IMPLICATIONS OF AGRICULTURAL POLICY REFORMS ON RURAL FOOD SECURITY AND POVERTY

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SUMMARY

Introduction

Over the years SAP has generated considerable controversy regarding its impact on growth, employment, food security and poverty. The point of departure for this study is the impact on poverty and food security as a result of the various structural adjustment policies undertaken in the agricultural sector. In this context three broad areas of investigation were identified:

- A review of SAPs in agriculture
- Macro level trends in performance of the agriculture and food sector
- Changes over time in the conditions of access to food, especially of the poor
- An assessment of the link between the SAPs and changes in food security

Methodology

Taking clue from the SAPRI methodological guidelines an attempt was made to combine participatory methods with a more orthodox approach. The first task was to make an assessment of economic change. This was attempted in two ways:

- An examination of macro (national) data on e.g. food availability, consumption, wages and employment, to establish basic national level trends. Household expenditure surveys carried out in different years as well as labour market data from the Bangladesh Bureau of Statistics (BBS) have been used for the purpose.

- An in depth investigation of micro (household) panel data on rural households at two points in time, namely 1988-89 (roughly corresponding to the initial years of SAP) and 1999-2000 (by which time most of the SAPs have been implemented). The sample size consisted of 50 rural households drawn from two green revolution villages in Bogra in the Northwest of the country.

The household panel data enabled detailed comparisons in living standards and livelihood conditions for the same set of households over a span of more than ten years. These changes are related to complex forces. There are, thus, considerable difficulties in trying to isolate the impact of the various SAPs on food security or poverty. A participatory approach combined with a logframe analysis was attempted in this connection.

Sector-specific SAPs

- Withdrawal/reduction of input subsidies (e.g. fertilizers)
- Privatization of the fertilizer distribution system

- Withdrawal of ban on private sector imports of irrigation equipment in the late 1980s
- Withdrawal of ban on rice/foodgrain imports by the private sector in 1995
- Rolling back of BADC - The largest parastatal in the agricultural sector - phased out its operations from 1978, gradually from fertilizers (imports, sale, distribution), irrigation and seeds.
- Reform of the Public Food Distribution System in the 1980s - rural rationing was abandoned and there was a policy shift towards distribution through safety-nets (FFW, VGD). Subsidized sales from the PFDS have dwindled; stabilization operations like OMS were retained.
- Seed markets - the National Seed Policy, 1992 provided for privatization of seed production beyond the foundation stage; the GOB monopoly on five 'notified' crops have been retained (including rice).

Findings/Observations

- The national food security regime improved significantly as a result of good agricultural performance, removal of restrictions on food imports by the private sector and enhanced macro-economic stability, including a low inflation rate.

- At the micro level, access to food improved significantly (especially of the poor) through growth in non-farm income, availability of credit, improved access to the land market and employment demand:

- Two serious types of market failures were observed:

    (a) related to the inability of the market to ensure that farmers have access to adequate information about the quality of agricultural inputs like fertilizers and machinery;
    (b) the inability of the market to take into account the substantial negative impacts on the environment, especially on soil, surface and ground water.

Overall food security and poverty has undoubtedly improved in Bangladesh in recent years (helped along by SAPs). Specifically, input liberalization (particularly for irrigation) has had a very significant impact in promoting the impetus of the Green Revolution. Liberalization of the government monopoly of the fertilizer distribution system and withdrawal of price subsidy has had mixed effects, although the overall situation, may have marked a slight improvement. On the output side, import liberalization of rice and wheat has had very major food-security impact enabling large foodgrain imports from India in recent years in record time, in the face of widespread domestic shortages.

The other major dimension of SAP has been the restructuring of the Public Food Distribution System, which again has led to elimination of a wide range of subsidies and much superior targeting. Expansion of programs like Vulnerable Group Development (VGD) for poor female-headed households, Food for Works (FFW) to provide seasonal employment to both poor men and women, Rural Maintenance Programme (RMP) and Food for Education (FFW), for example, have had important food security impacts (see Choudhury and Ninno, 1998; Choudhury and Sen, 1997; Ninno and Roy, 1999).

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1. INTRODUCTION

SAPRI (Bangladesh) is a joint project of the government, the World Bank and a global network of civil society organizations. Its goals are to improve the understanding of the impact of adjustment policies and to seek ways of incorporating the participation of civil society in future policy formulation. Bangladesh is one of eight countries where this initiative has been launched.

Policy reforms (which subsequently came to be known as SAPs) began tentatively in the early 1980s although not really taking off before the mid-1980s, in the wake of policy based sectoral lending of the World Bank and contracts signed with IMF to enable access to its Structural Adjustment (SAF) facility.

Over the years SAP has generated considerable controversy regarding its impact on growth, employment, food security and poverty. Many studies, particularly in the context of a number of sub-Saharan countries appeared to suggest that much of the impact has either been small or even negative while the experience of many Asian countries appear to have been much more mixed. It is in this context that SAPRI has been designed - primarily as a major stock taking exercise to gain an insight into successes and failures, and to draw lessons for future policy.

A criticism that has consistently been directed at the SAPs relates to the manner in which policies have been set, implying that much of the time these have come from above (i.e. powerful donors) and that there has been inadequate consultation with all stakeholders. In general, there was no effort made to take on board the views and concerns of poor people, women, small enterprises and so on - groups on whom the impact of SAPs may have been especially hard. Part of the reason for this is of course the absence of institutions or mechanisms (in addition to the lack of awareness) to enable such an exercise(s) to be conducted in developing policy alternatives.

The point of departure for this study is the impact on poverty and food security[1] as a result of the various structural adjustment policies undertaken in the agricultural sector. In this context three broad areas of investigation have been identified:

- A review of SAPs in agriculture
- Macro level trends in performance of the agriculture and food sector
- Changes over time in the conditions of access to food, especially of the poor[2]
- An assessment of the link between the SAPs and changes in food security

2 THEORETICAL CONSIDERATIONS

There are two distinct aspects of food security: food availability and food access. The former primarily refers to a geographical space (e.g. the nation, a district or a Thana) while the focus of the latter is on the individual and the household. It is clear that both are important for food security and that the two need not always reinforce each other. In fact a growing concern in countries like Bangladesh has been with the question of access, and in particular whether better national level food availability was progressing hand in hand with micro level access.

SAPs are likely to have a close bearing on both conditions of availability and of access. For example, policies that contribute towards cheaper food imports or higher domestic food production directly improve conditions of availability. To the extent that policies affect incomes and asset-holdings of the poor, these also affect their access or food entitlements. Policies that have an impact upon aggregate availability include macro policies (e.g. the exchange rate and trade liberalization policies) as well as sectoral policies that improve production incentives at the farm level (cheaper inputs, better output prices). Policies that have a bearing on access on the other hand, include reforms of the Public Food Distribution System and farm price support and credit policies. There may also be quite significant *indirect effects* of the various reforms on access, primarily

[1] Food security and poverty are major areas of focus for the Government of Bangladesh as well as donors. Major multilateral donors like the World Bank and the ADB have already identified these as over-arching concerns while many bilateral donors have (e.g. USAID) also followed suit (Murshid, 1998).

[2] Including changes in labour market conditins and wages.

acting through changes in the land and labour markets. These linkages are schematically outlined in Figure 1.

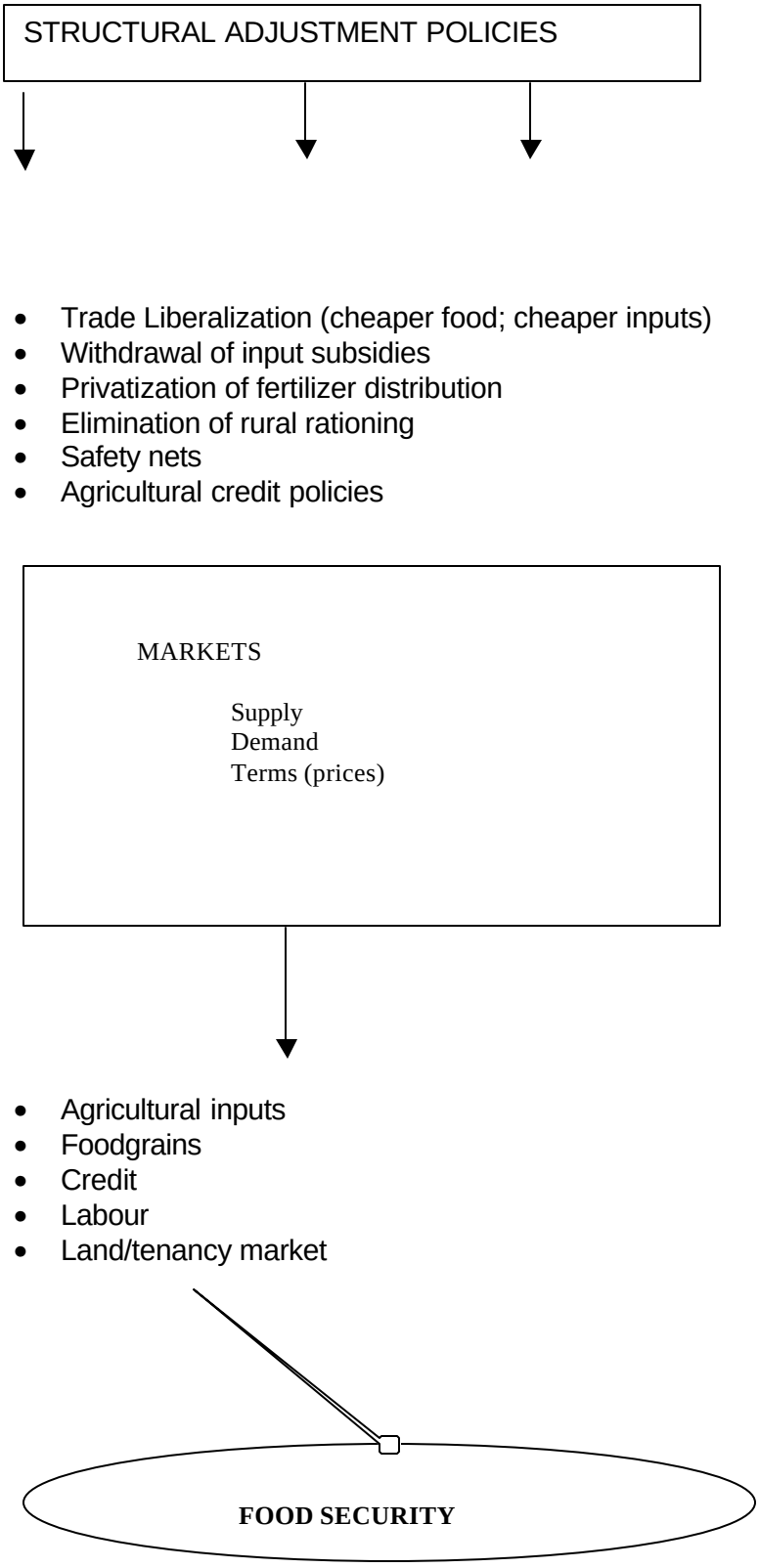
3 METHODOLOGICAL NOTES

Taking clue from the SAPRI methodological guidelines an attempt has been made to combine participatory methods with a more orthodox approach. The first task is to make an assessment of economic change, which was attempted in two ways:

- An examination of macro (national) data on e.g. food availability, consumption, wages and employment, to establish basic national level trends. Household expenditure surveys carried out in different years as well as labour market data from the Bangladesh Bureau of Statistics (BBS) have been used for the purpose.
- An in depth investigation of micro (household) panel data on rural households at two points in time, namely 1988-89 (roughly corresponding to the initial years of SAP) and 1999-2000 (by which time most of the SAPs have been implemented).[3] The sample size consists of 50 rural households drawn from two green revolution villages in Bogra in the Northwest of the country. The data includes information on production conditions, consumption, land, labour and credit markets as well as access to safety nets.

[3] Data for 1988-89 is available from the BIDS-Open University research on foodgrain markets carried out in eight villages. The data for 1999-2000 was purposively generated for this study.

Figure 1


STRUCTURAL ADJUSTMENT POLICIES
• Trade Liberalization (cheaper food; cheaper inputs)
• Withdrawal of input subsidies
• Privatization of fertilizer distribution
• Elimination of rural rationing
• Safety nets
• Agricultural credit policies
MARKETS
Supply
Demand
Terms (prices)
• Agricultural inputs
• Foodgrains
• Credit
• Labour
• Land/tenancy market
FOOD SECURITY

The macro data serves to provide the contextual background within which the results of the micro panel data can be viewed. It is also useful to relate the findings of the micro investigation (from a restricted sample) to the macro data to check whether broad trends between the two are consistent or diverge greatly.

The household panel data has enabled detailed comparisons in living standards and livelihood conditions for the same set of households over a span of more than ten years. These changes, however, are likely to be related to complex forces - both SAPs as well as non-SAP or independent factors, including life-cycle changes, weather and political conditions, micro-credit interventions and rural infrastructure (roads and electrification). There are thus considerable difficulties in trying to isolate the impact of the various SAPs on food security or poverty. A participatory approach has been attempted in this connection: In-depth discussion with groups of villagers using focus-group discussion (FGD) techniques, in which each policy reform was taken up for detailed discussion and an attempt made to assess causality and magnitude of impact;[4]

It was agreed early on in the methodological workshop that ".. investigation will use a range of methods, but particularly those that the Bank has not traditionally used (e.g. participatory).."[5] *sic* . The main challenge is that of establishing a clear causality between SAP and food security in a context of change driven by complex forces. If this challenge has been even partly addressed, we would consider this exercise to have been successful.

[4] Where SAPs resulted in specific changes in input/output supply or prices, or led to easily identifiable outcomes (like introduction of safety nets), such an exercise proved productive. More general, economy-wide SAPs (like exchange rate changes) proved much more difficult to handle through such a participatory methodology.
[5] See TOR, p.3.

4 STRUCTURAL ADJUSTMENT POLICIES (SAPS)

Macro and Sectoral Policy Regime Facing Agriculture

Bangladesh has made substantial progress towards trade liberalization and macro-economic adjustment policies, including rationalization of policies relating to agricultural price support and input subsidies. These have significant implications for food production and food security.

- Exchange rate policies - generally the Bangladesh currency has been edged towards its equilibrium rate of exchange, making agricultural imports (inputs, food) more expensive and exports cheaper (Forhad, 1998). More expensive inputs could slow technological change while cheaper exports makes agriculture more competitive.
- Trade liberalization policies - reduction of tariffs and removal of quantity restrictions have occurred across the board and has had a profound impact on agricultural input imports and food security (the latter through private rice imports in the face of shortages and the former through expanded irrigation coverage). Liberalization of imports of irrigation equipment took place in the late 1980s while the ban on rice imports by the private sector was lifted in 1994.[6]
- Monetary/Credit policies - official credit disbursed to agriculture has declined in the face of strong donor criticism against poor recovery rates and frequent loan forgiveness. The NGO sector has traditionally shied away from agricultural credit for want of an effective institutional model of agricultural credit delivery.

Sector-specific SAPs

- Withdrawal/reduction of input subsidies (e.g. fertilizers) - this affected only locally produced urea fertilizers, tending to raise its price. Other things remaining constant, this would tend to lower usage and therefore yields.
- Privatization of the fertilizer distribution system - the fertilizer distribution system went through major reforms in the late 80s-early 90s when the monopoly role of the BADC was removed from wholesale trade and fertilizer distribution; non-urea imports were also opened up to private imports and distribution. There was some reversal of policy after the crisis of 1994-95, with the introduction of a system of distribution through

authorized (licensed) dealers operating within their own districts (and selected by a National Coordination Committee). Policy reforms related to the fertiliser sector have been the most challenging, commencing as early as 1978 (when the BADC first began to withdraw from sales/distribution at the local level) to 1994-95 when, as already noted, some policy reversals took place.[7] It has also been observed that while liberalization of the distribution system has improved availability, prices have tended to be more volatile, especially for urea - an indication of monopoly elements even in the new distributional arrangements (Shahabuddin and Rahman, 1998).

- Withdrawal of ban on private sector imports of irrigation equipment in the late 1980s - this led to a surge of imports of irrigation equipment in the late eighties-early nineties and a spurt of growth in the crop sector.
- Withdrawal of ban on rice/foodgrain imports by the private sector in 1995 - the private sector has moved quickly and aggressively to this sector. In 1998-99, more than 3 m MT of rice was imported from India privately.
- Rolling back of BADC - The largest parastatal in the agricultural sector - phased out its operations from 1978, gradually from fertilizers (imports, sale, distribution), irrigation and seeds.
- Reform of the Public Food Distribution System in the 1980s - rural rationing was abandoned and there was a policy shift towards distribution through safety-nets (FFW, VGD). Subsidized sales from the PFDS have dwindled; stabilization operations like OMS have been retained.
- Seed markets - the National Seed Policy, 1992 provided for privatization of seed production beyond the foundation stage; the GOB monopoly on five 'notified' crops have been retained (including rice).

Given the fact that the 'relevant' SAPs are diverse and have been implemented over a long period of time (early 1980s to mid-90s), often marked by fits and starts, and sometimes characterized by policy reversals, a neat one-to-one cause and effect type exercise would be very difficult to construct.[8] A multi-modal approach is therefore suggested, including use of orthodox techniques and use of participatory methods.

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[6] For a discussion of these impacts see Abdullah (1989) and Dorosh (1999).
[7] For details see Zohir (2000).
[8] See Appendix 1 for a more detailed review of SAPs.

Experience With Saps – Lessons Learnt

An examination of an important World Bank document (World Bank 1993) serves to highlight the issues related to successful SAP implementation. The more important ones underscored include –

(a) The need for a strong political will, broad consensus and unwavering commitment on the part of policy makers;
(b) Internalization of policy formulation rather than being driven by external leverage;
(c) Inertia and tentativeness on the part of the government, adoption of fitful measures;
(d) Resistance from entrenched bureaucracies, especially in the context of institutional reforms;
(e) Commissioning and review of studies supposed to provide inputs into the SAP process are often deliberately delayed as a dilatory tactic.

With hindsight, it must be said that the reforms related to agriculture fared relatively better than that of most other sectors – with the possible exception of the macro reforms. Is it the case that there was greater political will or commitment for agricultural sector reforms or that these originated internally from within the government? A more plausible explanation relates to the level of donor pressure on the one hand and the ease with which the government could 'sell' these to its different constituencies – including the bureaucracy, the farmers, the academics and the opposition political parties. Clearly where the government itself was inherently satisfied with the logic and the need for a particular reform measure it would try that much harder to overcome the resistance from different vested groups. Some reform measures entailed less resistance – e.g. liberalization of irrigation equipment imports and rationalization of the PFDS to make it more pro-poor. On the other hand withdrawal of input subsidies and proposals for restructuring the BADC met with stiff resistance. In the case of the former, the government was worried that this would be used as a political tool by the opposition while in the case of the latter, the BADC itself lobbied strongly against it with a helping hand from the 'entrenched' bureaucracy. The resistance against subsidy withdrawal (e.g. from fertilizers) diminished only after other costs of production, especially irrigation costs were brought down by irrigation sector reforms. Another area of heated debate was

privatization of the fertilizer distribution system which had been a monopoly of the BADC. Implementation of this policy again, took a lot of effort involving persuasion, studies and donor conditionalities before the government was convinced of its desirability.

The pattern that emerges is that some reforms are relatively painless and easy to conduct. Others are much more difficult, mainly due to strong vested interests, lobbies and pressure groups, as well as political sensitivity. Perhaps the most important reason why the agricultural reforms performed better was that the farmers as a group are not well organized and are less well equipped to resist policy changes, compared to public sector corporations or financial institutions with strong, vocal trade unions. Since no major policy reform was internally generated, it must be assumed that external pressure was the dominant if not the only reason why the government took these up. In some cases, the government can have serious reservations or inhibitions about some policies. A good example relates to the seed sector, e.g. regarding introduction of hybrids or removing government controls like certification. In such cases the way to change is dependent on being effectively able to allay fears and enable a change of hearts and minds rather than for example, overcoming resistance from vested quarters.

5 AGRICULTURAL PERFORMANCE AND TRENDS

The abiding image of rural Bangladesh is one of stagnating socio-economic conditions encumbered by a set of traditional values and institutions that thwart rapid development, in the face of a high population growth rate, a rising land-constraint and acute poverty. However, even a cursory glance at the Bangladesh economy suggests that important structural changes are taking place and need explanation and interpretation. Thus, the importance of agriculture has diminished significantly over the last two decades, with its contribution to GDP falling to around 30 percent from earlier levels of around 50 percent, in the 1970s. On the other hand, sectors like industry and services have become more prominent. Again, the sub-sectoral composition of agriculture and the rural economy are themselves being transformed, with the declining contribution of the crop sector, a sharp rise in the importance of fisheries and livestock sectors, as well as in non-farm rural activity. These trends beg the question of whether these reflect fundamental shifts in the economy along classical lines of development exhibited by more advanced countries in their earlier stages of growth.

Considerable progress has been made in the last two decades in raising agricultural growth rates, especially over 1985-2000 resulting in a sharp up-turn of production, heavily concentrated in foodgrains. Cropping intensity increased to over 175 percent from 142 percent in 1970 while growth in the fisheries and livestock sub-sectors showed a healthy trend at around 3.5-4.0 percent.

Foodgrain Sector Performance

Bangladesh achieved major gains in rice and wheat production in the 1970s and 1980s - mainly a result of the spread of irrigation, fertilizer use and adoption of improved seeds. Between 1980-90, rice output increased by 40 percent, falling off again in subsequent years before picking up speed once again in the mid - 1990s (Table 1).

Table 1: Agricultural Performance, 1973-98

Sector	1997-98 to 1998-99	1995-96 to 1998-99	1990-91 to 1998-99	1973-74 to 1998-99
Agriculture	5.0	4.8	2.7	2.6
Crops	4.3	4.0	1.4	1.7
Forestry	4.1	4.2	3.8	3.8
Livestock	7.6	7.8	7.2	5.2
Fisheries	8.0	8.4	7.8	2.3
Non-agr	5.2	5.9	6.2	6.0

Source: BBS data compiled in Hossain (2000).

Three major factors accounted for the rapid growth of the 1980s: (a) improvements in irrigation, and in particular the rapid expansion of shallow tube-wells that allowed rapid expansion in *Boro* area, (b) complementary input use, especially improved seeds and fertilizers, and c) appropriate market reforms that dramatically lowered costs. These areas of reforms include removal of tariffs on the imports of irrigation equipment and removal of the BADC monopoly on fertilizer imports, sale and distribution - roles that were privatized. The principal factors explaining the rapid growth of the late -1980s were undoubtedly the policy reforms and the resultant incentive regime that led to adoption of modern cultural practices.

The slowdown in production in the early 1990s was reminiscent of the debate of the early 1980s and begged the question of how this could be overcome. The moot question then was whether there remained any further scope for policy reforms that could lead to a second round of growth. In practice, the reality overtook the rhetoric and the experts were confronted with successive bumper crops over the latter half of the 1990s. The phenomenon remains to be adequately explained. The conclusion that seems to be currently gaining ground is that while further growth in the foodgrain sector is possible, it will increasingly have to confront and overcome challenges relating to greater and more efficient use of resources (inputs, irrigation capacity). In the light of a growing demand constraint, lack of export markets and declining real rice prices, the challenge is to shift resources out of foodgrains to non -foodgrain crops and to the non-crop sector. Unlike the earlier spurt in foodgrain production, this latest shift in the production frontier cannot readily be explained in terms of policy reforms

Minor Crops and Cash Crops

Given the increasing difficulties likely to be entailed in sustaining rapid growth in foodgrains (as well as a distinct shift in demand towards other foods and non-food goods) in the wake of economic growth, the demand for minor crops would seem to be excellent. There however, seems to be 'structural' constraints that prevent the potential of the minor crops from being realized: technology, marketing, storage, transport and credit. Decades of policy focus on rice and foodgrains has had a negative impact on a host of non-rice crops - production and acreage declined for pulses and oilseeds, jute, tobacco and sweet potatoes, while fruits and vegetables (including potatoes) have performed slightly better (Hossain 2000).

Fisheries

The fisheries sector is very important for Bangladesh and despite its modest contribution to GDP (3.3 percent), its growth rate has been spectacular (Table 2). It accounts for 11 percent of export earnings and 5 percent of employment. However, part-time seasonal and subsistence fisher-folk number around 11 million. In addition there are pond owners, processors and traders that could account for another 4-6 million people - so that altogether, the employment impact is not small. Nutritionally speaking, fish is the second most important food in the local diet after rice.

Livestock

Livestock and poultry production has grown rapidly with recent trends suggesting rates of growth well above 7 percent. This sector has received a lot of attention from NGOs, in the form of credit, skill-development and technology, and is an important source of supplementary incomes and earnings for the rural poor.

Structural Change

In a recent paper, Hossain (2000) highlighted the nature of the structural transformation that seems to have taken place in the agricultural sector. Thus, as a share of agricultural value-added and incomes, the contribution of the crop sector has dwindled from 80

percent in the 1970s to around 70 percent in the late 1980s and further down to around 58 percent in the late 1990s. Conversely, the shares attributable to fisheries in particular but also to livestocks has registered a sharp rise, particularly in the 1980s and 1990s. (Table 2).

Table 2: Structural Change in Agriculture (Percent of Agricultural Incomes)

	1973-74	1989-90	1998-99	Annual gr. rate
Crops	80.0	71.5	47.0	1.7
Forestry	4.2	9.8	11.8	3.2
Livestock	7.6	9.3	19.9	5.0
Fisheries	8.2	9.5	21.3	3.5
Total	100	100	100	2.8

Source: BBS data compiled in Hossain (2000).

6 CHANGES IN FOOD SECURITY - THE MACRO EVIDENCE

Significant progress achieved in rice production has led to a situation when the country is self-sufficient in food during years of normal weather (World Bank, 1998). In addition import liberalization (of rice and wheat) has introduced another positive dimension towards strengthening food security. The private sector has demonstrated its readiness and efficiency in channeling a large volume of imports in the shortest possible time. This was clearly demonstrated during the floods of 1998-99 when more than 3m MT of rice was imported by the private sector, mainly from India, helping to stabilize supply and prices. It was lucky of course that Indian rice production was excellent, making it easy for India to liberalize rice export restrictions that were in place.[9] Improvement in the food security situation is also suggested by other available evidence, to which we now turn.

Food Consumption and Poverty

Data from the Household Expenditure Surveys carried out by the Bangladesh Bureau of Statistics for different years provide data on food consumption and calories in addition to information on incomes and expenditures by income-expenditure groups and land-ownership categories. Table 3 below shows that cereal (and rice) consumption increased steadily over the eighties, peaking off in 1991-92. A slight decrease in cereal consumption may be noted in 1995-96 which could imply a tendency towards substitution of more high-value, non-cereal foods. In fact, it will be observed that while overall calorie intake has risen slowly, there has been a significant change in the composition of the food consumption basket. Consumption of potatoes, vegetable, milk, fish and fruits have increased steadily while oil and meat consumption has remained steady and intake of pulses has declined. On the whole, these shifts mark a better and more balanced diet. An examination of the disaggregated data suggests that these broad changes can be seen even among the poorer rural groups (Table 4). The evidence from the HES thus seems to point to a superior food security regime in the 1990s compared to the 1980s. The figures shown in Table 5 lends further support by showing an improvement (in real terms) in expenditure levels (and by implication, incomes).

[9] There is some suggestion that rice production in Bangladesh and India are not closely correlated. If this is so then this is good for Bangladesh's food security (Dorosh, 1999).

Table 3: Daily per capita Consumption of Food (grams), Selected Periods

	1983-84	1988-89	1991-92	1995-96
Cereals	464	514	523	522
Rice	409	449	482	479
Potato	33	37	41	47
Vegetable	124	131	135	154
Pulses	28	21	17	13
Milk	16	21	19	30
Oils	4.7	9.0	9.1	8.4
Meat	12.3	11.6	11.3	12.0
Fish	27.1	32.5	32.5	42.2
Fruits	15.4	12.4	15.9	25.3
Total Calories	2112	2217	2268	2263

Note: Based on Household Expenditure Surveys (BBS), various years.

Table 4: Per Capita Consumption of Major Food Items (kg.) - Bottom 50 percent of Households

Item	1991-92	1995-96
Cereals	12.58	12.32
Fish	.53	.709
Pulses	.34	.234
Meat	.134	.143
Fruit	.237	.268
Milk	.169	.332
Vegetable	4.0	4.93

Note: Based on HES 1991-92 and HES 1995-96.

While all land-owning groups have registered an improvement, the 'absolute landless' have improved the most, followed by the two richest land-owning groups. The increase in the Gini inequality index during this period is related to the relatively weaker performance of the middle land-owning groups.[10]

[10] In addition, the Gini index tends to assign a higher weight to the middle ranges compared to the extremes - a characteristic that has led to a higher index despite substantial improvement of the landless.

Table 5: Change in Monthly Household Expenditures, 1991/92-1995/96

	Taka/hh per month (1991-92 prices) 1995-96	1991-92	Change (%) (constant prices)
Landless	2036	1511	41.1
.01-.04	1715	1618	7.2
.05-.49	2283	2157	7.0
.5-1.49	2918	2738	7.9
.51.5-2.49	3538	3487	1.8
2.5-7.49	4862	4185	19.4
7.5 +	8317	6915	24.3
All	2894	2721	7.6
Gini ratio	.384	.364	

Note: 1995-96 prices were deflated by the CPI for Rajshahi (which increased faster than those for the other three regions for which the CPI was available).

Given the macro trends noted above it would be logical to expect a decline in poverty. Indeed, progress has been made even if its extent is somewhat controversial, especially over the latter half of the 1990s (Table 6). Comparisons between the early 1980s and mid-1990s show a decline in the headcount ratio as well as in indices like the poverty gap index and its square. The improvement has been especially marked for the urban areas, while the situation in the 1990s has been one of stagnation - the small improvement suggested by the figures is likely to be statistically insignificant. The year to year (short-term) variability is relatively large, making it difficult to assess small changes in poverty estimates - specifically whether these can be attributed to trends over time. Neverthless, it is clear that that there has been a significant impact on poverty reduction over the main SAP period.[11]

Labour Market Conditions

The labour market has been quietly changing in several ways. Households selling agricultural labour have declined from 22.6 percent to 16.9 percent between 1983-84 and 1995-96. There has been a shift out of agriculture to non-farm employment and self-employment, as well as greater out-migration to towns. In particular there has been a

[11] It has been observed however, that the rate of decline in poverty in the 1980s and 1990s has been slower than the preceding period (Khan, A.R., 2000).

huge expansion in employment (mostly self-employment) in the trade and transport sector with the expansion of roads and better communication. The number of rural households reporting ownership of rickshaws and rickshaw vans, for example, increased from 55,000 to around 500,000 over 1983-84 to 1995-96 (Hossain, 2000).

Table 6: Some Estimates of Poverty, Selected Years

	Head-count		Poverty Gap		Squared Poverty Gap		Gini Ratio	
					Urban	Rural		
	Urban	Rural	Urban	Rural			Urban	Rural
Est. A								
1983-84	40.9	53.8	11.4	15.0	4.4	5.9	.298	.246
1985-86	30.8	45.9	7.3	10.9	2.5	3.6	.314	.246
1988-89	35.9	49.7	8.7	13.1	2.8	4.8	.326	.265
1991-92	33.6	52.9	8.4	14.6	2.8	5.6	.319	.255
1995-96	26.3	51.1	6.0	14.1	1.9	5.5	.367	.288
Est. B	Poor (%)		Very Poor (%)					
1981	73.2		50.1					
1986	51.7		21.7					
1990	47.5		28.0					
1994	46.0		-					

Source: BIDS (1999); World Bank (1998).

Sectoral wage indices for agriculture and fisheries along with wage data of unskilled agricultural workers are shown below (Table 7). The daily agricultural wage rate reported by BBS shows a relatively small increase over 1987-88 to 1996-97, suggesting a fall in real wages. It will be seen nevertheless that the real wage rate for Bogra (an important green revolution area - and an area for which micro panel data was generated for this study) has managed to keep pace with the rate of inflation.[12]

If we look at the sector -specific wage indices for agriculture and fisheries, we note a substantial increase in the former, relative to the CPI. There is some ambiguity in the wage data and the wage-index although it is quite clear that the green revolution belt, at any rate, is likely to have witnessed rising real wages. The demand for hired labour is higher in irrigated areas. One study estimates the differential impact on hired labour between irrigated and non-irrigated areas at 68 percent, although its total impact on

employment (including self-employment) is ambigous. (Shahabuddin and Rahman, 1998). A review of different micro estimates of under-employment reveals however that this has tended to decline over time.[13] Again, a comparison of wage rates between irrigated and non-irrigated areas brings out a clear wage differential ranging between 14-30 percent. It would thus be reasonable to conclude that modern cultivation practices do have a favourable impact on the labour market (employment and wages). These may not be enough, however, to counteract countervailing forces, e.g. inter-regional labour mobility for cross-section analysis or increase in labour supply over time to significantly affect overall employment and wages for the country as a whole (Shahabuddin and Rahman, 1998).

Land Tenure

The land tenure situation has also undergone substantial changes. The proportion of cultivated area under tenancy has increased between 1983-84 and 1996 (the last two periods for which relevant data is available) from 17 percent to 22 percent. Even more significantly, the share of the poorer land-owning groups has increased. Thus the share of 'marginal farms' increased from 3 to 5 percent while that of 'small farms' increased from 26 to 37 percent (Hossain, 2000).

Another striking change in the tenurial situation relates to the type of contract that is now becoming popular. The traditional 50-50 share system is on the decline and is being rapidly replaced by fixed-rent (cash) contracts, especially where HYV-irrigation is involved. Thus share tenancy has declined from 74 percent in 1983-84 to 62 percent in 1996 while fixed-rent contracts have risen (Table 8). The fixed-rent contracts allow the tenants sufficient incentive to invest in modern farming methods allowing them to reap the fruits of their investment. The traditional share-cropping system, however, is still favoured under (more risky) rain-fed conditions.

[12] Bogra wage rate increased in nominal terms by 55% while the relevant CPI (Rajshahi) increased by 52 %.

[13] Thus Shahabuddin and Rahman (1998, p.133) point out: " ..the downward trend in the percentage of unemployment is quite clear and pronounced".

Table 7: Rural Wages and Inflation

	Daily agr. wage rate (Tk/day, without food)		Agr. Sector wage index 1969-70=100	Fisheries sector wage index 1969-70=100
	BD	Bogra		
1987-88	32.3	25.3	1049	1189
1988-89	31.9	24.9	1115	1225
1989-90	30.3	25.5	1245	1403
1990-91	31.4	24.8	1321	1452
199192	31.2	25.1	1425	1547
1992-93	33.3	27.4	1523	1641
1993-94	34.6	28.9	1593	1699
1994-95	34.9	32.5	1653	1770
1995-96	35.7	37.0	1738	1882
1996-97	37.3	38.8	1804	-
Change over period (%)	16.5	55.2	72.0	58.3
Change in CPI (National)	48.8			
Change in CPI (Rajshai, Middle Income)	52.1			
Change in CPI (Ind. Workers, N'ganj)	48.3			

Table 8: Changes in Land Tenure

Indicators	1983-84	1996
Owner farms ('000)	6239	7250
Average size of owner farm (ha)	0.86	0.65
Tenant farms ('000)	3730	4548
Average size of tenant holdings (ha)		
Land rented-in ('000 ha)	1.02	0.76
Percent of operated holdings under tenancy	1541	1837
Traditional share-in area ('ooo ha)	16.8	21.6
Area under fixed rent ('000 ha)		
	1140	1093
	400	672
Number of farm holdings ('000 ha)	9969	11797
Operated area ('000 ha)		
	9180	8181

The above review of macro trends in food consumption, poverty, land-tenancy and labour markets reveals important changes between the 1980s and 1990s in terms of a more congenial food security regime. The diet has become more balanced, poverty has declined, the tenancy and labour markets, have moved in the right direction while rural non-farm incomes have made very important strides. The next section looks at some micro evidence to check for signs of a possible macro-micro mismatch.

7 HOUSEHOLD FOOD SECURITY: THE MICRO EVIDENCE

Sample Characteristics

Table 9 reports basic socio-economic data for the two periods. A number of interesting points emerge:

- The average age of the head of household has increased - as expected
- The average education level of the head has declined (as well as that of his wife)
- There has been a significant drop in labour market involvement of the head. The incidence of second and third occupation has declined dramatically
- The average education of male children has declined over time, and their position compared to female children has worsened significantly
- The family size has decreased (from 5.94 to 4.86)
- There are more males in 2000 compared to 1989
- Land ownership per household has declined but has remained static in per capita terms
- Wage rates have roughly doubled but the price of paddy at harvest increased slowly by only around 25 percent.

Table 9: Selected Sample Characteristics

Characteristic	1988	2000
HH Head		
Age	40.9	46.3
Education	5.1	3.42
Main occupation	Owner cultivator (45%)	Owner cultivator (54%)
	Labour & Transport (40.6)	Labour & trans (24%)
Second Occupation	Reported by 63%	Reported by 30%
	Sharecropper	Sharecropper
	Labour/ Transpt	Labour/Transpt
Third Occupation	Sharecropper (50%)	None reported
	(reported by 20% of hhs)	
Wife of HH Head		
Age	33.7	36.9
Education	3.54	2.15
HH		
Education (children 5-15, m)	4.15	3.48
Education (children, 5-15, f)	3.27	3.75
Family size	5.94	4.86
Gender ratio -m/f	51.1:48.9	52.3:46.9
Land owned		
- Polipara	2.63	2.10
- Volta	0.82	0.75
Per capita land	0.29	0.29
Wage rate	Tk 15-20 plus 3 meals	Tk. 40-50 plus 3 meals
Rice price (received)	Tk. 190-220 (Dec-Jan)	Tk. 240-60 (Dec-Jan)

Food Consumption: 1988-89

We are able to examine food consumption in 1988-89 in some detail given that we have 15 periodic observations available for each household for this period. We are also able to compare the data for January 1988 with that of January 2000. Average consumption

of rice and other foods is reported in table below, for the period 1988-89, by socio-economic categories. Table 11 reports the same data for the post-harvest period of January 1988.

What is immediately striking is the considerable variation in rice consumption by socio-economic groups for 1988-89, with the non-farm labour group at the bottom of the pile. On the other hand rice consumption is virtually evened out during the post harvest period (with the farm labour group consuming the most) - see also graphs 1 and 2. In part this is likely to be 'compensatory consumption' but in addition it could be due to meals provided to farm labourers as part of payment and the additional calorie requirement because of hard physical work involved. The basic point however is that excessive variation in rice consumption across groups and over seasons is an indication of food insecurity (since rice is the main staple). The tables below suggest that such insecurity was significant in the late 1980s.

Table 10: Food Consumption (kg) per Adult Unit; 1988-89

		CATEGORY							
		farm lab	nonfarm lab	poor peasant	nonfarm poor	med peasant	nf med	ich farm	Total
XFISH	Mean	.03	.04	.05	.02	.04	.04	.05	.04
XMEAT	Mean	.00	.01	.01	.01	.01	.02	.02	.01
XOCER	Mean	.02	.05	.04	.08	.07	.04	.07	.06
XPULSE	Mean	.00	.01	.01	.01	.01	.01	.01	.01
XRICE	Mean	.52	.51	.52	.55	.56	.56	.62	.56
XVEG	Mean	.22	.20	.19	.23	.22	.19	.25	.22
XWVOL	Mean	.02	.01	.00	.00	.01	.00	.00	.01

Table 11: Food Consumption (kg.) per Adult Unit; Jan 1988

		CATEGORY							
		farm lab	nonfarm lab	poor peasant	nonfarm poor	med peasant	nf med	ich farm	Total
XFISH	Mean	.06	.00	.02	.00	.03	.08	.08	.05
XMEAT	Mean	.00	.00	.04	.00	.00	.07	.01	.01
XOCER	Mean	.02	.00	.00	.57	.00	.04	.02	.06
XPULSE	Mean	.00	.00	.01	.00	.00	.00	.00	.00
XRICE	Mean	.65	.62	.50	.47	.55	.57	.60	.57
XVEG	Mean	.47	.31	.19	.17	.22	.17	.21	.24
XWVOL	Mean	.00	.00	.00	.00	.00	.00	.00	.00

Table 12: Food Consumption per Adult Unit (March-April, 1988)

		CATEGORY							
		farm lab	nonfarm lab	poor peasant	nonfarm poor	med peasant	nf med	ich farm	Total
XFISH	Mean	.01	.09	.03	.02	.04	.02	.04	.03
XMEAT	Mean	.02	.00	.00	.00	.04	.00	.02	.02
XOCER	Mean	.04	.00	.12	.36	.02	.00	.04	.07
XPULSE	Mean	.00	.00	.01	.00	.00	.02	.02	.01
XRICE	Mean	.45	.51	.48	.47	.53	.49	.66	.55
XVEG	Mean	.24	.22	.21	.20	.28	.15	.63	.37
XWVOL	Mean	.07	.00	.00	.00	.05	.00	.01	.02

The variation in vegetable consumption on average is small (graph 3). It is interesting to note however that the poorer groups consume much more vegetable compared to the rich during the post-harvest period. There is small variation across groups in fish consumption as well, except during the post harvest period (graph 6).

Food Consumption: 2000

A comparison of Tables 11 and 13 shows that rice consumption has changed little for most groups. For the farm labour group however, rice consumption has decreased noticeably but appears to have been well compensated through consumption of other foods. In fact the main change that appears to have occurred in the sample population is a widening of the food consumption basket without much change in overall calories

consumed. Thus the increased consumption of meat, fish and pulses is a positive development and an indication of improving food security and a more balanced diet.

Land and Tenancy

The evidence shown in Table 14 point to the highly unequal land distribution status of the sample households, both among household groups and between the two villages (also see graph 1). There are some interesting differences between the two areas in terms of the tenurial situation:

- Renting in and out of land (in cash) is the dominant mode of transactions in the land market in Volta (which is also marked by a higher incidence of larger land- owners). However, traditional share-in is more popular in Polipara.
- The large and medium farms principally rent or share out land but are also significant buyers in the land-rent market. Sharecroppers are found in all socio-economic groups
- From discussions with these households it emerged that traditional share-arrangements were increasingly being replaced by a cash-rent system.

Table 13: Food Consumption (kg) per Adult Unit by Socio-economic Groups (Jan 2000)

	CAT					
	farm lab	Non-farm lab	poor farm	medium farm	Non-farm medium	rich
rice	0.55	0.57	0.50	0.57	0.55	0.61
wheat	.	.	0.06	0.11	.	.
meat	0.10	0	0.04	0.07	0.08	0.25
fish	0.09	0.07	0.08	0.15	0.12	0.13
pulses	0.05	0	0.04	0.08	0.08	0.1
vegetable	0.18	0.13	0.13	0.16	0.18	0.21
potato	0.14	0.13	0.10	0.11	0.07	0.17
milk	0.12	.	0.13	0.23	0.1	.
eggs	0	0	1	2	0	.
eggplant	0	.	0	0.11	.	.
chicken	.	.	0	0.11	.	.

Table 14: Land Ownership and Tenancy Conditions by Socio-economic Groups (1988-89)

		LAND	SHARE_IN	FR_IN	ALL_IN	SHARE_OT	FR_OUT	ALL_OUT
		Mean	Mean	Mean	Mean	Mean	Mean	Mean
VILL Volta	farm lab	.19	.07	.12	.19	.00	.00	.00
	nonfarm lab	.00	.00	.58	.58	.00	.00	.00
	Poor far	.91	.00	.23	.23	.48	.00	.48
	nfarm poor	.00	.00	.14	.14	.00	.00	.00
	med far	2.25	.14	.14	.29	.14	.36	.51
	nf med	.00	.44	.29	.73	.00	.00	.00
	rich	6.63	.07	.75	.82	.51	1.74	2.25
	Total	2.63	.10	.37	.47	.24	.61	.86
Polipara	farm lab	.00	.14	.00	.14	.00	.00	.00
	nonfarm lab	.15	.00	.14	.14	.00	.00	.00
	Poor far	.00	.44	.11	.55	.00	.00	.00
	nfarm poor	.11	.18	.24	.42	.00	.00	.00
	med far	.47	.39	.06	.46	.21	.00	.21
	nf med	.03	1.16	.00	1.16	.00	.00	.00
	rich	2.33	.46	.39	.85	.08	.17	.25
	Total	.82	.35	.18	.52	.08	.05	.13

Table 15: Share-in and Rent-in by Groups (decimals/hh)

	SH_IN	SHA88_IN	RENT_IN	FIX88_IN
	Mean	Mean	Mean	Mean
Volta				
11	3.2	4	5.8	14.8
12	0	0	0	14.5
21	0	14.5	38.0	35.8
31	0	0	19.3	92.3
32	0	87	0	0
41	0	0	0	101.5
	1.16	9.56	16.62	37.2
Polipara				
11	232	22.0	7.2	22
12	5.6	0	3.8	10
21	31.2	63.14	20.7	6.7
31	0	58.0	36.5	63.0
32	29	29	0	0
41	0	0	0	87
	346	31.3	12.5	18.6

Note: See previous table

The original household classification has been retained to permit direct comparison of changes over time in land ownership, share-in, and rent-in of land over 19988 to 2000.

- All classes of households registered a decline in land owned but this was larger amongst the poorer sections.[14]
- There has been a general decline in the incidence of land lease by the sample households. Thus 47 percent and 33.3 percent reported renting-in and sharing-in land in 1988 compared to 27.5 percent and 17.6 percent in 2000. Similarly, area leased in also declined, especially in Volta.
- Both graphs 2 and 3 show that poorer groups have assumed a larger share of the land lease market compared to the situation ten years ago.

[14] However, as noted earlier, there was no decline in per capita terms.

Non-Land Assets

Table 16 provides data on asset ownership in current prices. For the period under consideration the GDP deflator increased by around 52 percent while the CPI (middle income group) increased by around 57 percent. As expected livestock are the most valuable asset for a rural household after land, followed by 'equipment and transport'. There has been quite a sharp decline in livestock wealth especially in Volta where the value of livestock has fallen even in nominal terms (the fall in real terms is of course much more severe). In Polipara livestock wealth appears to have remained static.

Table 16: Non-Land Asset Distribution (Tk) by Socio-Economic Groups

	LIVE			POULV			EQTRV		
	1988-89	2000	Ratio	1988-89	2000	Ratio	1988-89	2000	Ratio
Volta									
Farm-lab	3584.8	5388.8	1.5	150.1	228.8	1.52	1030.2	922.2	0.89
Non-farm lab	137.5	0	0	191.7	650	3.39	191.5	3000	15.6
Poor farm	5508.2	4062.5	0.73	246.4	400	1.62	2273.5	343.7	0.15
Non-farm poor	20361.5	9866.6	0.48	349.5	426.6	1.22	2253.3	18933.3	8.4
Non-farm med	6300	0	0	237.2	0	0	600	300	0.5
Rich	12727.8	5750	0.45	285.3	400	1.40	853	225	0.26
	6777.7	4884	0.72	222.5	345.6	1.55	1476.3	2984	2.0
Polipara									
Farm -lab	806.81	2500	3.09	89.6	200	2.22	106	0	0
Non-farm lab	1926.4	4200	2.18	111.1	178.7	1.60	1354.4	937.5	0.69
Poor farm	7552.4	8428.5	1.12	367.0	404.2	1.10	3704.1	5450	1.47
Med farm	10634.3	18600	1.74	340.8	460	1.34	4157.5	10387.5	2.49
Non-farm med	5803.4	10500	1.80	180.0	396.6	2.20	262.3	3333.3	12.7
Rich	13113.4	14300	1.09	504.1	1280	2.53	20240	30450	1.50
	5718.1	8712	1.52	241.8	358.8	1.48	2985.3	5106	1.71

It is however very interesting to note that the farm labour group in Volta managed to retain the value of their livestock wealth while in Polipara the bottom groups have managed to increase their livestock assets. In overall terms poultry stocks have

stagnated and the value of equipment and transport has increased. In the case of the former, the poorer groups either managed to stabilize or improve their position while in the case of the latter the improvement has been concentrated largely in the medium farm category

The overall decline in animal holdings is also borne out by the per-household ownership of various animals between the two time periods. Per household ownership of bulls, cows and calves were 1.76, 1.76 and 1.39 in 1988 but declined to .54, .70 and .58 in 2000.

Labour Use and Employment

There are a number of interesting features that are revealed in Tables 17 and 18:

- Labour-selling households have declined over time
- Those households that sell labour are able to work more days than before
- The increase in wage rates has increased faster than the CPI or the GDP deflator - nominal wages increased by around 100 percent while the CPI increased by around 55 percent.
- Contract labour has become the single most dominant category for hiring of labour, replacing the traditional dominance of daily hired workers. The number of households hiring daily workers has dropped substantially although total demand has remained the same. On the other hand the demand for contract labour has expanded significantly. Aggregate labour demand has increased.

Table 17: Family Labour Sale

	Volta 1988	Polipara 1988	Volta 2000	Polipara 2000
HHs selling Lab (no.)				
- Boro	7	12	6	7
- Aman	9	6	6	6
Labour days/mo				
- Boro	5	4	9	6
- Aman	4	6	7.2	5.5
Wage rate (cash)				
- Boro	24	26	46	56
- Aman	21	28	47	56

Table 18: Household Labour Use
(Sample Households)

	Boro 1988	Boro 1999
Contract Lab Use		
- households using	22	22
- days	660	1000
Hired labour use		
- households using	31	16
- days	512	500

Non-Farm Incomes and Credit

In real terms access to credit, on average, has declined. It has declined even in nominal terms for some groups of people (Table 19/graph 4). Interestingly however, access to credit by the poorer groups has increased dramatically in real and nominal terms. With regard to non-farm incomes, there has been a substantial increase for most people although the better-off groups have tended to benefit more. This suggests that the poor have benefited from micro credit and higher non-farm incomes. The non-poor groups however, have been able to increase their access to non-farm incomes despite much reduced availability of credit.

Table 19

Credit and Non-Farm Incomes by Socio-Economic Groups

				CRED2K	CRED88	MINC2K	MINC88	LOSS10	GAIN10
				Mean	Mean	Mean	Mean	Mean	Mean
VILL	1.00	CAT	11.00	2490.56	595.37	1244.44	436.73	17500.00	3833.33
			12.00	2000.00	2146.15	3000.00	726.54	550.00	10750.00
			21.00	3250.00	1922.47	1425.00	644.37	15284.38	3750.00
			31.00	833.33	6750.00	200.00	760.56	13333.33	30666.67
			32.00	3000.00	400.00	2000.00	1090.91	.00	.00
			41.00	.00	.00	7500.00	1547.00	.00	11100.00
		Total		2316.60	1827.22	1848.00	680.21	12835.00	16008.00
	2.00	CAT	11.00	4500.00	118.75	200.00	187.50	.00	.00
			12.00	1500.00	1060.69	1952.50	1006.93	2268.75	2312.50
			21.00	285.71	3531.49	857.14	765.12	28785.71	4064.29
			31.00	5750.00	1098.33	2000.00	1225.97	12125.00	6900.00
			32.00	.00	5705.67	2666.67	656.36	3166.67	14500.00
			41.00	.00	.00	4500.00	2914.29	.00	27600.00
		Total		1840.00	2198.15	1700.80	942.94	11106.00	5826.00

Notes: MINC refers to monthly non-farm incomes. Loss10/Gain10 refer to value of assets lost/gained over the last ten years

Household Mobility and Change: 1989-2000

Information on the changes experienced by all 50 households studied, over the period 1989-2000, is provided ijn Annex Table 1. What emerges is very interesting: Out of 50 households, 14 (28 percent) were worse off than before, 4 households (8 percent) showed no appreciable change while the remaining 64 percent of households were found to have improved their situation. Amongst the bottom 22 households (the poor), 6 declined and 3 showed no change.

Of those found to have become worse off over time, the main factors appear to be life-cycle factors (old age, land fragmentation because of inheritance, marriage expenses of daughters and inability to develop a non-farm income source). On the other hand, those

whose situation has improved appear to have better access to land (through renting-in and sharing-in), to non-farm sources of incomes, and to credit.

8 SAP AND FOOD SECURITY - RESULTS OF FGD

Focus Group Discussion: Village - Volta, Bogra

A FGD was held on 15.12.99 at the local Madrasah premises. There were 25 participants in all coming from all sections of the community. The people present were briefed about the government policies that have been pursued in the past relating to input prices, subsidies, abolition of the rationing system and introduction of VGD and test relief, and liberalization of food imports. The people present seemed to agree that these changes have benefited them as job opportunities have increased and the poor are better able to cope.

- With regard to fertilizer availability, it was observed that the situation has improved greatly as it is now possible to get it quickly and easily, although the price was a little "too high".
- It was however pointed out that there is great uncertainty about quality of fertilisers available as there is no way farmers can ascertain this.
- Similarly, the farmers welcomed the new policy of privately owned tubewells that replaced the old BADC-regulated system of cooperative ownership and block-formation for distribution of irrigation water. However, they complained that costs of irrigation were "too high" although over the years the price of agricultural equipment had come done substantially because of import liberalization. Mechanization has increased rapidly.
- The problem of determining quality is also acute in the case of equipment and spares.
- Although in principle the policy of farm price support through paddy procurement by the government is meant to stabilise farm prices, most participants felt that the farmers do not get the benefit as most purchases are made from traders and millers.
- The participants noted that infrastructure has improved greatly, including roads and schools

- There is more absentee landlords now than before resulting in more land available for renting in at fixed rates - a form of access to land that has expanded relative to the traditional 50 percent share-cropping system.
- Health-sanitation services and awareness has increased.

Focus Group Discussion: Village Polipara, Bogra

A FGD was held on 19.12.99 at the local mosque premises with a total of 21 participants derived from all walks of life. As before the discussion was preceded by a brief introduction to government policy changes in the food and agriculture sector over the last ten years. The views of the participants are detailed below.

- The changed focus of food policy resulting in replacement of rural rationing by a greater emphasis on Food for Works, Vulnerable Group Development, Test Relief etc has benefited the poor
- The participants expressed their satisfaction with the fertiliser distribution system but opined that its pricing policy should be reviewed taking into account farmer's affordability. The problem of fertiliser quality was also considered serious.
- Satisfaction was also expresed with regard to the irrigation policy that allowed private ownership and reduced prices of equipment and thereby serving to lower water charges. However, it was noted that the system of operating deep tubewells was not working well as too many people are involved in its management resulting in conflicts.
- As before, the participants noted the severe constraints faced in selling paddy to procurement centres.
- Rural infrastructure has improved tremendously including metalled roads, schools, irrigation and electricity
- Agricultural yields have improved (both paddy and vegetables) and culture fisheries have expanded significantly, However, the participants expressed their concern about harmful environmental effects of chemical fertiliser and pesticide use, especially on fisheries.
- Education and health service facilities have expanded although the participants complained that they do not get access to medicine and treatment

- The main tenurial forms are cash rent for a season or some other period (e.g. several years) - longer term agreements are now more popular. Traditional sharing in (on 50 percent basis) has become rare.
- The participants felt that the incidence of poverty was "not very much" and the number of landless is static. Employment opportunities in agricultural and non-agricultural sectors are available, and the poverty situation is "tolerable".
- The law and order situation in the area was reported as being unchanged.

All the changes or impacts referred to above are of course not related to structural adjustments. On the other hand many are, especially those relating to agricultural production, input distribution and safety nets. Whether growing incidence of absentee landlords (and greater supply of land for rent) is related to SAP is more difficult to ascertain. The greater profitability and lower risk in agriculture (because of the better availability of inputs/electrification) does mean that the demand for land for rent has increased (as distinct from share-cropping).

There also appears to have been significant infrastructural investments (in part through FFW). It is also possible that savings generated from reduced subsidies on e.g. fertilisers may have indirectly helped to divert more resources to these sectors. In addition, a better climate for credit availability (especially for the poor) and significant generation of non-farm sources of income has been noted - perhaps in part due to higher agricultural productivity and irrigation coverage. These together, have certainly served to contain poverty even if all the credit cannot be given to SAP. Thus three elements have worked together to improve the food security regime of the poor: somewhat easier access to land, non-farm incomes, and credit. In addition food prices have been low (declining in real terms) while wages and earnings have improved. Provision of public goods (roads, schools, clinics) and safety-nets have also helped to improve the situation.

On the negative side, adverse environmental effects were noted, especially on fisheries, but also on soil productivity, susceptibility to pest attacks and diminishing ground-water levels. The problem of arsenic was not mentioned - perhaps because of lack of awareness or absence of the problem in these localities. However, the massive

exploitation of groundwater that has been encouraged by e.g. privatization and reduction of import duties on irrigation equipment, has undoubtedly contributed to this potentially massive problem.

There is an acute market failure that has affected the fertilizer and pesticide market, as well as the agricultural equipment market, relating to product standardization and product quality. This has introduced a new element of potentially serious risk to agriculture. Differential pricing policy for different fertilizers has also led to excessive use of urea (whose price is controlled by the government) at the cost of TSP and MP.

Anecdotal reports have also been received on the negative impact on SAP on rice/paddy markets leading to shutdown of mills and trading firms and in general reducing the demand for *beparies* and *farias* (subordinate traders). Much of the employment in the paddy trade arose from the need to procure timely supplies of grain by millers and traders requiring tying in arrangements with suppliers down the marketing chain. Import liberalization has meant that these arrangements can now been dispensed with as "supply is no problem" anymore.

9 CONCLUDING OBSERVATIONS AND DISCUSSION

The national food security regime has improved significantly as a result of good agricultural performance, removal of restrictions on food imports by the private sector and enhanced macro-economic stability, including a low inflation rate. Indeed low, stable food prices have been central to containment of inflation. Foreign exchange reserves have also been comfortable helped along by modest rise in exports and remittances, allowing both the government and the private sector to channel food imports whenever dictated by market forces.

At the micro level, access to food improved significantly (especially of the poor) through growth in non-farm income, availability of credit, improved access to the land market and employment demand:

- Rice consumption has changed little for most groups. For the farm labour group rice consumption decreased noticeably but was found to have been well compensated through consumption of other foods.
- There was no change in per capita land owned although in per household terms inequality in land ownership increased
- Poorer groups have assumed a larger share of the land lease market compared to the situation ten years ago.
- There has been quite a sharp decline in livestock wealth. However interestingly, farm labour group in Volta managed to retain the value of their livestock wealth while in Polipara the bottom groups have managed to increase their livestock assets.
- The increase in wage rates was faster than the CPI or the GDP deflator - nominal wages increased by around 100 percent while the CPI increased by around 55 percent.

The macro evidence discussed is in broad agreement with the micro findings and serves to bolster our faith in the latter. It is likely, however, that the micro-level changes observed in the sample data may have tended to overstate the positive changes because of the greater impact of the Green Revolution in the area from which the sample is derived. Nevertheless, the trends identified are quite consistent with the national and regional data.

Two serious types of market failures were observed:

(c) related to the inability of the market to ensure that farmers have access to adequate information about the quality of agricultural inputs like fertilizers and machinery;

(d) the inability of the market to take into account the substantial negative impacts on the environment, especially on soil, surface and ground water.

Overall food security and poverty has undoubtedly improved in Bangladesh in recent years (helped along by SAPs). Specifically, input liberalization (particularly for irrigation) has had a very significant impact in promoting the impetus of the Green Revolution. Liberalization of the government monopoly of the fertilizer distribution system and withdrawal of price subsidy has had mixed effects, although the overall situation, may have marked a slight improvement. On the output side, import liberalization of rice and wheat has had very major food-security impact enabling large foodgrain imports from

India in recent years in record time, in the face of widespread domestic shortages (Dorosh,1999). The other major dimension of SAP has been the restructuring of the Public Food Distribution System, which again has led to elimination of a wide range of subsidies and much superior targeting. Expansion of programs like Vulnerable Group Development (VGD) for poor female-headed households, Food for Works (FFW) to provide seasonal employment to both poor men and women, Rural Maintenance Programme (RMP) and Food for Education (FFW), for example, have had important food security impacts (see Choudhury and Ninno, 1998; Choudhury and Sen, 1997; Ninno and Roy, 1999). A logframe approach was conducted to validate these conclusions (Annex Table 2).

The entire credit for all of the changes identified here cannot, of course, be attributed to the SAPs - all one can say is that the SAPs, taken together, have had a significant and positive impact on rural welfare. In particular, the critical (and enabling) role of NGOs and the micro-credit revolution, as well as huge investments that have taken place in infrastructure (roads, irrigation, flood-control structures), education and health, need to be adequately recognized. Specific attribution to SAPs was attempted (Annex Table 2) using a logframe approach. We have concluded that the impact of changes in the distribution system of fertilisers have improved availability and access while reduced subsidies does not appear to have led to any significant negative impacts. It is also clear that import liberalization of irrigation equipment and foodgrains have had very significant food security impacts through improved production, availability and more stable food prices. Similarly, the reforms undertaken in the PFDS has led to better targeting while seed market reforms have been too partial to have any significant impact.

The situation remains precarious, however, in the face of enormous emerging environmental challenges,[15] depletion of ground-water resources, and uncertainties in terms of potential destabilization of macro variables due to declining exports, and industrial growth, depletion of foreign-exchange reserves and increasing deficit financing of government expenditures. At the sectoral level, the market failures identified need to be urgently addressed.

[15] Some of which may well be linked to SAPs.

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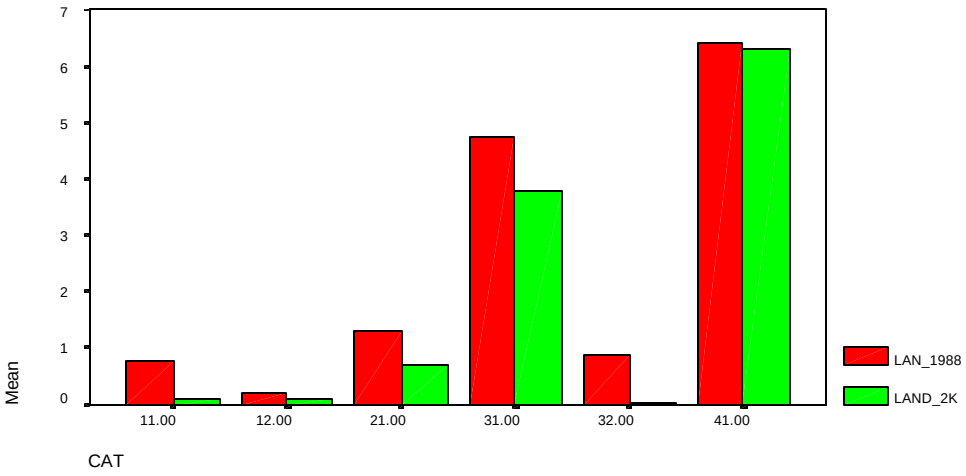
Graphs

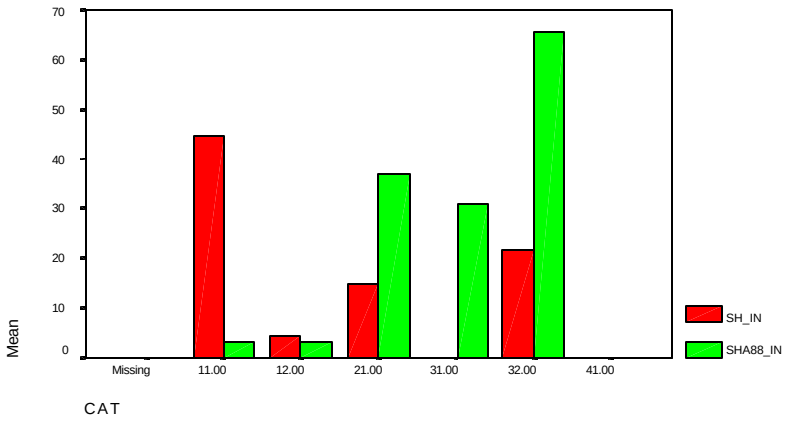
Graph 1: Land Ownership: 1988-2000



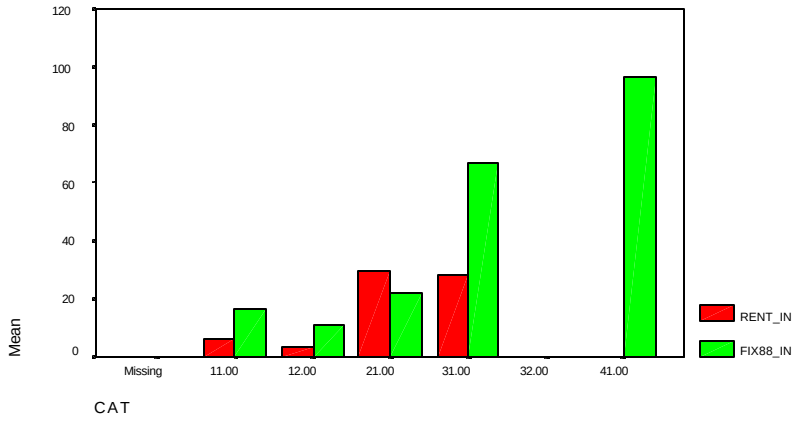
		LAN_1988	LAND_2K
		Mean	Mean
CAT	11.00	.77	.09
	12.00	.21	.10
	21.00	1.31	.71
	31.00	4.76	3.81
	32.00	.88	.05
	41.00	6.39	6.30

Note: 11 (farm lab) 12 (nfarm lab)
21 (poor farm) 31 (med farm)
32 (nf med) 41 (rich)

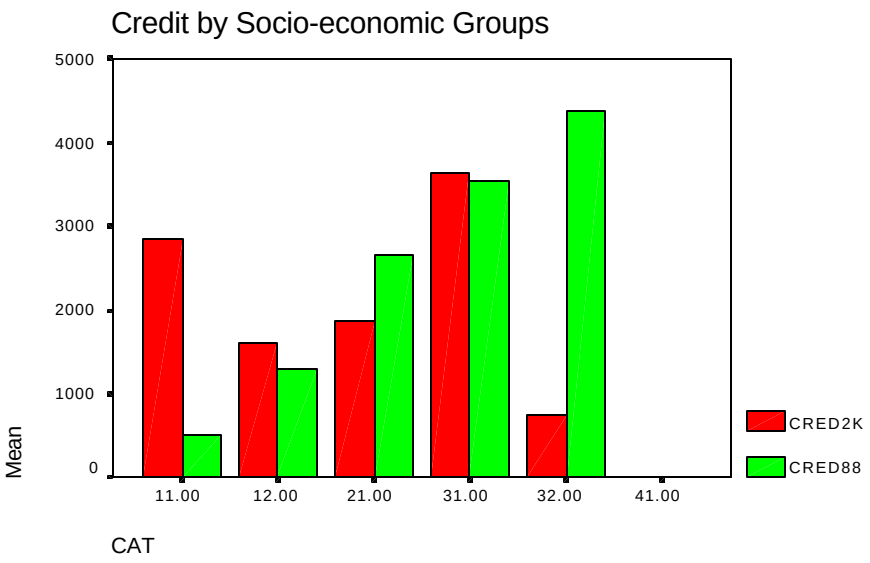
Graph 2: Share-in land: 1988-2000



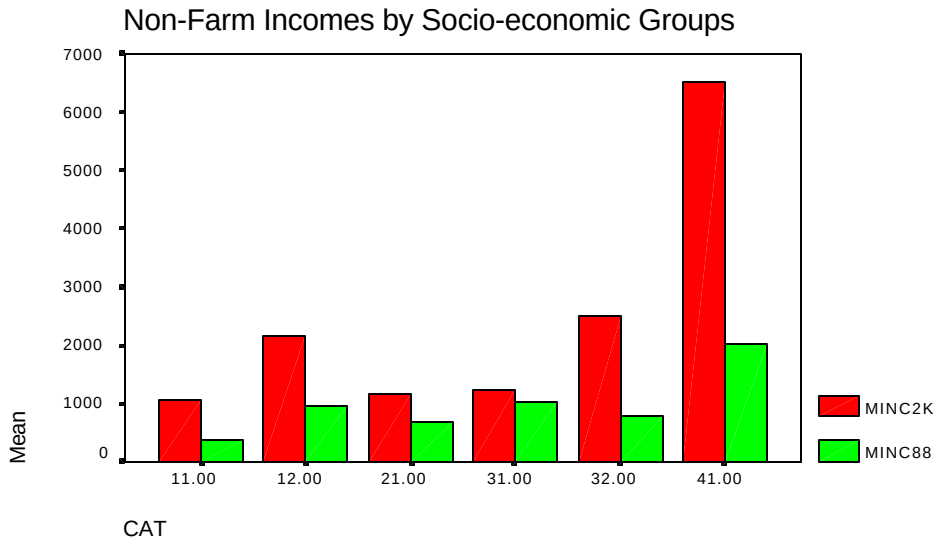
Graph 3: Rent-in Land: 1988-2000



Graph 4



Graph 5



Annex Table 1: Household Dynamics. 1989-2000

Socio - Economic Category	Change	Remarks
POOR		
1 Ebarat Ali Pramanik - landless labour	No change	Owns plough/bullocks and earns Tk.80/day. I
		40/day plus food. Does not get employment a
2. Md. Ali, landless and old	Declined	Children gone away; rents in .33 acres but fir
		employment due to age
3. Nurul Islam, young but separated from joint family	Declined	Thinks he was better off when with the joint
		depends on labour sale and salary from fire-n
		time)
4. Abul Hossain, marginal farmer	"Better Off"	Now owns .3 decimals of land. Sold land and
		children. One son now has a salaried job. He
5. Rahman Pramanik, marginal farmer	Declined	Has .24 decimal cultivable land; shares in son
		four months in a year - ten years ago he did n
6. Jamal Uddin, petty trader	"Better off"	Quality of life unchanged - may be even wors
		family hopeful they will get a job
7. Habibur Rahman, daily labourer	Slightly better off	Owns plough/bullock plus adult son; wife tol
		some land
8. Shamsul Fakir, no land, labour sale	No change	In debt Tk.2000; survives purely through labo
9. Afzal Ali, landless, share-in	Better off	Owns spray machine - demand all year round
		go to school
10. Nizam Mondol, landless, small trader	Better off	Bought .08 acres of land in last ten years; goo
		bought cassette
11. Aftab Ali, mason	Better off	Did not buy or sell land, owns .29 acres; shar
		days a month; also owns bullocks and goats
12. Sobhan Sardar, landless labour	Better off	Rented in .145 acres; cattle trader; micro cred
13. Shamsul Fakir, Van driver	Better off	No cultivable land; owns van (gift)
14. Ebad Ali, landless, trabsport worker	Better off	Bouight .12 acres land; rented in .31 acres; al
15. Ayub Ali and his son are rickshaw pullers; no land	Better off	Rented in some land but his rickshaw stolen;
		to absorb shock "somehow"
16. Abdur Razzak, fishing, share-in	Better off	Credit from ASA, shares-in small piece of lar
17. Bhaben Burman, works in rice mill	Declined	Sold cows for marriage of daughter; wife rais
18. Rezaul Huq, rickshaw puller, owns a small plot	No change	Earns Tk.50-60/day from rickshaw; some pac
19. Jagannath Barman, landless labour; silver smith	Better off	Shares-in land; good earnings from smithy
20. Delwar Hossain, silver smith, no land	Declined	Expenses have increased more rapidly than in
21. Abbas Ali, landless labour	Better off	Bought van for son on credit

22. Mizanur Rahman, sharecropper	Declined	Sold assets and in debt
SMALL FARM		
23 Montaj Pramanik, small farmer	Better off	Children independent; no dependents except
24. Zillur Rahman, owns 1 acre, shares-in 1 acre	No change	Family size increased; involved in land litigat
25. Mofel Sardar, shares-in 1 acre + small business)	Better off	Small family
26. Shamsul Islam, small farmer	Declined	Sold land, for marriage and cow for debt
27. Siddiq Akhand	Declined	Sold land; debt; needs to buy food
28. Ismail Hossain, retired	Decline?	Used to be well off (Trade, cultivation) but n three sons
29. Abdul Mannan, share-in	Declined	Sold land, bought auto-tempo; children go to
30 (Akkas son of Bulbul - the previous head	Better off	Owns .3 acres plus shares-in 1 acre; also wor furniture; sold cows
31. Solaiman Hossain (UP Chair, rich)	Improved	Owns 14.5 acres - never sold
32. Dalil Uddin (large farmer)	Better off	Formed separate unit after his father's death; share-in; productivity increased
33. Abdul Jalil, own land plus share-in	Better off	Modern agr./bought land
34. Abdur Rahman, rich owner-farmer	Improved	Easier access to irrigation, fertiliser
35. Ismail Hossain, rich/influential	Improved	Rents out, cultivates some himself; poultry fa
36. Ibarat Ali, rich farm	Declined ?	Sold land, married two daughters, son educat
37. Moffazzal Ali, cultivates .66 acre plus tailor)	Declined	Sold assets (land/cows); parental land divide
38. Badesh Pramanik	Better off	Got land through marriage; son pulls ricksha
39. Md Ali Pk, agri and tailoring	Better off	Shares-out land; good earnings from tailoring
40. Tofazzal Hussain	Declined	Sold land; no non-land incomes
41. Shamsuddin Ahmed, rented-in land, micro-credit	Better off	Sold land but good earnings; also drives van
OTHER FARMS		
42 Mojahar Ali, medium rich farm	Improved	Bought land irrigation equipment
43. Solaiman, owner-cultivator	Improved	Sons educated; bought land
44. Alef Uddin, large, joint family	Improved	New wing in house, new tube-well
45. Yakub Ali (small trader, sharecropper)	Better off	Bilt small house and pucca latrine
46. Jewel Pk, (Shop owner/business)	Improved	No land but has other assets
47. Nasir Fakir, Large sharecropper	Improved	Shares-in 5 acres - brother in law of landlord;
48. Milan Chandra, Silver smith	Better off	Bought small plot;
49. Barkat Ali, large joint family	Better off	Five male adult sons; hard-working
50. Mofazzal Pk, large farmer	Decline	Sold land; no non-farm incomes

Annex Table 2 SAP and Poverty - A Logframe Approach

SAP		Intended Effects	Actual Impact	Relationship t Poverty
Fertiliser pricing and distribution				Poor farmers better access;
(i)	Reduction of subsidy on urea	prevent smuggling; improve availability; improve efficiency; reduce pressure on the budget	Availability improved; Prices increased.	Use per acre f little - thus ou not significan
			Availability improved	affected
(ii)	New distribution system	improve availability; stabilize prices		
Import liberalization				
(i)	Irrigation equipment	Lower import prices; increase consumer choice	Imports increased and irrigated area expanded rapidly	Very positive response; bett availability; p effect on labo market
(ii)	Foodgrains	Lower prices for consumers; improve availability	Large private sector response, prices stabilized	Availability g improved; Po food security
Public food distribution system				
(i)	Safety nets	Direct targeting of the poorest, women	Able to reach the poorest groups, including poor women.	Good coverag targeting;
(ii)	Subsidy reduction	Reduce budgetary pressure; reallocate subsidies to poor through safety nets	Budgetary pressures eased; Distribution through safety nets increased.	
(iii)	OMS	Price stabilization of foodgrains	Positive	Lower prices food crises
Seed market reforms		Allow private sector imports/production to improve availability, quality	Very partial reforms - Government monopoly on main crops not removed	No impact

Appendix 1

A REVIEW OF EXPERIENCE WITH SAPS

Macro and Sectoral Policy Regime Facing Agriculture

Bangladesh has made substantial progress towards trade liberalization and macro-economic adjustment policies, including rationalization of policies relating to agricultural price support and input subsidies. These have significant implications for food production and food security.

The Exchange Rate

An overvalued exchange rate implies that exports are more expensive relative to imports, negatively affecting incentives for domestic producers, including farmers. Recent estimates of the equilibrium exchange rate (the rate that is consistent with a sustainable level of current account deficit for a given set of trade taxes and subsidies), calculated on the basis of a number of plausible assumptions, suggest a sharp decline from 41 percent in 1989-90 to 25 percent in 1991-92, coming down to as low as 10 percent in 1997-98 (Shilpi, 1998). Thus for much of the 1980s, overvaluation has been a severe problem although its extent has now come down substantially.

The Trade Liberalization

Compared to industry and manufacturing, agriculture has historically received very little protection. With the exception of sugar, tariff rates on most agricultural products are low. On the other hand, the recent withdrawal of the ban on private sector imports of foodgrains (including rice) has thrown the entire sector open to direct competition, e.g. with Indian farmers. Thus, in the face of a supply shock, Bangladeshi consumers benefit from lower import prices while in normal times, domestic prices tend to be below import-parity.

Input Markets

a. Fertilizers

The fertilizer distribution system went through major reforms in the late 1980s to early 1990s when the monopoly role of the Bangladesh Agricultural Development Corporation (BADC) in the wholesale trade and distribution of urea fertilizer was withdrawn. Non-urea fertilizer trade and distribution was also opened up to the private sector. Subsidies on TSP and MP were eliminated and urea prices were also raised to border price levels. Some major policy reversals took place following the urea price crisis of 1994-95, stemming from a large discrepancy that emerged between the domestic and the international price.[16] While the price differentials have narrowed since, there remains a significant economic subsidy on urea. A financial subsidy is also implicit as the price of gas used in urea production is lower than the world market price.

b. Minor Irrigation

The market for minor irrigation has undergone major reforms since 1987 that contributed to an unprecedented spurt in area expansion under irrigation. This experience is well documented (Ahmed, 1997). Irrigation equipment does not incur any import duties and prices have fallen drastically over the last decade. However, a small but significant subsidy has been retained for deep tube-wells (DTWs), on the ground that required investments are lumpy and for certain agro-ecological zones, the only method applicable.

Irrigation expansion has been a vital component of the government strategy for increasing agricultural production. Thus, while the liberalization of trade and removal of siting restrictions and standardization requirements on e.g. shallow tube-wells, led to a burst in irrigation coverage between 1986-87 to 1989-90, fuel price hikes during the Gulf War, withdrawal of input subsidies and re-introduction of siting restrictions led to the observed slow-down of the early 1990s. This trend was further aggravated by the slump in output prices.

c. Seed Markets

The government monopoly and seed imports and distribution has been relaxed somewhat. Thus the National Seed Policy, 1992 has provided for privatization of seed production beyond the foundation stage and has also closed down most retail centers

[16] Abdullah et al (1995) observes that the urea price policy in the mid-1990s was inconsistent with the general orientation of trade and exchange rate liberalization, causing wide divergence between the domestic

operated by BADC. The Plan also envisaged phasing out of subsidies. The government however, continues to retain its monopoly on five certified seeds (rice, wheat, sugarcane, potato and jute) – implying that varietal development, evaluation, maintenance, multiplication, quality control and distribution are conducted entirely by the public sector. There is a great reluctance on the part of the government to liberalize this sector, fearing that this could open up the flood gates to the import of cheap, poor quality seeds that could potentially spell disaster for the food economy. On the other hand, farmers currently continue to face a crisis of availability for quality seeds leading to large-scale smuggling from India.

Service Delivery

The Bangladesh Agricultural Development Corporation (BADC) was the main vehicle through which the government sought to modernize agriculture. Thus, it was mandated amongst other things (a) to make arrangements on a commercial basis, for the procurement, transport, storage and distribution of essential supplies such as seed, fertilizer, plant protection equipment, pesticides and agricultural machines and equipment, and (b) to promote the development of cooperatives with a view to handing over to them its supply function in a phased program.[17] BADC initially had great success in making arrangements for input supplies, especially related to minor irrigation and fertilizer distribution. However, these functions were never conducted on a commercial basis, soon leading to huge costs and a burden on the exchequer. This led to an insistence on institutional reforms and privatization from the late 1970s. Major reforms were thus initiated in the 1980s, especially in the field of fertilizer pricing and distribution and in the fielding, sale, distribution and maintenance of minor irrigation, resulting in a greatly diminished role for the Bangladesh Agricultural Development Corporation (BADC). However, attempts to restructure and downsize BADC met with stiff resistance and involved a big effort well into the mid-1990s. Ultimately it found itself considerably downsized, retaining a small presence in the irrigation sector (mainly in DTWs and large projects) and in the seed sector – with much of its other roles taken over by the the private sector.

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market price and border price and leading to smuggling.

[17] World Bank (1993, p. 55).

Social Safety Nets and Food Management

The reforms discussed above have implications for food security in terms of food production and availability on the one hand and wages and employment generation effects in agriculture, on the other. However, at around the same time as these reforms were introduced, major changes were taking effect in the sphere of food management policy in general and the role of the Public Food Distribution System in particular.

Half of all households in Bangladesh are said to be poor and unable to meet minimal consumption requirements. In the long run, the hope is that economic growth will generate sufficient employment and income to raise these people out of poverty. In the short term safety nets are often proposed so that the worst symptoms of poverty are tackled. The rationale for safety nets is also embedded in the logic of the growth process envisaged – namely export-oriented, open-economy led growth, fueled by foreign investment in labour-intensive sectors. The process of transition to such a high-growth regime may be associated with significant (temporary) adjustment problems causing poverty, unemployment and food insecurity to be further exacerbated.[18]

Safety Nets: targeted Programs

The Public Food Distribution System (PFDS) was set up in 1943 during the Great Bengal Famine and expanded rapidly afterwards. In the early 1990s, it channeled around 2.5 m MT of foodgrains (or 13 percent of all foodgrains consumed in the country)[19]. It operated 12 different channels (2 relief channels, 4 targeted channels serving the relatively better off and 2 untargeted channels). The PFDS was geared to a number of objectives that included price stabilization, farm price support, providing food to poor groups or groups in distress, as well as to certain 'priority' groups like industries and the Army. The share of the various channels of the PFDS in the early 1990s is shown below.

There has been a gradual trend towards reorientation and restructuring of the PFDS evident from early 1980 leading to a change in the composition of beneficiaries. Non-

[18] There is a huge body of literature on the impact of SAP on food security and poverty in the African and Latin American contexts.

monetized (targeted) programs like FFW, VGD and relief expanded rapidly from 0.4 m MT in 1981 to 1.4 m MT by the end of the decade while their share in total distribution climbed from around a quarter to more than half (World Bank, 1990) – a trend that continued well into the 1990s with larger targeted programs and additional channels like Food for Education. Entitlements to monetized channels like Statutory Rationing (SR) and Priority Groups were phased out or reduced – SR was initially reformed into a rural rationing program (Palli Rationing) in 1989 but even this was subsequently phased out over the next few years.

Food Management Reforms

One of the major goals of the PFDS has been to stabilize prices and provide price support to both consumers and producers. The former is conducted through Open Market Sales while a policy of procurement at floor prices addresses the latter concern. OMS is an effective tool and probably the only major tool available to the government to restrain prices in the face of production shocks e.g. during floods. Given the high priority that the government attaches to food price stabilization efforts have been made to ensure that there are sufficient stocks available for the purpose. These stocks have traditionally relied on aid imports, and increasingly on procurement supplies from farmers. Thus, while the price support program has not been very effective in propping up floor prices because of the modest scale of operations, the procurement system has been useful in replenishing and building stocks – needed both for OMS and for targeted programs.

The major reforms to take place in this sector relates to withdrawals on restrictions on private trade (e.g. removal of anti-hoarding laws and stock-keeping rules), a shift from mill-gate procurement by the PFDS to open tendering and further opening up of the private market to trade, first by allowing private wheat imports and then extending this to rice as well.

[19] World Bank (1995).