over this period, the richest 10 to 15 percent of the population enjoyed an increase in their absolute real income. It implies that the poorest 85 percent of the population not only bore the entire brunt of the overall reduction of per capita income, they were also forced into a perverse redistribution of income towards the rich. Although this study did not go on to estimate the magnitude of hunger, it is easy to infer from the above findings that absolute hunger increased over this period. One other study which did go into this estimation confirms this inference (Ahmad and Hossain 1985).

The picture since mid-seventies is rather sketchy, mainly because results of large-scale household surveys are not available in sufficient details since then. However, as our subsequent analysis of structural changes will show, all the pointers are strongly towards further deterioration. For the moment we may note that two nutrition surveys in 1975/76 and 1981/82 found the food consumption of rural poor to have declined over this period (INFS 1975/76 and INFS 1981/82). Although these surveys did not find a corresponding decline in the physical nutritional status of the poor, yet another Nutritional Survey of 1981 (UNICEF/FREPD 1981) shows marked deterioration in the nutritional status of children when compared with the findings of INFS (1975/76). Finally, the Nutrition Survey of 1981/82 found that when compared with the findings of an earlier Survey of comparable methodology (USDH 1962-66), the proportion of rural households with inadequate food seemed to have increased substantially (from 59 to 76 percent) from the early sixties to the early eighties.

The forces of entitlement contraction

The preceding evidence of course relates to overall hunger and does not say anything about how the different occupational groups have been doing over time. There is unfortunately no concrete information on the trend of occupational or any other distribution of hunger. We shall however try to deduce the picture by examining the structural forces operating on the economic environment facing each of the major food-deprived groups (viz. the small farmers, rural wage-labourers and the poorer segment of the rural non-farm sector).

In order to choose an appropriate analytical framework for such a structural analysis, it is first necessary to have an understanding of the relationship between production and entitlement of food. One obvious linkage between

production and entitlement is of course through the price of food and hence the exchange entitlement of those who rely heavily on market purchase to meet their food requirement. But there are also other, no less important, linkages whose significance emanates from the fact that food occupies a pre-eminent position in the production structure of Bangladesh agriculture. Production of food crops (cereals and non-cereals together) accounted for over 90 per cent of the total value of crop production in the 80's, rising from about 83 per cent in the middle of this century. The share of cereals (rice and wheat) alone has risen from 73 per cert to 85 per cent during the same period (Hossain 1985b).

Given this overwhelming importance of food in the production structure, it is natural that food production should have a decisive impact on the level of economic activity in general and hence on the incomes and entitlements of almost all groups of people.

In the first place, food production has an immediate relevance for the entitlement of farmers who try to acquire as much food as possible from the production process itself i.e. by growing food on their own land.

Secondly, because of its pre-eminence, food production exerts a preponderant influence on the demand for wage labour in agriculture. The consequent impacts on wage and employment are crucial factors in determining the entitlement of agricultural wage-labourers.

The same pre-eminence of food also ensures that, through the linkages between farm and non-farm sectors, the ripples of its production effect will spread strongly to the non-farm sector as well. One such linkage is the trading in food crops. A recent evaluation of a credit programme for the poor in the non-far sector has shown that trading is the most popular non-farm activity among the poor and that loans

for trading in crops and vegetables account for nearly half the loans taken for trading purposes (Hossain 1984b). Obviously, then, food production has a lot to do with the trading income of a lot of non-farm poor. But perhaps the most significant linkage operates on the demand side - the line of causation running from food production to farm income to the demand for non-farm products. At the current low levels of income, a huge proportion of a rural household's budget is spent on basic food items, produced mostly in the farm sector, leaving very little room for non-farm products. For instance, a recent survey of rural expenditure pattern has found that an aveage rural household spends around 80 per cent of its budget on food alone (Osmani and Deb 1984). Of course some of the food items are produced or processed in the rural industrial sector; but even the combined food and non-food products of rural industry account for only 13 per cent of the average budget. While the total size of the market is thus severely limited by existing levels of income, it can however expand quite rapidly with the rise in rural income, since the income-elasticity of demand for most of these products happen to lie above or close to unity (Osmani and Deb 1984). The same is true also about most kinds of non-farm products in general (Hossain 1984b). These estimates of budget-shares and elasticities clearly indicate that the growth of demand for non-farm products depends crucially on the growth in rural income. But the bulk of rural income is generated by the production, processing and trading of agricultural products in general and food crops in particular; hence the importance of food production for the expansion of non-farm sector, and for the incomes and entitlements of those engaged in this sector.

There is thus ample reason to believe that all three major rural groups afflicted by severe hunger have much at stake in the growth of food production. This point is perhaps worth emphasizing a little. Although production and

entitlement are conceptually distinct categories and it has been rightly demonstrated that changes in one do not necessarily correlate with changes in the other (Sen 1981), the causal nexus between them seems strong enough in rural Bangladesh to entail a close positive association between the two. This closeness of association derives simply from the overwhelming importance of foodcrops in agriculture and from the importance of agriculture in turn in the rural economy of Bangladesh. It is of course possible that even in the case of Bangladesh, the nexus may not appear to be a strong one in the event of a sudden collapse of entitlement, as has indeed been shown to have been the case during the famine of 1974 (Sen 1981). But as far as the long-term evolution of entitlement is concerned, development on the front of food production can certainly be expected to play a decisive role in an economy with a food-dominated production structure.

Yet as we have noted, the growth of food production, despite surpassing the rate of population growth in the post-Liberation era, does not seem to have been able to reduce the incidence of hunger. An understanding of the reason for this discordance between growth and hunger is crucial for identifying the structural forces of persistent hunger.

One can think of three alternative hypotheses to explain this observed discordance: (a) hunger expanded "regardless of" growth, because the benefits of growth did not reach the poor, (b) hunger increased "because of" growth, since the very process of growth created or strengthened the forces of hunger, and (c) hunger expanded "inspite of" growth, because growth was too inadequate to overcome some underlying force of hunger.

We shall argue that the particular empirical reality of Bangladesh suggests the third hypothesis to be the most plausible one.

The first hypothesis would be valid when growth takes place in a lop-sided manner, confining all the productivity gains to the lands of the large farmers and bypassing the smaller ones. This is indeed believed to be a characteristic of the so-called 'Green Revolution' in many parts of the world. It is well known that the seed-fertilizer-water technology of modern agriculture raises the working capital requirement well beyond the level obtaining in traditional agriculture. Unless special measures are taken to meet this enhanced requirement for working capital the small farmers are likely to remain outside the orbit of new technology, and the large farmers will reap all the gains. While this explanation is internally consistent,[8] it does not square with the actual observations on the pattern of growth in Bangladesh. Numerous field surveys have shown that the diffusion of modern technology has not remained disproportionately confined to the large farmers. For example, the results of a fairly large-scale survey of this kind are shown in table 5.[9] The small farmers are seen to have participated equally in the adoption of modern seed-fertilizer-water technology, if anything slightly more than in proportion to their share of land. This pattern, we believe, owes itself mainly to the policy of heavy subsidisation of agricultural inputs which the Government has pursued until recently, thus enabling the small farmers

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8. But note that the argument, as presented, is not quite complete. If productivity gains are concentrated on the lands of the larger farmers, it would only explain why relative inequality will increase over time; it does not explain why absolute hunger should deteriorate for those not blessed with improved productivity. It can nevertheless be shown that absolute hunger will increase, by bringing in the notion of an underlying immiserising force which we discuss in the context of the third hypothesis.

9. Evidence from several other studies are discussed in Osmani and Rahman (1984).

Table 5

Shares of Different Farm-size Groups in the Consumption of Modern Inputs: 1981/82

Size of farm acre)	Percentage of farms	Percentage of land operated	Share of fertilizer (%)	Share of irrigated land (%)	Share institutional credit (%)
Up to 1.00	31.5	12.6	15.6	16.7	3.2
1.01-2.50	32.8	22.0	23.2	25.1	21.9
2.51-5.00	21.9	27.5	28.8	27.9	35.7
Above 5.00	13.8	37.9	32.4	30.2	39.2

Source: Abdullah (1985)

to overcome the working capital constraint.[10]

Turning now to the second hypothesis, one can think of several ways in which hunger can expand 'because of' growth i.e. through the process of growth itself. For instance, growth-augmenting technology may be a labour-displacing one, as it is the case when mechanisation spreads along with the seed-fertilizer-water technology. By reducing demand for labour, such growth can indeed accentuate the hunger of agricultural labourers. Even the small farmers can be harmed. This will happen if the profitability of new

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10. The question of subsidies and credit constraint are discussed further in the final section of the paper.

technology induces the landowners to bring back land from the share-croppers for cultivation under their own management. There are also other possibilities. While the share-croppers receive only half of the increased yield, they typically have to bear the entire burden of the increased cost of cultivation. This may conceivably lead to a situation where the net return to share-croppers' labour actually goes down with the adoption of new technology.

While all these are theoretical possibilities and some of these tendencies have actually been observed in different parts of the world where Green Revolution has occurred, they do not seem to have a great deal of empirical relevance for Bangladesh agriculture. In the first place, mechanisation of Bangladesh agriculture is still of a very miniscule order of magnitude - less than one per cent of farms use tractors or power tillers, according to the Agricultural Census of 1977. On the eviction of share-croppers, it is well-known that this does happen at times, but there is no quantitative estimate of its degree of occurence. However, from what is known about the size of tenancy market and its changes over time, it does not appear that eviction could have been a quantitatively significant phenomenon; according to the agricultural censuses of 1960 and 1977, the proportion of tenant farmers among all farm households rose from 39 per cent to 42 per cent during the inter-censal period and the proportion of total land under tenancy fell marginally from 18 per cent to 17 per cent during the same period. Finally, it is also well-known that the share-croppers in Bangladesh do typically incur all the increased cost of new technology; yet empirical estimates show that net return to their labour from the cultivation of HYV crops is considerably higher than what the traditional crops typically offer.[11]

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11. It has been estimated for instance that whereas the return to share-cropper's labour in the cultivation of traditional crops is often less than the agricultural wage rate, in the case of high-yielding varieties it is clearly higher, although not as much as in the case of owner-farmers. See the discussion in Hossain (1981), p.77.

Thus none of the channels through which the process of growth can plausibly lead to a squeeze of the entitlement of the poor seems to fit the empirical reality of Bangladesh.[12]

We are thus left with the hypothesis of 'inadequate growth' to explain the observed discordance between growth and hunger. Before going into the empirics of this explanation, let us first spell out the logic of the hypothesis. The essence of the argument is that the combination of private property relations and intense demographic pressure obtaining in rural Bangladesh is constantly generating an 'immiserising' force which growth will have to overcome before it can begin to reduce the incidence of hunger. The way this force works can be seen most simply by assuming a 'no growth' scenario. It is also convenient to begin the story with the case of small farmers.

A high rate of population growth from an already high base of population density combines with the Muslim Law of inheritance to lead to a progressive reduction in the

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12. There is one other channel which is sometimes mentioned, but not with enough theoretical justification in our view. It is suggested that by increasing the income of large farmers, Green Revolution enhances their ability to buy off the land of marginal farmers, thus accentuating the process of rural landlessness. This argument ignores the point that since most land sales by the poor are in the nature of 'distress sale' intended to meet some given cash needs, they will tend to sell less if the price of land goes up (because the same cash needs can now be met by selling a smaller piece of land). Therefore, higher income of the rural rich, by raising the demand price of land, should if anything reduce the volume of distress sales, other things remaining the same. If landlessness is nevertheless seen to have gone up, as it indeed has in Bangladesh, then obviously the other things did not remain the same, and this is where the analysis should turn. We take up this analysis in the context of the third hypothesis.

average size of farm over the years. It has indeed declined from 3.5 acres in 1960 to 2.4 acres in 1982. With reduced landholding, the small and marginal farmers can only maintain their standard of living if corresponding gains can be made in land productivity. In the absence of such productivity growth, demographic pressure leads inevitably to a continual increase in the number of economically unviable holdings. The resulting marginalisation of the peasantry is the beginning of the process of overall impoverishment. Under constant economic pressure, the marginalised peasantry eventually becomes alienated from land and swells the rank of landless labourers whose own stock has also been growing at a rapid pace due to the same demographic pressure. While the supply of wage labour is thus being doubly augmented, demand for labour cannot obviously rise in the absence of productivity growth. The consequent decline in real wage and employment leads to persistent contraction in the entitlement of the wage-labour class. Many of them pour into the non-farm sector in search of alternative employment. But this only adds to the misery of the non-farm population whose real income cannot expand (because the demand for their products do not expand) in the absence of agricultural growth.

This tendency towards pervasive impoverishment can be overcome if the growth in productivity is strong enough to arrest the marginalisation of the peasantry, to raise the demand for wage labour ahead of expanding supply and to strengthen the demand for non-farm products. It is thus apparent how growth can occur and hunger can spread at the same time because growth is too inadequate to outweigh the underlying force of immiserisation.[13]

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13. This argument assumes that the existing system of private property relations and the associated system of entitlements remain intact. Under a more egalitarian system of ownership and entitlements, the 'warranted' rate of growth i.e. the rate of growth required to neutralise the underlying immiserising force would be lower, and could conceivably be even lower than the observed rate of growth.

Turning now to the actual record of growth, it has to be first noted that given very limited possibility of augmenting the size of cultivable land, growth in Bangladesh agriculture must occur mainly through the diffusion of yield-augmenting technology. It is of course true that the use of high-yielding-variety (HYV) seeds has expanded rapidly in the seventies starting from a meagre 2.5% of total cereal acreage in 1969/70; but even by 1983/84, nearly three-quarters of all cereal acreage remained under the low-yielding traditional seeds. Irrigation facilities, which are crucial for the adoption of HYVs, has also expanded rapidly; yet by 1982/83, four-fifths of all cultivated land remained outside the ambit of controlled irrigation. Chemical fertilizers, which are most productive when used with HYVs but can also improve the yield of traditional seeds, has achieved the fastest rate of expansion; yet field surveys indicate that over 40 per cent of all cereal lands are not treated with fertilizer at all. Even when fertilized is applied, the rate of application is well below the recommended dose. Morever, almost half the fertilizer is applied on rain-fed land where its return is both low and insecure.[14]

Thus although modern technology has made a significant inroad and the small farmers too seem to have participated in this process, Bangladesh agriculture still remains dominated by the moribund technology of the yester years. It is in the light of this inadequate technological diffusion, and hence inadequate growth, that we shall now analyse the available empirical evidence on the structural forces operating on the entitlement of the rural poor.

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14. For more detailed information on the diffusion of modern technology in Bangladesh agriculture, see Hossain (1984a) and Osmani and Quasem (1985), chapter II.

We shall begin with the situation of the small farmers. Table 6 shows the change in the distribution of landholding that has taken place over the last two decades. It shows how demographic forces have exerted a downward pressure on the overall distribution of landholding, reducing the proportion of large farms and increasing the proportion of smaller ones. This downward pressure has pushed many small farms out of the farming occupation altogether by making their subdivided plot too small to be economic. This is evidenced by the fact that the total number of farms increased at the rate of only 1.3 per cent per annum, while population increased at the rate of 2.7 per cent. Assuming that the number of households grew at the same rate as population, the number of farms should also have grown at the same rate if all the farms created through sub-division remained in business.[15] This obviously did not happen; the number of farms grew only at half the rate, which means a great many farms were thrown out of business, the small plots of land being sold or leased out to the larger farmers. Whatever technological improvement has occurred has not obviously been able to prevent many small farms from becoming uneconomic. The resulting process of land alienation has been confirmed by a number of field surveys.[16] A general finding of these studies is that the sale of land occurs predominantly at the bottom end of the scale and it is the medium farmers who buy up most of the land on offer. Supportive evidence of this phenomenon at the national level is offered by Table 6 which shows that the medium farmers (2.5 to 7.5 acres) hold an increasing share of land, despite

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15. This argument is premised on the prevailing law of inheritance which entitles every son (and to a lesser extent every daughter) to a piece of father's land.

16. The relevant evidence has been collated by Khan (1976) and Osmani and Rahman (1984), among others.

Table 6

Changes in the Distribution of Landholdings 1960 - 1982

Size of farm (acres)	Percentage of farms		Percentage share of holding	
	1960	1982	1960	1982
Up to 1.00	24.3	34.0	3.2	7.1
1.01 - 2.50	27.3	33.5	12.9	22.3
2.51 - 7.50	37.7	27.6	45.7	47.0
Above 7.50	10.7	4.9	38.1	23.6
All farms	100.0	100.0	100.0	100.0

Number of farms:

1960 : 6139 thousand
1982 : 8124 thousand

Average size of farm:

1960 : 3.5 acres
1982 : 2.4 acres

Source: Compiled from Agriculture Census of 1960 and the Pilot Agriculture Census of 1982.

going down in numbers both in relative and absolute terms.[17]

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17. Note that the small farmers' share of total holdings has also gone up, but this is to be expected because, unlike in the case of medium farmers, the proportion of small farmers has gone up too. It it true that their share of land has gone up at a faster rate than their share of farm households; but it does not mean that the small farmers are actually gaining land! All it means is probably that those erstwhile small farmers who have now become landless and do not therefore figure in Table 6 under the column of the year 1982, had a smaller average size of land than what the new entrants to the category of small farmers have brought from their erstwhile status of medium/large farmers through the process of land subdivision.

Table 7

Transition Towards Impoverishment Through Generations in Rural Bangladesh

Occupation of Predecessors	Owner Farmers	Share-Croppers	Landless Labourers	Beggars
Grandfather-farmer Father-farmer	95.1	84.8	60.2	59.8
Grandfather-farmer Farmer-labourer	0.4	1.6	12.7	9.9
Grandfather-labourer Father-farmer	0.4	2.5	1.5	0.9
Grandfather-labourer Father-labourer	0.3	2.2	16.6	12.3
Others	3.8	8.9	9.0	17.1
All	100.0	100.0	100.0	100.0

Source: Quoted from Muqtada and Alam (1985). The findings are based on IRDP Benchmark Survey of Rural Bangladesh, 1973/74.

The long-term effect of this process of land transfer is reflected in generational transition from one occupation group to another. Table 7, which shows the occupation of predecessors of a cross-section of rural population, tells the story poignantly. Nearly 75 per cent of the landless labourers are seen to have come from families which as recently as in their father's or grandfather's time had farming as the principal occupation.

By all accounts, the process of land transfer has continued unabated leading to an increase in the proportion of landless rural people. Combining information from various

censuses and surverys, Hossain (1985) has estimated that between 1960 and 1982 the number of landless households has grown much faster than both rural household in general and farm households in particular. It is however worth pointing out that such estimates based on census of rural areas at two points in time are likely to underestimate the growth in landlessness, since many a landless choose over time to migrate to the urban areas rather than stay in the village.

Despite such underestimation, Hossain found that the proportion of completely landless households increased from 33% in 1960 to 37% in 1982, and the proportion of functionally landless households (with less than 0.5 acre of land) rose from 42% to 47%.

Alienation from land is of course the last desperate act of an impoverished farmer who likes to cling to his land for as long as he can. Grewing landlessness thus clearly implies growing impoverishment of the peasantry. As we have argued, the principal reason for this is the slow rate of technological improvement and the resulting slow growth in production.

The long-term evolution in the entitlement of wage-labourers can also be explained in terms of the same set of forces. It is possible to argue that inadequate growth of production has adversely affected their wage and employment, by augmenting an already existing imbalance betwen supply and demand for wage labour. How this imbalance has developed can be seen most clearly by tracing the effect of slow growth on both supply and demand sides of the labour market and relating the growth of supply and demand with the rate of population growth as a common reference for comparison.

On the supply side, slow growth has augmented the natural increase in labour force by helping to create a

marginalised peasantry who would seek employment in the labour market not only when they became landless, but even as they remained peasants. As the Pilot Agricultural Census of 1982 shows, 33 per cent of all farm households and 60 per cent of all households with less than 1.0 acre of land depend upon wage labour in agriculture as their main source of income. Because of this forced augmentation of the labour market, the supply of wage labour has naturally grown faster than the rate of population growth.

On the other hand, there is reason to believe that the demand for wage labour has grown at a slower rate than that of population growth. Once again inadequate growth of food production has played its part. While production itself has grown at about the same rate as rural labour force (around 3%), employment opportunities have grown a lot slower, since the employment elasticity of productivity growth is known to be substantially less than unity in Bangladesh agriculture.[18] Morever, a part of the increased employment must have been taken up by the hitherto underemployed family labour. The residual increase in the demand for wage labour must therefore have been less than the growth of employment opportunities and hence less than the rate of population growth.

Since demand for wage-labour is thus seen to have grown slower than population, while supply is seen to have grown faster, there obviously developed a growing imbalance between supply and demand for labour. The resulting depression of real wages of agricultural labourers has been well documented for the period of Sixties and early Seventies (Khan 1976). The picture since mid-Seventies is given in Table 8. Although there is no clear trend for this

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18. Clay and Khan (1977) conclude after a careful review of available evidence that the yield elasticity of employment would vary between 0.2 and 0.5 for various types of yield-increasing operations, including the shift from traditional varieties to the HYVs.

Table 8

Rice-exchange-rate of agricultural wages in Bangladesh (1969/70 - 1982/83)

Year	Index of nominal wage	Index of retail price of rice	Index of rice-exchange rate of wages
1969/70	100	100	100
1976/77	301	293	103
1977/78	317	360	88
1978/79	366	407	90
1979/80	421	548	77
1980/81	473	471	100
1981/82	520	583	89
1982/83	576	628	92

Source: Constructed from Tables 9.5, 9.7 and 9.10 of World Bank (1984)

period, the rice-exchange rate of wages is seen to have remained generally below the pre-Liberation level. Of course to the extent that rural labour market does not completely clear, as is generally believed to be the case, the fall in real wage may not however fully reflect the magnitude of excess supply. In that case a part of excess supply will be resolved through employment rationing, which will imply a reduction in per capita employment. It is difficult to tell exactly in what proportion the excess supply has in fact been resolved through the two channels. But it does not really matter for the present analysis, since whichever channel it takes, the effect is to contract the entitlement of wage-labourers.

Turning now to the non-farm sector of the rural population, we find precious little that can be presented by way of concrete evidence on the long-term trend of their entitlement. Some inference however can still be drawn by putting together indirect evidence of various kinds.

The first point to note is the growing size of the non-farm sector. According to census data, labour force engaged primarily in non-farm activities has expanded from 19 per cent in 1974 to 39 per cent in 1981.[19] The rise in the relative share of non-farm labour force is not surprising in view of the evidence presented earlier that employment opportunities in the farm sector have grown more slowly than rural labour force. Unable to find sustained employment in the farm sector, many among the landless people must have turned to the non-farm sector. From the findings of some recent surveys of occupational distribution in rural Bangladesh, it can be roughly estimated that not less than 60 per cent of the functionally landless people (owning less than 0.5 acre of land) are primarily engaged in the non-farm sector, while no more than one-third have agricultural wage labour as their primary occupation.[20]

Does this preponderance of non-farm activities among the poor indicate a dynamism in the non-farm sector which attracts the labour force, or does it merely imply that this sector acts as a residual absorber of those impoverished agricultural workers who cannot make a living out of agriculture any more? The answer to this question will provide at least an indirect evidence on what has been happening to the income and entitlement of the non-farm population.

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19. Several other studies also confirm that the present size of non-farm labour force would be about 40-45 per cent of the total. See BIDS (1981), Hossain (1984b).

20. Findings of these surveys are discussed in Hossain (1984b, 1984c).

Unfortunately, it is not possible to give a very definitive answer to this question. But there is some evidence to suggest that the returns from non-farm activities, specially where the poor are mainly involved, are simply not attractive enough to divert labour away from agriculture. For instance, a recent study has found that nearly one-third of the rural industrial workforce, usually the poorer ones, are engaged in industries where return to family labour is lower than the agricultural wage rate. Average labour productivity in rural industries in general is of course higher than agricultural wages. But productivity is found to depend mostly on capital-intensity; and the poorer among the workforce cannot afford to undertake the relatively high-yielding capital-intensive activities. As a result, the landless and near landless families are found to be engaged mostly in the low-yielding activities (Hossain 1984). This is not just a characteristic of rural industries alone, but of non-farm activities in general. For instance, Muqtada and Alam (1983) have found in a survey of rural labour market that income from non-farm activities is positively correlated with the size of land owned. Obviously, those with more land have greater access to resources in general and hence can afford to take up those activities which yield higher return through the use of more capital. The landless and the near-landless can use little more than their physical labour and when they do that, return is usually lower than agricultural wage. For instance, in 10 out of 14 major cottage industries, wage-rate for hired labour was found to be less than the wage-rate for unskilled labour in agriculture (Hossain 1984d).

Non-farm activites do not therefore seem to provide a haven where the poor in the farm sector would have found a

more rewarding employment.[21] One cannot thus explain the growth of non-farm sector as a 'pull-effect' of its attractiveness vis-a-vis the farm sector.[22] The explanation must rather lie in the 'push-effect' of entitlement contraction that has occurred in the farm sector. The most probable consequence of this scenerio is an increasing degree of work and income-sharing in the non-farm sector, hence a contraction in per capita entitlement, specially among the poorer group.

The preceding analysis thus suggests that all three rural groups with severe problems of hunger have probably been experiencing a secular contraction in their entitlement to food. As is to be expected, their fates are closely related to each other. Impoverishment of the small farmers has a spill-over effect on the income of agricultural wage labourers. These two classes in turn tend to drag the non-farm poor along with them, when they are themselves sliding down the slippery road to hunger. It is therefore

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21. This is not to deny that more rewarding employment can be found in the non-farm sector if opportunities are created. The crucial factor is to help the poor with credit so that they can avail of the opportunities which remain otherwise open to the richer stratum only. The celebrated Grameen Bank experiment in Bangladesh has shown that a well-executed credit programme for the poor in the non-farm sector can indeed raise their earnings much above the agricultural wage rate, specially in trading and livestock activities and some types of cottage industries (Hossain 1984b). But this experiment is very recent and by now it has covered only about 3 per cent of all villages in the country. Its effects are therefore unlikely to have been significant enough to invalidate the broad historical generalisation we have made about the relative unattractiveness of the non-farm sector from the point of view of the poor.

22. This argument is based on the premise that labour market does not clear in the farm sector and excess supply is taken care of by some form of employment rationing, so that many among the farm-sector labour force come over to the non-farm sector despite the prospect of a lower rate of return on their labour.

not surprising that the same set of forces can explain their common predicament. As argued before, these forces consist of an underlying immiserising tendency emanating from intense demographic pressure and private property relations, a tendency that can in theory be neutralised by strong enough growth (in food production in particular and agricultural production in general); but what growth has actually occurred has not obviously been strong enough to neutralise this tendency. It is important to realise that a rate of growth that is arithmetically higher than the rate of population growth may still be qualitatively weaker than the immiserising force of demographic pressure.

This brings us to the fundamental question of why has production not been able to grow any faster. The reason certainly does not lie in the limiting constraint of known technology. It has been estimated, for instance, that only about a third of the suitable land is currently being planted with HYV crops, and not more than half of the potentially irrigable land is being actually irrigated. Capacity utilisation of the existing irrigation facility is also well below the true potential. Technologically feasible maximal growth rate is therefore considerably higher than what has been achieved so far.[23]

However, a more rapid diffusion of technology would have called for increased investment in water control in the rainy season and irrigation in the dry season. Investment would thus appear to have been the limiting factor. The reason however does not lie in the lack of investible resources, for there are reasons to believe that both private and public investment in agriculture have remained well below the potential. A number of field surveys have

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23. For further details on the gap between potential and realised technological achievement, see Osmani and Quasem (1985), Chapter II.

shown for instance that the large farmers devote only a small proportion of their surplus (over essential consumption) to agricultural investment.[24] Also a rather negligible proportion of this surplus is siphoned off by the State Machinery through its fiscal system (Hossain et al. 1985), which is a crucial factor in limiting the size of public investment. Even within the limits of total resources available for public investment it cannot be said that agriculture has received resources commensurate with its importance. The importance of agriculture does not consist simply in the fact that it generates more than half the national income; we have demonstrated that the entitlement of all the rural poor depend directly or indirectly on the progress of agricultural production in general and food production in particular. Yet agriculture has historically received no more than a third of public investment funds; and the share is showing an ominously declining trend in the recent years.

Why has the bulk of private surplus shied away from agricutural investment, why has so little of the surplus been siphoned into public investment and why has resource allocation in the public sector failed to give agriculture its due, are some of the crucial questions that must be answered in order to understand why food production has remained well below the technological frontier and thus failed to make a dent into the problem of persistent hunger. This enquiry would however lead to all the complex issues of the political economy of underdevelopment in Bangladesh, a task that cannot obviously be attempted, let alone be

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24. Rahman (1979) reports from a field survey that the large farmers devote only 15-20 per cent of their savings to agricultural investment. Yet another survey found the ratio to vary from 10-16 per cent (CSS 1980). Note that these figures are expressed as proportions of savings; as proportions of surplus (income minus essential consumption), the figures would be even lower.

accomplished, in this short paper. The limited objective of this part of the paper was merely to demonstrate that lack of growth rather than the nature of growth has historically been responsible for persistent contraction of food entitlement in rural Bangladesh. How the future is likely to emerge in view of recent policy changes is the subject matter for the final part of the paper. But before that, we turn briefly to the issue of famines and their relationship, if any, with the trend of persistent hunger.

Persistent Hunger vis-a-vis Famine

The grip of persistent hunger may be tightening in rural Bangladesh, but at least there has been no famine since 1974. There were however famine scares on two occasions - once in 1979 and again in 1984. On both occasions the scare arose from genuine enough reasons. In 1979 successive crops were damaged by severe drought. Actual loss was less than feared, but the crop was still down by 4.8 per cent from the previous year. More significantly, per capita systemic availability (production plus imports) was in fact lower than in the famine year of 1974. In 1984, there were several rounds of severe flood causing extensive crop damage. In the event, production was only one per cent less than in the previous year; but the important point is that the floods were even more severe than those of 1974 and production declined, while in 1974 production had actually risen despite the flood.

Inspite of all this and inspite of the fact that according to our analysis, endemic hunger has worsened over time, famine did not occur in either year. This observation raises a number of interesting issues: Does it imply that just as aggregate food availability has no necessary correlation with the occurence of famine, so the secular contraction of food entitlement does not imply greater

susceptibility to catastrophic breakdown in entitlement? Or does it raise doubt about the thesis of worsening hunger itself? Or does it merely mean that the authorities have learnt some secret trick of averting famine, which they did not know in 1974? We shall try to answer these questions by comparing the situations obtaining in each of the three years 1974, 1979 and 1984.[25]

As several analyses of the 1974 famine has shown, the most vulnerable groups are those who sell their labour for wage and buy food from the market (Alamgir 1980, Sen 1981). What happens to their employment and to the rice-exchange-equivalent of their wage are the two crucial variables that determine whether there is going to be a famine or not.

Loss of employment due to flood clearly played its part in the 1974 famine. Specially significant was the damage to jute crop whose production declined by a massive 42 per cent. Jute is one of the most labour-intensive crops of Bangladesh agriculture and wage income from its production provides the principal cushion for surviving through the lean season of July-October in the jute-growing areas. Loss of this cushion was no doubt a crucial factor in precipitating the famine that struck in the lean season.[26]

In contrast, the 1979 jute output suffered a relatively modest decline of only 8 per cent. But one must set against this the fact that foodgrain production in this year fell by

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25. The comparative analysis for the years 1974 and 1979 draws heavily from Ahmad (1985). The chief source of data for 1984 is World Bank (1985a). For 1974, heavy use has also been made of the information and analyses contained in Sobhan (1979), Alamgir (1980), Sen (1981).

26. It is significant that two of the three worst famine-hit districts (viz. Mymemsingh and Rangpur) are also the two most important jute-growing areas of Bangladesh.

4.8 per cent due to severe drought, whereas 1974 saw an increase in output. As a result, loss of employment in foodgrain sector must have been much more extensive in 1979. In view of the fact that foodgrain acreage is more than twelve times that of jute (in 1979), it is not altogether improbable that overall loss of employment was no less severe in 1979 compared to 1974, although it is difficult to be very precise about this.

In 1984, the damage to jute crop (18% decline) was much more extensive than in 1979, thought not quite as much as in 1974. On the foodgrain front, however, output declined by about one per cent, as against an increase in 1974. Morever, as in 1974, there was extensive innudation of the acreage devoted to the winter crop whose output becomes available in the following year but whose employment effects are felt here and now.

Thus, on the whole, employment does not seem to have been the crucial difference in the three years in question. The difference in fact lies in the contrasting movements in the purchasing power of labour. In the crucial famine months (August-November) of 1974, the rice-exchange rate of agricultural wage fell by almost 40 per cent compared to the same period in the preceding year, as against a 30 per cent decline in 1979. But more importantly, while the exchange rate continuously fell during the famine period of 1974, it improved steadily throughout August-to-November of 1979. Finally, the exchange-rate in this period remained 50 per cent higher in 1979 compared to 1974.

The key to this difference is the movement in the price of rice. While the price of rice in the famine months of 1974 was about 250% higher compared to the same period of the preceding year, the corresponding increase was only 54% in 1979 and a meagre 11% in 1984. Morever, while price kept on rising throughout the famine period of 1974 at the rate

of 20% a month, it had a declining trend during the corresponding lean months of 1979 and rose at the modest rate of only 1% a month in 1984. On the whole, price of foodgrain rose by more than 100% in 1974 over the preceding year, whereas the average rise in 1979 was only about 35%. In 1984, the price increase was even more modest - just about 10%, nothing more than the normal rate of inflation.

What explains such disparate movements in the price of foodgrain? Certainly not the size of its availability. As mentioned before, per capita systemic availability was in fact lower in 1979 than in 1974. While it was somewhat higher in 1984, that alone cannot explain the difference between a 100% and a 10% increase in price. Nor can it be explained by general inflationary forces such as expansion of money supply, as has been demonstrated in the case of 1974 famine by Ravallion (1985) and Ahmad (1985). Ravallion (1985) has also shown that the dramatic price increase of 1974 can be neatly explained by the speculative behaviour of rice traders. Exaggerated reports of crop damage led the traders to overestimate future scarcity. The resulting overshooting of future price expectations caused 'excessive hoarding' and hence the abnormal increase in current price.

While this story fits very well with the experience of 1974, it runs into some difficulty in 1979 and 1984. Exaggerated fear of crop loss was also a characteristic of both these years. At the peak of drought in 1978, the Bangladesh Ministry of Agriculture had estimated that the 1979 Amam crop (the main rice crop) would be 20-25 per cent below normal. In reality, output turned out to be marginally higher than the preceding Aman crop. But the important point is that the fears persisted until the harvests actually came in. Meanwhile, however, the drought continued and threatened to damage the two subsequent crops, which it partly did. As a result of this prolonged drought a famine scare persisted throughout the year. Yet, as we have noted, there was no

extraordinary rise in the price of rice. In 1984, the scare was even greater, with several rounds of flood damaging and threatening to damage four successive crops, an unprecedented mishap in the recent history of the country. In the end, loss of output turned out to be quite modest, thanks largely to an unexpected improvement in yield (World Bank 1985 a). But this was an ex post achievement which could do nothing to diminish the ex ante scare. Yet the price of rice rose very modestly.

Obviously, something more than mere overestimation of crop-damage is involved. Ravallion (1985) seems to be aware of the missing link and speculates correctly in his concluding observation, "The most plausible conclusion is that the stock-holders' over-optimistic price expectations and/or anticipations of future rationing during the 1974 famine were premised on a belief that the Government would be unable to implement a suitable stabilising response to the reported damage to the future crop" (p. 28). Belief in the ability of the Government's Public Food Distribution System (PFDS) to deal with an emerging crisis seems indeed to be very crucial. An analysis of PFDS in the famine vis-a-vis non-famine years brings out the point quite clearly.

It has been well documented that public stock of foodgrain was very low in 1974 and government's capacity to import was also very limited due to unfavourable aid climate on the one hand and dwindling foreign exhange reserves on the other (Alamgir 1980, Sen 1981, Ahmad 1985). This was no secret and the speculators were obviously aware of the predicament. They were quite right in thinking that PFDS was in no position to redress the emerging crisis. But this was not the case in 1979 or 1984. As soon as the crisis bell rang in 1979, the Government lined up imports on both and and commercial basis. The same happened in 1984 and foodgrain import in that year reached an all-time peak. In

each of these two later years, monthly stock and distribution were substantially higher than in 1974.[27] What this distribution did to bolster aggregate availability is not the important part of the story. What is important is the effect it seems to have had on the speculators. By pursuing a vigorous import and distribution policy, the authorities succeeded in softening future price expectations. The resulting containment of current price level was an additional and by far the more important effect of PFDS on top of whatever it did to affect the current balance of supply and demand.

It is of course true that apart from containing speculative price spiral, the PFDS in 1979 and 1984 also achieved much more than in 1974 by way of directly relieving the distress of the immediate victims of drought and flood. The quantity of foodgrain supplied to the rural poor through rationing, food-for-work and relief in 1979/80 was higher than in any other year during 1973/74 - 1980/81. Also, during the crucial months of May to November 1984, the amount of relief distributed per month was three times the typical levels of the preceding years. These measures undoubtedly helped in alleviating human misery in the worst

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27. Average monthly distribution of foodgrain during the famine months of 1974 was 170 thousand tones, as against 250 and 230 thousand tons in the corresponding months of 1979 and 1984 respectively. More striking is the difference in the level of stocks: average month-end stock of foodgrains in Government's stores was only about 140 thousand tons in the famine months of 1974, as against 700 and 650 thousand tons in 1979 and 1984 (corresponding months) respectively. Thus although the difference in terms of offtake is not all that dramatic, the difference in stock would indicate that Government's ability to tackle a crisis was much higher in 1979 and 1984, than what it was in 1974. It also has to be remembered that the level of offtake improved in 1974 only towards the end of the famine. In the earlier period, when speculative pressure was gradually building up, both stock and offtake were much lower than during the famine months.

affected areas. But they do not by themselves explain why localised crisis did not turn into generalised disaster through a spiralling price increase, as it did in 1974; for, as we have already noted, despite a much higher level of public distribution, total (systemic) availability of foodgrain was no higher in 1979 than in 1974 and was only marginally higher in 1984. This is where the role of PFDS in containing speculative price increase comes in. The price spiral of 1974 was a direct consequence of speculative market withdrawal encouraged by a perceived inability of the PFDS to deal with future scarcity. In contrast, the health of PFDS in 1979 and 1984 in all its aspects (viz. import, stocks and distribution), signalled the futility of speculating on future scarcity. This had an obvious softening effect on market withdrawal and the consequent rise in the current price of foodgrain. The limitations of PFDS in 1974 and its vitality in the two later years should therefore constitute the key explanation of why famine occurred in one case and not in the others.[28]

The time has now some to answer the questions posed at the beginning of this section. Note first that while the authorities were highly successful in checking speculative price increase in both 1979 and 1984, they were also helped in this effort by a couple of fortunate circumstances. On both occasions, the government found itself blessed with a healthy foreign exchange reserve, a rare phenomenon in a country with chronic balance of payments problem. The situation in 1984 was particularly fortuitous, as the

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28. It would appear that Sen (1981) has underestimated the role of a weakened public food distribution system in precipitating the famine of 1974. He recognises its importance in constraining the relief operations of the government once the famine had struck, but does not attach any causal significance to it. This he does by ignoring the effect of PFDS on speculative price increase and concentrating merely on its effect on the current availability of foodgrains.

reserves actually represented the 'unwelcome' consequence of a recession in the preceding years which had depressed imports to disconcertingly low levels. But it turned out to be a boon in disguise when the floods came, and helped to procure a record level of imports on commercial basis. In fact, in both 1979 and 1984, commercial imports accounted for over half of total imports, while usually food aid acounts for more than two-thirds of imports in normal years. Commercial import in such a scale was a dream in 1974 when foreign exchange reserves had already been drawn down to precariously low levels when the real crunch came.

The second fortunate circumstance was the highly favourable aid climate obtaining at the time, particularly in 1979. Not only were the donors generous and prompt in their response, even the IMF was very understanding! The country was under a stand-by agreement with the IMF in that year and there was, inevitably, an agreed ceiling on government borrowing. That ceiling was breached as the Government borrowed heavily from the Central Bank in order to finance its commercial imports, but the IMF did not raise any fuss.[29] The donors were somewhat less forthcoming in 1984, but nowhere near as niggardly as in 1974.[30]

Thus the episodes of 1979 and 1984 do not really testify to any systemic improvement on the front of short-term food security. Aid climate, one of the favourable factors, is essentially an exogenous variable. The other factor, viz.

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29. However the very next year, in 1980, when the Government broke its credit ceiling again, this time to replenish its depleted food stock through a massive drive for domestic procurement out of a bumper harvest, the IMF responded by cancelling a newly contracted Extended Fund Facility programme. For a critical review of these incidents see Matin (1986).

30. For information on donor's response in 1984, see World Bank (1985a). The story of 1974 is told most vividly by McHenry and Bird (1977).

a healthy foreign exchange reserve, is in principle a control variable, and there has been a lot of discussion about holding such reserves in lieu of or as a supplement to a buffer stock of food. But the Government has not been able to pursue any consistent policy in this regard, hardpressed as it is to provide foreign exchange for much-needed imports. Accumulation of reserves has always been a consequence of unforeseen shortfall in the import programme. The two years in question were no exception. Therefore, the hypothesis that the Government has acquired a greater capability of dealing with famine-threats remains untested at best, and in considerable doubt, to be more realistic.

The fortuitous manner in which famine was averted in 1979 and 1984 also gives no comfort to the thought that the structure of Bangladesh economy has acquired a greater resilience over time against threats of dramatic entitlement failures. Nor does it negate the thesis of secular deterioration in the trend of endemic hunger.

Finally, what can one say about the relationship between 'persistent entitlement contraction' and 'sudden entitlement failures'? The experience of the recent years of course shows that despite entitlement contraction, catastrophic failures of entitlement can be avoided if fortune smiles. But that is not saying much. One would suspect on apriori grounds that the probability of 'failure' would increase with the intensification of 'contraction'. Indeed it is possible to argue that entitlement failure in 1974 turned out to be as precipitous as it was, mainly because of severe entitlement contraction that had occurred in the preceding years, partly through natural calamities and partly through the destructions and dislocations caused by a prolonged war of liberation. The destruction of assets (houses, cattle etc.) caused by these events was a direct dent into the 'endowment set', specially for the rural people. Endowment contractions of this kind must have accentuated the gravity

of famine. These contractions of entitlement of course occurred under exceptional circumstances, in a relatively rapid manner. But persistent contractions can also produce qualitatively similar results. There is therefore hardly any ground for feeling confident that the Bangladesh economy has acquired a greater immunity from famine in the recent years.[31]

Elements of Food Strategy

We have analysed the structural forces governing the evolution of entitlement over time and also tried to judge the prospect of dramatic failures in entitlement. The analysis reveals a rather grim picture. It is now necessary to move on to the level of policy, to see if the policies being pursued have the potential to change the course of structural evolution.

While policies with long-term structural effects are our primary interest here, it should also be recognised that a comprehensive food strategy ought to incorporate short-term elements as well. These short-term policies can be broadly classified into two groups - those in the nature of

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31. It ought to be recognised, however, that the production structure of Bangladesh agriculture has probably acquired a somewhat greater degree of resilience against the destructive effects of natural diasters such as flood. But for the recent advances in dry season cultivation through modern irrigation and spread of HYVs in the rainfed winter crop, the effect of 1984 floods would have been much more devastating, making it harder to contain a potentially dangerous price spiral. On this, see World Bank (1985a). It should also be noted that the necessary physical infra-structure for the storage and distribution of foodgrains is much better now than what it was in 1974. It means that if the necessary foodgrains can somehow be acquired at the right time, the authorities can now deal with a crisis more effectively than before. But the crucial 'acquisition' problem remains as uncertain as ever.

'palliatives' and those meant for 'crisis management'. The two are often merged together under the common rubric of short-term 'food security'; but they perform two separate functions and it seems analytically more helpful to recognise the distinction. Since hunger is going to persist for some time yet no matter what long-term measures are adopted, 'palliatives' are required to redress the more extreme cases of misery. Policies of 'crisis management' on the other hand are meant to prevent calamitous failure of entitlement and to minimise the effect of such failures, if they occur. Although conceptually distinct, the two objectives, however, can often be pursued through the same set of policies. This is indeed the case in Bangladesh: The Public Foodgrain Distribution System (PFDS) is meant to provide both the palliatives and the instruments of crisis mangement. We shall have a brief look at it before turning to the long-term issues.

Foodgrain distributed through PFDS has expanded over time both in absolute terms and in relation to total availability.[32] The offtake-availability ratio has risen from an average of 8 per cent in the sixties to about 14 per cent in the decade and a half since Liberation. There has also occurred a significant shift in the relative shares of different channels of distribution. Modified Rationing (MR), which distributes subsidised foodgrain to the rural poor, used to account for about 55 per cent of total offtake in the sixties. In the early years of the seventies, its share came down to 30-40 per cent, dropping further to only 18 per cent in the eighties. Statutory urban rationing (SR), which supplies subsidised foodgrain to the residents of certain important urban areas, has also faced a relative decline, but not to the same extend as MR. Its share remained at

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32. For a recent in-depth study of the operation and effectiveness of PFDS, see MOF (1986). The following statistics are derived from this source.

around 23 per cent throughout the sixties and seventies, but fell rather sharply to 15 per cent in the eighties. The channels which have gained in relative share are mainly three: (i) Other Priorities (OP) which supplies subsidised foodgrain to certain priority groups (mainly urban), (ii) Food-for-Work Programme (FFW), which serves the rural labourers by paying them in kind in return for work and (iii) Open Market Sales (OMS) plus Marketing Operations (MO) both of which are designed to augment market supply for the general benefit of all consumers rather than for any particular target group.

Among all the shifts that have taken place, the most remarkable one is the dramatic decline in the share of MR from the sixties to the eighties. It is also apparently the most perverse one, when viewed in the light of our earlier analysis of widening rural hunger. Recent policy disposition appears to be one of going further ahead in the direction of phasing out MR, and replacing it by market augmentation in the rural area. It is not at all obvious however, how the strategy of leaving the poor entirely at the mercy of the market is going to improve their food security. To the extent that market augmentation helps to stabilise prices, the cause of food security will indeed be served to some extent. But it is not clear that the resulting 'price security' will be more effective than the assured 'quantity security' for those living at the edge of subsistence.

When the foodgrain distributed through Food for Works Programme is added to MR, the share of rural poor does not appear quite as bad, but it is still less than what used to be the case in the sixties. The expansion of FFW programme is on the whole a welcome phenomenon, as recent studies of its impact appear to indicate.[33] But equally unwelcome is

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33. The short-run impacts of FFW programme are analysed in Osmani and Chowdhury (1983). The long-term effects are studied in BIDS/IFPRI (1985).

the contraction of Modified Rationing. A recent survey of MR beneficiaries has shown that about 95 per cent of them actually belong to the target group (MOF 1986). Many of the eligible households are of course left out and even those who receive the ration only gain a small increase in real income (2%); but that is a consequence of the small size of the whole operation. It has at least the potential to make a bigger contribution to the real income of rural poor if the scale of operation is expanded.[34]

There are however serious problems with urban Statutory Rationing (SR) as it is currently practised. It has been found that the average income of SR beneficiaries is considerably higher than that of an average urban household, and per capita calorie intake comfortably above the national average (MOF 1986). Thus, unlike in the case of modified rationing, the contraction of statutory rationing did not imply a great loss for the urban poor, since they did not receive much benefit from it anyway. This does not however mean that urban rationing should therefore be abandoned, though that again is the current trend of policy. It does mean though that a method has to be found for reaching the urban poor.

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34. Insofar as both MR and FFW are 'targetted' to the rural poor, there may be an inclination to treat them as substitutes and to take a lenient view of the contraction of MR in view of the fact that FFW has expanded so rapidly. But it will be wrong to take such a view in our judgement. The two should really be treated as complements rather than substitutes because, firstly, MR can reach those who are not capable of the physical rigour demanded by FFW, and secondly, MR can operate throughout the year while FFW is necessarily constrained to the short intersection between dry season and the lean period of agricultural operations. However, insofar as FFW has the additional benefit of creating potentially useful rural intra-structure, there is indeed a case for giving it preference when seasonality permits.

On the whole then, with the exception of its FFW component, PFDS in its present shape does not appear to be particularly effective as a short-term palliative for persistent hunger. However, as we have noted earlier in the context of the events of 1979 and 1984, it has been a good deal more effective as an instrument of crisis management.

The Long-range Strategy

While the importance of a properly targetted Public Food Distribuion System can hardly be questioned, specially as a short-term palliative for the extreme cases of poverty, its limitations as a strategy for solving the long-term problem of hunger are also pretty obvious. The sheer magnitude of the problem of food deprivation rules out public distribution as an effective long-term strategy. The administrative problem of targetting food distribution to nearly three-quarters of the total population is one of the reasons for doubting its effectiveness, but by no means the most important one. An even bigger problem is the limited amount of food available for distribution. Of course , if the total available food were to be distributed according to one's requirement, the currently available calories might be just enough to satisfy everyone's need.[35] However, one doesnt't have to be a cynic to rule out the feasibility of such an ideal distribution.

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35. Note that per capita calorie intake was estimated to be 1943 calories per day in 1981/82 (INFS 1981/82) while per capita requirement according to one estimate is 2020 calories (World Bank 1985). Given the margin of error that is likely to be involved in both these estimates, it is perhaps fair to conclude that requirement and availability match each other reasonably well at the aggregate level.

Higher levels of production is therefore an obvious necessity; but not so much because it will provide a larger base for public distribution, as because the dynamics of production will help improve the entitlement of all the rural groups through the structural processes described earlier. However, a couple of qualifications to this statement should be noted before proceeding further.

Firstly, it is easy to show that even with a considerable increase in the rate of food production, the incomes of the poor may not rise enough to eliminate hunger. Khan (1985) has recently given a quantitative demonstration of this argument through an empirical model linking production with income distribution. It is indeed clear that given the existing endowment distribution and continued demographic pressure, no 'feasible' rates of food production can eliminate hunger in the near future. This naturally turns one's attention to the need for changing the 'endowment distribution' as well as for containing the rate of population growth. But this does not obviate the need for stepping up the rate of food production. A higher rate of growth may not be sufficient to eliminate hunger, but will at least be necessary to reduce it.[36]

But will it be sufficient to reduce hunger? This is where the second set of qualifications come in. We have pointed out earlier that growth can certainly occur in a manner which will not only fail to reduce hunger, but may even accentuate it. If, for instance, all the growth is concentrated on the lands of large farmers who decide to switch over to mechanised cultivation, then both small

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36. It follows from this observation that any comprehensive discussion of the strategies for eliminating hunger should also involve discussion of the political strategy for bringing about changes in 'endowment distributions'. Lack of competence on the part of the author is the principal reason for not venturing into this field.

peasants and wage-labourers may experience increasing hunger. Mechanisation however is very unlikely to be adopted extensively in Bangladesh agriculture, given the cheap labour and fragmented holdings prevailing there. But the possibility of large-farmer bias in the pattern of growth cannot be ruled out. We have seen earlier that the past history of technological transformation in Bangladesh agriculture does not indicate any such bias. But whether the past pattern will continue into the future is very largely a function of present policy. It is in this light that we intend to review the present orientation of long-range food strategy in Bangladesh.

In the past, the diffusion of modern technology has been brought about largely through heavy subsidisation of two crucial inputs, fertilizer and irrigation, combined with extensive government control in the distribution of these inputs. In contrast, price support for farm output has played a negligible role. A foodgrain procurement system has of course been in operation for long, but it was geared essentially to meeting the needs of a subsidised Public Foodgrain Distribution System (PFDS). Accordingly, the objective was to procure a target quantity of foodgrain at a price which would be low enough to avoid an excessive fiscal burden on account of PFDS. Whether that price would provide an incentive to the producers to expand production was not a matter of explicit concern. One other element of policy was government ownership of the major irrigation assets such as large-scale river-control projects as well as power pumps and deep tube-wells. Only the small irrigation equipment such as shallow tube-wells and hand tube-wells were sold to the private sector. The publicly owned irrigation equipment used to be rented out to groups of farmers at a subsidised fee.

All these policies have recently undergone an almost complete reversal, beginning in the late Seventies and

gaining momentum in the Eighties. The emerging policy regime can be characterised by the following features: (i) withdrawal of input subsidies, (ii) instituting a compensating price support programme (iii) a relatively free market for determining both input price and consumer price of foodgrain, (iv) distribution of fertilizer through private traders and (v) private ownership of irrigation equipment (all kinds of tube-wells and power pumps), with large-scale irrigation projects being financed and executed by the public sector.

How is this strategy going to affect the growth and pattern of foodgrain production and, through it, the evolution of food entitlement? Let us begin by Looking at the implications of the policy of withdrawing input subsidy.

We have argued elsewhere that the main rationale for providing input subsidy in Bangladesh agriculture lies in the fact that it helps to ease the credit constraint faced by the small farmers (Osmani and Quasem 1985). The adoption of HYV technology raises the working capital requirements for cultivation as the farmers have to pay for fertilizers and irrigation charges before they reap the harvest. This cost however cannot usually be covered through institutional credit to which they have very little access (Table 5). It has been estimated for instance that no more than 10 per cent of the fertilizer cost of small farmers is financed out of institutional credit (Hossain 1985b).

Under the circumstances, the small farmers are left with the option of either borrowing from the informal credit market or drawing upon their own meagre resources. In the first case, they are usually forced to pay an exorbitant rate of interest and in the second they apply high subjective rates of discount on future income in view of their subsistence level of present consumption. In either case, both equity and efficiency are adversely affected. An

interesting piece of evidence in this regard is provided by a recent survey (Hossain 1985c). It shows that at the current level of fertilizer application, the marginal value product (MVP) of fertilizer is considerably higher than its price, in fact much higher than can be accounted for as the interest cost at the official rate of interest. There are several alternative ways in which such a differential could conceivably arise.[37] In the first place, there could have been a binding constraint of fertilizer supply which would force the farmers off their demand curve. But it has been shown by Quasem (1985) through an analysis of the stocks and sales of the fertilizer-distributing agency (BADC) that supply of fertilizer was not generally short of demand (barring some occasional localised shortages) in the recent years, including the period to which the above survey results relate. Secondly, the observed divergence could be a consequence of farmers' risk-aversion in a situation of uncertainty. In fact, the uncertainty involved in the use of an unfamiliar input, and the resulting divergence between its MVP and price, has been the traditional argument for subsidising an input in the early stage of adoption. The proponents of 'subsidy withdrawal' however argue that after two decades of experience with modern technology, the farmers are now well aware of its benefits and do not need subsidy any more.[38] If this argument is accepted, then the only other plausible explanation of the observed divergence

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37. Note that price here refers to actual market price paid by the farmers and not the official subsidised price. The divergence is therefore a real one and not a consequence of using the wrong prices.

38. Arguments of this kind frequently appear in various World Bank documents urging the Government of Bangladesh to withdraw input subsidy. For a comprehensive documentation of the World Bank view and its arguments, see Osmani and Quasem (1985).

would be in credit constraint.[39] Under the usual maximising assumptions, the divergence would then imply either that the effective cost of fertilizer is very high (because the farmers have to borrow from the informal credit market) or that the effective MVP is low (because the small farmers draw upon their own resources and hence apply a high subjective rate of discount). It will then be necessary on the ground of economic efficiency to remove the credit constraint so that the price of input can be equated with its nominal MVP. One way of doing it is to provide input subsidy which will ease the credit constraint by the simple expedient of reducing the need for credit.[40]

However, it may be argued that the best answer to the credit problem is to solve it directly by providing more credit to the small farmer instead of going through the roundabout way of subsidising inputs. That is indeed true, in principle; but in reality credit programmes for small farmers have proved notoriously unsuccessful almost everywhere in the developing world. until an institutional mechanism can be found for successful targetting of credit to the small farmers, input subsidy is necessary to deal

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39. The other possibility, viz. the uncertainty due to the vagaries of nature, is not particularly relevant in the case of HYVs which are grown mostly under controlled irrigated condition.

40. If uncertainty due to the use of an unfamiliar input is thought to persist and contribute to the divergence between price and MVP, then of course the case for subsidy is further strengthened.

with the credit constraint, albeit as a second-best strategy.[41]

We have already noted that the high levels of input subsidy offered at the early stage of 'Green Revolution' in Bangladesh probably explains why the small farmers could participate at least proportionately in the adoption of new technology. But the subsidies have been reduced at a rapid rate in the recent years.[42] It is sometimes argued that the withdrawal of subsidy would not affect the farmers since they, especially the small farmers, do not receive the

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41. It may be mentioned in this context that the Grameen Bank experiment (see footnote 21) seems to have found an effective institutional method of reaching the poor in the non-farm sector. One might naturally ask why this method cannot be extended in the farm sector as well. The Grameen Bank has already made a beginning in this direction, but it is still too early to assess the results. There would however appear to be some intrinsic problems of agricultural credit which the Grameen Bank approach might come up against. It is well known that one of the keys to the success of the Grameen Bank is the system of weekly repayment of loans. The poor people, who are under constant pressure of immediate consumption, find it so much more convenient to repay their loans if they are to repay in small instalments over an extended period of time. This process is facilitated if they also have a continuous flow of income. Repayments can then be made regularly out of current income, obviating the need for first accumulating and then drawing down a savings balance. Most of the activities in the non-farm sector are in fact of this 'point-input continuous-output' type. In contrast, agricultural operations are more akin to 'point-input point-output' type. Output is harvested at a point in time; and the small farmers are hardly capable of converting a 'point output' into a 'continuous income' by phasing out the sale of crops over an extended period. The discipline of weekly repayment in this case is likely to come up against a very strong time preference for current consumption.

42. For instance, urea, the most widely used fertilizer in Bangladesh agriculture, used to enjoy a subsidy of 58 per cent in the late sixties; and even as late as in 1975/76, the rate was 52 per cent, but it fell to a mere 4 per cent in 1982/83.

benefit of subsidy anyway. The basis of the argument is that the farmers usually buy their fertilizer not directly from the official distributing agency but from private dealers who lift fertilizer at the subsidised price and allegedly sell to the farmers at a higher price as dictated by supply and demand.[43] But this is really a non-argument; it represents a confusion over the relevant concept of subsidy. The market price, as determined by supply and demand, may of course be regarded as one notion of unsubsidised price, and by that criterion the farmers may not be receiving any subsidy. But when the Government of Bangladesh and its advisers propose to withdraw subsidy, they take the cost of procurement as the unsubsidised price; and it turns out that actual market prices have always remained far below the cost of procurement (Osmani and Quasem 1985).

In other words, the scarcity premium reaped by the dealers was lower than the rate of subsidy and to that extent the farmers have indeed shared the benefit of subsidy. One implication of this fact is that if subsidy is removed and the official price is set at the cost of procurement, the resulting price increase will be too high to be absorbed into the scarcity margin. Consequently, the market price will have to rise and, as indicated by some recent estimates of elasticity,[44] this will have a substantial dampening effect on the demand for fertilizer.

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43. Field information on actual prices paid by the farmers does reveal that they do generally pay a premium over the official price, but a fairly small one. It is also found that the small farmers sometimes pay more than the large farmers, but again the difference is not a striking one. For details of the evidence, see Osmani and Quasem (1985).

44. These estimates seem to lie between -0.7 and -0.8. For details of estimation procedures, see Hossain (1985c) and Osmani and Quasem (1985).

Of course, the net effect will depend also on what has been happening to the other determinants of fertilizer demand, one of them being the price of food crop. As it happens, however, the price of crop has failed completely to keep pace with the rising price of fertilizer. As a result, the fertilizer-paddy price ratio has trebled from 0.74 in 1971/72 to 2.03 in 1983/84. The growth-retarding effect of this price disincentive has been recently demonstrated by Osmani and Quasem (1985). The subsidies have been reduced most drastically in the second half of the post-Liberation period and it is in this half that the intensity of fertilizer application on individual crop varieties has come to a standstill after exhibiting a rapid growth in the preceding years. It is also in this sub-period that yield improvement in individual crop varieties has made a negative contribution to the overall growth of foodgrain production, while it had made the biggest contribution to growth in the earlier period.

Growth of course has still occurred and the average application of fertilizer per unit of land has still risen as irrigation facilities have made it possible to shift from local to improved varieties of seeds which are more intensive in the use of fertilizer and have a higher level of yield.

But even this process is now being threatened by the policy of privatisation and subsidy reduction that is being followed in the irrigation sector. There is ample evidence that privatisation of irrigation equipment has added to the cost of irrigation on top of the effect of subsidy reduction.[45] Private owners of irrigation equipment charge a higher rate to its users than what the groups renting

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45. For substantiation of the empirical statements made in this paragraph, see Osmani and Quasem (1985).

publicly owned equipment generally pay as rent and the area irrigated per machine is also correspondingly lower for the privately owned ones. At the same time, the sale of irrigation equipment is also facing increasing difficulty. After the initial burst of privatisation, the market for new equipment seems to have shrunk considerably. This is quite understandable when one realises that after the initial purchase by larger farmers (of whom there are not very many), the smaller ones are finding it harder to pay the price specially as the rate of subsidy is being scaled down.

Clearly, all these developments have a potentially restrictive effect on both overall production and the small farmers' participation in it. However, one may recall that the current policy package does at least in principle provide an antidote to all this in the form of a compensating price support programme. The foodgrain procurement system is being increasingly reorganised as a price-support programme, as the procurement price is now being consciously set at a level that is expected to cover the cost of production and also leave a margin of profit. If effective, this should in principle be able to neutralis the accentuation of credit constraint caused by the happenings on the input side. This it will achieve by ensuring a higher price for the marketed surplus and thus offseting the effect of a high rate of interest or subjective discount.

But there are serious limitations of this policy: it is simply irrelevant for subsistence farmers who do not have any marketable surplus and positively harmful to the deficit farmers who are net buyers in the market. According to some calculations, no more than 30 per cent of the farmers will derive any substantial benefits from an output price support programme (Ahmed 1981). The rest will not only fail to derive any benefit, they will in fact be worse off as the credit contraint gets tightened by the policies on the input

side such as withdrawal of subsidy and privatisation of irrigation equipment. Further diffusion of HYV technology will then be concentrated on the lands of the rich peasants, while the poor peasants become increasingly marginalised and eventually alienated from land. Man-made policies will thus combine with underlying structural forces to hasten the proletarianisation of an already marginalised peasantry.

The stage is thus being set for a neatly polarised agrarian structure by concentrating incentive in the sphere of large farmers and driving the small peasants out of the production nexus. In the meantime, privatisation of fertilizer trade and creation of irrigation entrepreneurs will help in the process of primitive capital accumulation. Thus the various components of the prevailing long-range food strategy appear to derive their unifying logic from an underlying development strategy that aims at the capitalist transformation of Bangladesh agriculture.

All the issues that are raised by the prospect of such a transformation cannot obviously be discussed within the confines of this paper. But at least its implications for the evolution of food entitlement ought to be mentioned.

It is immediately obvious that the small peasants, marginalised and eventually driven out of land, will suffer a decline in food entitlement unless alternative employment opportunities are opened up. But the prospects of such alternative opportunities are not very bright either. It has been estimated that during the rest of the century rural labour force will grow at the rate of around 3 per cent per annum. Even with a 3.7 per cent growth in production, a rate that has not on the average been achieved in the recent years, agriculture can absorb no more than a quarter of the additional labour force (World Bank 1983). There is therefore already a strong tendency to aggravate the excess supply of agricultural labour. If the proletarianisation of

the peasantry adds to this natural increase in labour supply, there can only be an all-round reduction in wage and employment per person, with its obvious implications for food entitlement.

Nor does non-farm employment opportunity hold out any better hope. We have noted earlier that the non-farm sector is already severely stretched to provide residual employment for those being thrown out of the agricultural sector. An exodus into this sector will only serve to bring down further the entitlement of the poor engaged in this sector. Such an all-round impoverishment and the resulting shrinkage of effective demand may even constrain the process of capitalist growth itself, unless of course the 'capitalist dynamism' is sustained by exporting food while people within the country go hungry.

Summary and Concluding Remarks

Our aim in this paper was to seek illumination on three questions pertaining to the food problems of Bangladesh: first, what are the processes perpetuating the food deprivation of great majority of the masses; secondly, has Bangladesh achieved over time a greater degree of immunity from the sudden failures of food entitlement leading to famines; and finally, what hopes do the current food policies hold out for the elimination of endemic hunger.

On the first question, we started with the premise that in a food-dominated production structure, as happens to obtain in rural Bangladesh, long-term food entitlement of all sections of people depend crucially on the pace and pattern of food production. Yet one finds that despite positive growth in per capita food production, the food entitlement of a great majority shows no visible signs of improvement during the post-Liberation period. Various

alternative hypotheses were considered to explain this phenomenon. In particular, we tried to investigate whether the very pattern of growth was immiserising, or whether the rate of growth was inadequate to offset the immiserising force of demographic pressure operating within a system of private property ownership. The available empirical evidence seems to support the latter hypothesis. It is the slow rate of growth rather than a 'distorted' pattern of growth in food production that has been historically responsible for persistent contraction in the food entitlement of the masses. Also, it was argued that the proximate cause of slow growth was sluggish investment in agriculture and the resulting failure to convert a huge pool of surplus manpower into productive farmland capital. No attempt was however made to go beyond the proximate cause and to explore how the rate of investment has in fact been constrained by various factors such as the prevailing social structure, incentive systems and the political economy of public-sector decision making. Consideration of these issues, vital as they are, would have broadened the scope much beyond the limitations of a single paper.

On the issue of vulnerability to famines, it was noted that after the famine of 1974, the country has successfully avoided similar disasters despite the recurrence of potential threats, especially in 1979 and 1984. We have argued however that this success does not unfortunately indicate any inherent improvement in the country's immunity from famines. The proximate reason why famine did not occur in 1979 and 1984 was that anticipated loss of foodcrops could not generate a speculative price spiral, as it did in 1974. Strong government intervention through the Public Foodgrain Distribution System served to dampen the speculative hoarding of foodgrain, whereas in the famine year of 1974 speculation was in fact fuelled by a thoroughly inadequate and unreliable public intervention. But it is important to note that intervention was made possible in

1979 and 1984 only by the existence of two fortuitous circumstances. One was a congenial aid atmosphere and the other was an unexpectedly large foreign exchange reserve which together made it possible to import record amount of foodgrain to feed the Public Distribution System. Since neither of these factors can be relied upon to prevail every time a crisis occurs, there is no ground for inferring from the recent success stories that the economy has acquired any genuine resilience against the threats of famine.

The final issue we addressed was the implication of prevailing food policies for the evolution of food entitlement in the future. The focus was on the likely impact of these policies on the pace and pattern of growth in food production. It was of course recognised that in the absence of fundamental changes in endowment distribution, no feasible rate or pattern of growth can possibly eliminate the scourge of hunger in the face of an increasingly adverse land-man ratio. Accordingly, the focus was on the role of food policies in containing rather than eliminating long-term hunger. Our analysis shows that even the limited goal of containing long-term hunger is unlikely to be accomplished by the pursuit of food policies currently being implemented. The various components of the existing food strategy mutually reinforce each other to concentrate incentives and opportunities among the relatively well-off farmers. This is likely to alter the historical pattern of a fairly equitable diffusion of modern technology, making it increasingly difficult for the small farmers to benefit from further gains in productivity. In the face of unabated demographic pressure, the failure to improve the productivity of land will hasten the impoverishment of small farmers and quicken the pace of landlessness. As they swell the ranks of agricultural labour and non-farm workers, adding to the natural increase of labour supply in these sectors, there is likely to occur an all-round contraction in the entitlement of the rural poor.

If the food policies are to contain rather than accentuate the process of entitlement contraction, a minimal requirement is to ensure an equitable diffusion of modern technology so that the proletarianisation of the peasantry can at least be retarded. A chief obstacle to be overcome in this regard is the credit constraint faced by the small farmers. Input subsidies and public provision of capital assets should form essential ingredients of any food strategy aimed at overcoming this constraint.[46]

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46. For a fuller account of the author's views on the appropriate strategies for both farm and non-farm sectors in rural Bangladesh, see Osmani (1985).

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