C. LONG-TERM OUTCOMES OF SAP-LED MEASURES

6.9 Participatory Poverty Assessment

"Some of us cultivate under sharecropping arrangement in irrigated areas. We borrow from others to meet production cost. We are left with almost nothing after the repayment of credit. This is how our poverty is caused."

— Agri-labourers of Sailgun, Joypurhat

6.9.1 The Participatory Poverty Assessment (PPA): Concept and Relevance

In Bangladesh, agriculture still commands an overwhelming part of the rural economy. The implications of any policy induced changes targeted towards the rural economy in general and agriculture in particular need to be ultimately sought in their impacts on the rural people and on the social, institutional, and physical environments where they live. To be sure whether any particular policy measure is suitable and effective one needs to look at the poverty trend over time either locally, regionally or nationally. Methodologically, while the conventional poverty measures based on poverty line have some advantages, its other limitations necessitate to look for alternative measures to overcome them. As the limitations of the conventional poverty research has already been well documented in the literature, the mention of its advantages has therefore been skipped here. The conventional poverty indices are based on "… a number of assumptions and simplifications that may obscure the true nature of the problem. Other ways of measuring poverty, including measures devised by the poor themselves, lead to different concepts and, accordingly, to different policy conclusions. Open ended inquiry into poverty issues and the lives of the poor reveals many insights and findings not captured by traditional household surveys" (Narayan 1997: 1). Participatory Poverty Assessment (PPA), an emerging research methodology under broader participatory research tradition seeks to understand poverty in the eyes of the poor by focusing on their realities, needs and priorities (Robb 1999: xii in Box 6.9.1). The PPAs were conducted in the three hamlets of the two study villages in order to measure the changes taking place over the last 10-12 years. Out of the three study hamlets, one had intensively irrigated agriculture, the other moderately irrigated agriculture and the last one the least irrigated agriculture. The direction of poverty trends over time and its underlying factors would help to assess to what extent those changes are attributable to the policy changes under the study.

6.9.2 Highlighting Some Methodological Issues Relating to PPAs

6.9.2.1 Well-being Assessment at the Two Levels

PPAs can be mounted in a variety of ways and in fact there is no hard and fast rules to do that. PPAs were conducted here through simple assessment of the well-being of the villagers by the two methods at the two levels. At the group level, well-being of all the households of the study villages was assessed by the ranking method. The other at the individual level, the assessment of the well-being of the households was carried out by the household heads themselves as the respondents. The exercise conducted at the individual level was not as rigorous and exhaustive as it is at the group level. Although the exercise at the individual level wass not a part of the PPA, its usefulness lay in complementing and cross-checking the PPA results and to find out some other aspects of the problem that may not be revealed in the PPA as such.

6.9.2.2 Steps in Well-being Assessment

It has already been mentioned that this investigation used ranking technique for the assessment of the well being of the households. The exercise was conducted by following several sequentially interlinked steps as shown in Box 6.9.2. The exercise began with conducting social mapping as a part of the household census of the village where all the households were listed with various information thereon. At the second stage, each of the village households was ranked on the basis of a mutually agreed upon set of criteria or characteristics of four broad economic categories, namely 'well-off', 'middle', 'moderate poor', and 'very poor' by at least three groups of villagers of the respective study village. Based on the criteria each of the household was rated and categorized by those participant groups on a 1-100 rating scale (disparity scale) with specified sub-scales for each of the categories. The scores of all the households assigned by three/four villager groups were averaged to find a single score for each household. On the basis of the scores, all the households were ranked in descending order with the highest score representing the richest household in the village, and the household with lowest score as the poorest one in the village. After the exercise had been completed, each household had a score which represented its relative position both on the disparity scale and within a certain economic category.

6.9.2.3 Disparity Scale

To conduct the PPA, each of the village households had been subjected to the well-being assessment by each of the three/four villager groups (three in Dehergati and four in Sailgun) in terms of a set of collectively agreed upon criteria for each of the four categories

against a measuring yardstick conventionally known as rating scale (or disparity scale)[2] ranging from 1 to 100 points — 1, the lower limit, for the household at the bottom of the scale representing the condition of the most wretchedly poor household in the village and 100, the upper limit, representing the condition of the wealthiest household in the village at the top of the scale. There were four sub-scales, namely 1-25 for the 'very poor', 26-50 for the 'moderate poor', 51-75 for the 'middle' and 76-100 for the 'well-off' subsumed under the general 1-100 points scale. The four categories of household were placed under the two broader categories of households — the poor including 'moderate' and 'very poor' and the non-poor including the 'middle' and the 'well-off'.

The advantage of using the rating scale is that it aids one to quantify the overall well-being or ill-being of all the households on it through a general consensus among the group members. The specific position of a household, as a result, becomes clearer in the ranking order. Besides, it further helps to clearly indicate the direction of changes in the well-being of all the households over time without ambiguity thereof.

The PPA exercise through the technique of well-being ranking provides two well-being indices,[2] eg 'category-wise household count index of well-being' (CHCI) which is conceptually comparable with the widely used conventional 'head-count index', a measure of the incidence of poverty (Box 6.9.2). While 'household' is a unit for the former, 'person' is for the latter. The other is 'category-wise average well-being score' (CAWS) which represents the average socioeconomic standing or well-being of a particular group on the rating scale. It roughly resembles with the conventional 'poverty gap index' because it reflects the well-being gap of a particular category of households in relation to the upper limit of the respective rating scale of that group.

6.9.2.4 Ranking Criteria

As found elsewhere (Narayan 1997:9), the distinguishing characteristics of poverty or ill-being are rather location-specific with clear regional (agro-ecological) differences. As is evident from the Table 6.9.1, the category specific characteristics for both the locations have some items in common while they differ in many others. The table shows that the range of characteristics is wider and more diversified for Dehergati, Barisal (51 with some repetition across the categories) than that for Sailgun, Joypurhat (31 categories with some repetition across the categories). For example, landholding was found to be a common criterion for all the categories in both the villages. However, the two sets of criteria for the two villages differed in some respects in between. For example, education had been a common criterion agreed on by

[1,2] The term(s) is christened by the present writer. See Box 10.3 for details.

the villagers of both the villages for categorizing the position of a household but in two different senses. In Sailgun, the criterion was used by the villagers to imply the level of education of the households — eg the well-off and middle families were considered by them mostly educated whereas the poor ones were not. On the other hand, education was used as a criterion by the villagers of Dehergati to mean the degree of affordability of the households. The lower affordability of sending their children to school had been set as a criterion for identifying a poor (both moderate poor and very poor) household and higher affordability of higher education was considered to be a criterion for a non-poor household (both middle and well-off). Besides, the limited affordability of medical expenses was identified as a common characteristics of the three lower-lying categories by the villagers of Dehergati. But this criterion was not used by the villagers of Sailgun. In Dehergati, lack of health awareness had been set as a common characteristic of the three categories — the well-off were health aware but the very poor and moderate poor were not. Having a migrant family member/travelling outside/receiving remittance was considered to be a feature of both the well-off and middle households of Dehergati. Family size as a common criterion was used by villagers of Sailgun — 'large family size' for both the moderate and very poor and 'smaller family size' for the middle.

6.9.3 Highlighting the Key Findings of the PPA

6.9.3.1 The Overall Prevalence of Poverty declined Over Time in All the Villages Regardless of the Intensity of Irrigation Coverage, but the Reduction Rate was the Lowest in the Village where Irrigation Development had been the Highest

The category-wise household count index of well-being shows that the prevalence of poverty declined in all the three hamlets but in varying paces by 2.6 percentage point in the village of the highest irrigation coverage (Sailgun), 4.4 percentage point in the village of medium irrigation coverage (Dehergati, M), and 3 percentage point in the least irrigated village (Dehergati, E) over the last 10-12 years (Exhibit 6.9.2 and Table 6.9.2). This, however, indicates that the poverty reduction rate, on an average had been dismally very sluggish in all the hamlets ranging between 0.21 and 0.36 percentage point per year over the last 12 years. It is interesting to note that the rate of poverty reduction was the most sluggish in Sailgun where the intensity of irrigation had been at the highest level. The rate of poverty reduction had been declining not only at a slower rate in Sailgun where irrigation coverage had been maximum but the village was also afflicted with a higher prevalence of poverty among the three sample hamlets under the investigation.

6.9.3.2 The Condition of the Very Poor Appeared to have either Worsened or They Least Benefited Over Time in both the Intensively and Moderately Irrigated Villages

In terms of category-wise household count index of well-being, the disaggregated indices show that the condition of the very poor (or the 'hardcore' poor) households worsened in the intensively irrigated village (IIV), although there had been a paltry improvement in hardcore poverty in other moderately irrigated village (MIV). The reduction of hardcore poverty was much higher in the least irrigated village (LIV). In terms of the household count index for the very poor, the prevalence of hardcore poverty declined over time by 3.96 percentage point (from 21.78% to 17.82%) and by 1.1 percentage point (from 14.4% to 13.3%) in the LIV and MIV respectively (Table 6.9.2). The prevalence of hardcore poverty, however, worsened in the IIV by 1.3 percentage point from 37.2 percent to 38.5 percent over the last 10-12 years. It represents an interesting paradox showing an apparently positive correlation between the degree of extreme poverty and the degree of irrigation coverage which merits careful interpretation of the results to explain it.

6.9.3.3 Moderate Poverty declined in Both the Intensively and Moderately Irrigated Villages but not in Least Irrigated Village

Unlike the very poor, the number of the moderately poor households declined in both the IIV and MIV. However, the number of the moderate poor increased in the LIV over the same time. The reduction rate for moderate poverty had been the highest in the village where irrigation coverage had also been at the highest level by 3.9 percentage point over 10-12 years but it worsened in the village where the development of irrigation was minimum (Table 6.9.2). That is, the negative correlation between the degree of moderate poverty and the degree of irrigation coverage suggests that irrigation had some impact on moderate poverty but not that much on hardcore poverty.

6.9.3.4 Well-off Households had been the Most Gainers of Irrigation Development in Both the Intensively and Moderately Irrigated Villages

In terms of both number and proportion, the growth of the well-off households had been remarkably higher in both the IIV and MIV compared to that in the LIV. The proportion of the well-off households rose from 1.25 and 6.7 percent to 7.7 and 16.7 percent respectively in the IIV and MIV over time (Table 6.9.2). In terms of proportion, the growth of the well-off households had been too sluggish over time (from 8.91% to 11.88%) in the LIV.

6.9.5 The Average Well-being of the Very Poor Declined More in the Villages with Higher and Moderate Irrigation Coverage

The average well-being scores for all the four categories of households as rated on 1-100 points scale show that the well-being of the very poor declined over time in all the three villages, although at varying rates. The average well-being score for the very poor dropped by a higher degree in the IIV and MIV by 1.1 and 1.6 percentage points respectively over time (Table 6.9.3). The implication of this is that the condition of the very poor had not only worsened in terms of number (i.e. it increased as discussed in the para no. 6.9.3.2), but their average state of well-being had also declined over time in the IIV. Similarly for the moderately irrigated village, the condition of the very poor although improved marginally in terms of number, their average well-being score decreased over time in this village. Out of the three villages, the LIV however witnessed the slightest drop in the average well-being of the very poor over the years. Regarding the moderate poor, their average well-being improved in the IIV but deteriorated in both the MIV and LIV. This signifies that the condition of the moderate poor of the IIV improved in terms of both number and average well-being. But in the case of the MIV, the average well-being of the moderate poor households declined over time, although they benefited in terms of number (i.e., reduced). On the other hand, the well-being of the well-off households improved remarkably both in terms of number and average well-being score in both the IIV and MIV. The improvement in the condition of the well-off was, however, found the highest in the IIV. This suggests that the well-off gained the most out of irrigation services, but the very poor appeared to have gained almost nothing.

6.9.3.6 Poverty Dynamics: Inter-category Movement among the Rural Households

Along the well-being ladder, rural households were found to have moved either in upward direction, or in downward direction or remained unchanged across the four categories over the last 10-12 years. The movement of the households is not reflected in the aggregate measures such as indices discussed above. The movement of the households who crossed over to their higher categories or slid down to their lower categories needed to be looked at to have a better understanding about the overall poverty dynamics in the study areas. The movement of the households is shown in Table 6.9.4 and Exhibits 6.9.2, 10.3 and 6.9.4. It is seen from the table and diagrams that over the last 10-12 years only five poor households of the IIV crossed over to the non-poor category (from 'moderate poor' to 'middle') representing only 6.4 percent of the total households and 9.6 percent of the poor households compared to 4.4 and 8.3 percent as well as 9.9 and 17.8 percent respectively in the MIV and LIV. This indicates that the crossover rate from the poor to the non-poor categories had been the highest in the village

where irrigation coverage had been very minimum whereas the crossover rate was the lowest in the intensively irrigated village over time.

Similarly, the rate for the very poor who crossed over to the moderate poor was also found much more higher (5.9% of total households and 17.8% of very poor households) in the poorly irrigated village as against those (1.3% and 1.9% in LIV and 2.2% and 4.2% in MIV) in other villages.

Regarding the deterioration of well-being, the rate of sliding by the non-poor households into the poor categories was also found higher (6.9% of total household 15.5% of the non-poor) in the poorly irrigated villages compared to that (3.8% and 11.5%) for the intensively irrigated village over time.

The varying pace of movement of the households in different direction across the four categories is illustrated in Exhibits 6.9.2, 6.9.3 and 6.9.4. It is seen from those Exhibits that the movement in both the directions has been widespread across all the categories in the LIV. The incidence of sliding into lower categories is true for both the poor groups (moderate and very poor) in all the three villages, however, the movement of the non-poor groups differ across the groups and the villages. While there had been no incidence of sliding into the lower category for the well-off category in both the IIV and MIV, the LIV however witnessed the sliding of the well-off into the lower category. The implication is that the well-off households seem to have been more immune from the risk of sliding down in both the intensively and moderately irrigated villages than in the poorly irrigated one.

6.9.3.7 Explanations for the Improvement and Deterioration in Well-being at the Household Level

People's perception about the causes of improvement and deterioration in the economic condition of the households was also gathered. Households who crossed over to their higher categories and who slid into their lower categories were considered for the investigation. It is seen from the Table 6.9.5 that, on the whole, demographic- and agriculture-related factors together account for 59 percent of all the causes received. Demographic factors such as smaller family size; adequate family labour; doing hard labour, etc constitute about one third (32%) of all the responses received on the causes of improvement compared to a little over of one fourth of (27%) of the responses for agriculture-related factors. Besides, salaried services and remittance were found, among others, important contributing factors to the upswing of the well-being in the MIV. Off-farm activities played an important role in the improvement of the well-being in Sailgun, Joypurhat

Regarding the sliding of the households, crisis-related factors, and demographic factors account for about one-third (31%) and one-fourth (25%) respectively of all the responses on the factors that caused the downswing of the household well-being in the villages over time (Table 6.9.6). In addition, distress sale; health, and social factors had also downward pressure on the well-being of the households of the villages.

6.9.3.8 Inequality in Well-being of Households

The inequality in well-being worsened in all the three villages over time, albeit in different degrees. Conventionally, the comparison is usually made between the group lying at the top of the scale with that lying at the bottom in certain cluster/bracket. In the present case, the well-being of the well-off and very poor categories of households has been compared to estimate the measures of the inequality. The inequality between the well-off and the very poor groups of households expressed in terms of the ratio between their average scores of well-being is presented in Table 6.9.7. The table shows that inequality worsened in all the three villages over time regardless of the extent of irrigation coverage. The table further shows that the inequality between these two groups in the intensively irrigated village was not only the most skewed before among the set of the villages, the well-being inequality ratio[3] worsened further over time from 5.6 to 6.8 over the years compared to the other two villages MIV (from 4.5 to 5.1) and LIV (5.1 to 5.4). This shows that the pace at which the inequality worsened was also found fastest (1.2 over time) in the IIV compared to the changes by 0.6 and 0.3 for the MIV and LIV respectively. The implication is that the more the village is irrigated, the more it becomes socioeconomically unequal over time.

6.9.3.9 Self-assessment of the Changes in Economic Condition of the Households: Census Results[4]

As perceived by the household heads, their self-assessment of the changes in the economic condition of the households shows that 46 percent of all the households of Sailgun believed that their condition had improved over the last 10-12 years while 47 percent assessed that their condition had worsened over the same time (Table 6.9.8). Only six percent of the households believed that their condition neither improved nor deteriorated during this period. On the whole, the net progress of the well-being of the villagers had therefore been dismally unimpressive — either negative or stagnant. The development dynamism seemed to have yielded benefits for at most half of the villagers but the other half of the villagers missed the

[3] Well-being inequality ratio is defined as the ratio of the average well-being score of the well-off households to that of the very poor.

[4] In Dehergati, this issue could not be covered while conducting household census in the village due to time constraint.

benefit of it. In addition, the findings do not however throw light on the question whether the households whose condition improved or worsened how many of them actually crossed over or slid down. As the findings are based on the villagers' instant perceptions, the validity of the findings is therefore to some extent questionable. However, the only merit of it is its broad indication about the trend of the changes in the well-being at the household level.

The respondents also indicated their feeling about the causes of those changes. Those who had positive feelings about their well-being mentioned agriculture-related factors to be the main cause of improvement in their well-being constituting about 47 percent of all the responses followed by demographic factors representing 31 percent of the responses (Table 6.9.9). The agriculture-related factors such as increased production, increased number of crops cultivated, and increase in landholding and the demographic factors such as smaller family size, and doing hard labour were widely mentioned as the key specific factors in the improvement in their well-being.

As to the factors causing downward pressure on their well-being, demographic and social factors, and agriculture-related factors were also cited to be the major categories of factors accounting for 45 percent and 29 percent respectively (Table 6.9.10). Large family size, fewer earning members, breaking up of the families are had been the major demographic factors having negative influence on their well-being mentioned by the respondents. Small landholding, landlessness, increased cost of production were also widely viewed by them as the important agriculture-related causes leading to the worsening of their well-being. Some structural and health-related factors such as decreased income, higher living expenses, unemployment, sickness, etc were also considered by them as other important factors contributing to the downswing of their well-being.

Those who could not improve their condition over time were found to have been handicapped by various demographic/social and crisis factors such as decreased physical capacity, large family size, children's marital expenses, and litigation (Table 6.9.11).

6.9.3.10 Annual Income, Expenditure and Deficit/Surplus Status of the Poor Households

The agricultural labourers of Sailgun conducted an assessment of annual income, expenditure and deficit/surplus status of the poor households of the same village. According to their assessment, the overall budget deficit of the poor households shrank over time from 40 percent of the total annual expenditure to 20 percent over the years (Data Box 6.9.1). The poor households had to cope with the shortfall by borrowing. The deficit of the poor households has tapered off due to increased seasonal employment opportunities and income over time.

6.9.3.11The Composition of Expenditure of the Poor Households

As viewed by the agricultural workers of Sailgun, the composition of the annual expenditure of the poor households underwent some changes over time. The poor farmers were now spending less proportion of their total expenditure on food (70-75%) now than they had done before (85-100%) (Data Box 6.9.2). Increased employment in the village had some positive influence on the changes in the expenditure composition.

6.9.3.12 Food Consumption by the Poor Households

According to the assessment by both the agricultural labourers of Sailgun and poor farmers of Dehergati, their consumption of rice and vegetables increased in both the villages (Data Box 6.9.3). The consumption of pulses increased in Sailgun but not in Dehergati. The consumption of fish and bread however declined in both the villages over time. The increased cultivation of rice was attributed to the expansion of HYV rice cultivation, increased production and yield, lower rice price and higher employment in the villages. The lower fish consumption was due to the loss of fish species, catching of fish fry, drying up of canals, *beels*, and non-availability of fish in the area. Increased cultivation of vegetables caused its consumption up.

6.9.3.13The Starvation of the Villagers

The incidence of starvation declined over time in both the villages (Data Box 6.9.4). As perceived by both the agricultural workers of Sailgun and poor farmers of Dehergati, the proportion of the starved households dropped from the previous level of 20 percent in Sailgun and 30 percent in Dehergati to 10 percent at present in both the villages. At present, nobody was, however, found to be completely starved a day in Sailgun.

6.9.3.14Crises Faced by the Poor Households: Causes and Coping Mechanisms

The crises faced by the poor households in the study villages were caused by different factors some of which turned out to be more serious now and others which used to have serious influence on it before no longer held sway now. In Sailgun, the following factors were found to have serious influences in engendering the crises which the poor households were faced with there (Data Box 6.9.5).

i. Diseases
ii. Marriage
iii. Rise in foodgrain prices

On the other hand, the following factors although played a major role in causing their crises before, lost its influence over time there:

i. Loss of job/unemployment
ii. Landlessness
iii. Natural calamity

In Dehergati, the following sources of crises turned out to be more serious nowadays in engendering the crises faced by the poor (Data Box 6.9.6).

i. Diseases
ii. Natural calamity
iii. Rise in foodgrains price
iv. Loss of cattle
v. Landlessness

The following factors used to have serious influence on their crises before but now they played a minor role in causing crises in Dehergati:

i. Loss of job/unemployment
ii. Drop of agricultural production

The consumption of adulterated food and pollution of the environment were engendering diseases in Dehergati. Inadequate trees, silting up of rivers, canals, etc made the area more vulnerable to various natural calamities. Production shortfall compared to demand, increased living expenses caused foodgrain prices rise. Excessive application of adulterated pesticides, high incidence of cattle diseases, and meager grazing land were the underlying causes of cattle loss in Dehergati. Landlessness worsened due to over population, income-expenditure gap, etc.

Coping Mechanisms

The following are the major mechanisms that the poor households of Sailgun presently resorted to cope with the crises they faced (Data Box 6.9.7):

i. Borrowing from informal intermediaries (moneylenders)
ii. Selling agricultural produces
iii. Selling trees
iv. Selling farm animals

The poor in Sailgun increasingly relied on the borrowing from informal intermediaries, borrowing from NGOs, selling trees etc. However, selling agricultural produces, selling land, dissaving, etc were now playing diminishing role as their coping mechanisms nowadays.

However, as perceived by the agri-labourers, borrowing from the moneylenders was the most common mechanism resorted to by the poor in Sailgun.

In Dehergati, borrowing from NGOs, selling agricultural produces were presently being wielded by the poor households as the major mechanisms to cope with their crises (Data Box 10.8). These measures had however played minor role before for this purpose. In the past, the poor households mainly resorted to other measures, namely borrowing from moneylenders, borrowing from relatives/friends, and forward sale of labour. All these mechanisms were now playing less prominent role nowadays for this purpose. There were some other mechanisms which used to be applied before by the poor households of Dehergati to some extent widely but presently their role had been insignificant. They were selling land, ornaments, cattle/domestic animals etc.

On the whole, borrowing from NGOs was the most widely used mechanism presently wielded by the poor of Dehergati because its advantage was that it could be repaid later on.

6.9.3.15Gainers of the Poverty Alleviation Programmes

The census data indicate that the villagers of Sailgun currently benefited from only one programme of the government, namely VGD and only six households are benefiting (3 males and 3 female) from the programme, and there had been no such programme in operation before (Table 6.9.12). It was also found that all the beneficiaries had been from the very poor households in the village (Table 6.9.13).

There had been three government programmes in Dehergati at present, namely VGD, post-flood rehabilitation programme and relief programme. There were six households currently benefiting from the programme in the village (1 male and 2 female), and the villagers did not have any idea about any such programme before. Moderate poor households had been the major gainers of the programme benefit (4 out of 6) and the other two from the very poor and middle categories of households in the village.

6.9.4 Discussion

The hypotheses relating to poverty are discussed below in the light of the findings and tentative conclusions on them are also drawn therewith.

Hypothesis 1: The incidence of hardcore poverty has been reduced

According to the participatory poverty assessment in the study villages, the incidence of poverty as defined as the proportion of the poor households in the total dropped irrespective of the coverage of irrigation, albeit by insignificant degrees. The reduction rate of poverty ranges between 0.2 to 0.4 percentage point per year over the last 10-12 years in the study villages. The reduction rate is so sluggish that it is not worthwhile to say that it is improving. More interestingly, poverty is found more stubborn in the village where irrigation coverage improved dramatically over the last 10-12 years (0.2 percentage point per year). The condition of the very poor households worsened over time in the intensively irrigated village, although the moderate poor households could fare well marginally.

As the hypothesis does agree with the evidences, the hypothesis stands rejected.

Hypothesis 2: The incidence of moderate poverty has been reduced

The incidence of moderate poverty declined in both the villages. The hypothesis is therefore accepted

Hypothesis 3: The inequality has not worsened further

The inequality defined as the ratio between the average well-being scores for the well-off and the very poor households was found to have worsened in all the study villages over the monitoring period. The inequality was found worse in the intensively irrigated village where the poor –non-poor ratios stand at 1:5.6 before and 1:6.8 at present. As the findings do not support the hypothesis, it stands rejected.

Hypothesis 4: It has targeted subsidies and government programmes to the lowest income group

The pro-poor programmes of the government were found not only extremely limited (one in Sailgun and three in Dehergati) but their beneficiary coverage was also negligible (six households/beneficiaries in each of the villages), although there had been no programme at all before. However, the programmes were found to have benefited the very poor in both the villages.

The hypothesis cannot therefore be rejected.

Box 6.9.1: Participatory Poverty Assessment: What it is

"Poor people have a long-overlooked capacity to contribute to the analysis of poverty — and without their insights we know only part of the reality of poverty, its causes, and the survival strategies of the poor" (Robb 1999: xii).

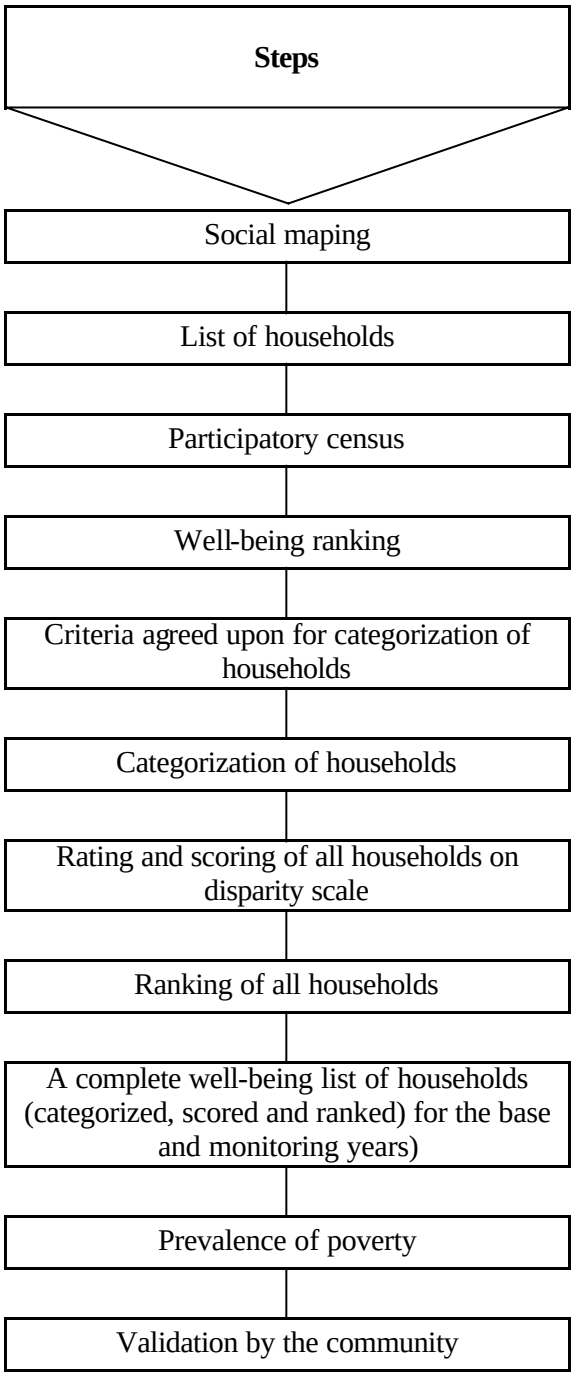
"PPAs use participatory research methods to understand poverty from the perspective of the poor by focusing on their realities, needs, and priorities" (ibid: xiii)

"Traditional survey data can be used to count, compare, and predict. The strength of the PPA is not in counting but rather in understanding hidden dimensions of poverty and analyzing out of poverty" (ibid: 5)

"PPAs sometimes referred to as qualitative surveys. This name can be confusing because there is a qualitative dimension to traditional survey work, and many PPAs contain quantified information and analysis" (ibid" 4).

"… there are at present no hard and fast rules on how to conduct a PPA beyond the maxim of "Do the study in a way that maximizes learning and ownership at all levels, including policymakers" (Narayan 1997:3).

Box 6.9.2: Steps in well-being Ranking of Households at Community Level



Box 6.9.3: Participatory well-being Measures

The PPA exercise conducted through the technique of well-being ranking yields quantitative scores for all of the households of the village. The quantification of the well-being of a household helps to compare one household with others, to specify its position on the well-being ladder and to monitor its well-being improvement over time. In doing those, the technique of well-being ranking further helps to estimate two sets of quantitative measures as follows:

i. **Category-wise household count index (CHCI)**

It is defined as:

$$\frac{h_i}{H}(i = 1,2,3 \& 4)$$

Where h = number of households under a particular category
H = total number of households in the village
i = household categories, namely
1 = 'very poor'
2 = 'moderate poor'
3 = 'middle'
4 = 'well-off'

Therefore the rate of reduction of ill-being or poverty can be measured by using two different indices separately or together as:

a. $\frac{h_1}{H}$ for the very poor

b. $\frac{h_2}{H}$ for the moderate poor

c. $\frac{h_{(1+2)}}{H}$ for the poor

This index has a close resemblance to the conventional 'head-count index (H).

The indices under a, b and c show prevalence of poverty in terms of the number of households in contrast to that under the head-count index which is based on the number of persons.

ii. Category-wise average well-being score (CAWS)

A. To measure average well-being status of the categories of households

This represents a simple average of all the scores assigned for the households under a particular category. The CAWS will have unique values for each of the categories within following ranges of points on the rating scale (Disparity Scale):

a. for 'very poor' : 1-25.0
b. for 'moderate poor' : 2.51-50.0
c. for 'middle' : 50.1-75.0
d. for 'well-off' : 75.1-100

(Contd.)

Box 6.9.3: (Contd.)

As the CAWS for any category implies both absolute and relative values because the range of score for all the categories are integrated into the general scale with the range between 1 and 100. Therefore, there is no need for constructing indices for the categories.

CAWS roughly resembles with the conventional 'poverty gap index' (PG). While CAWS highlights the gap between the average well-being of a particular household category and the respective upper limits of the group-specific rating.

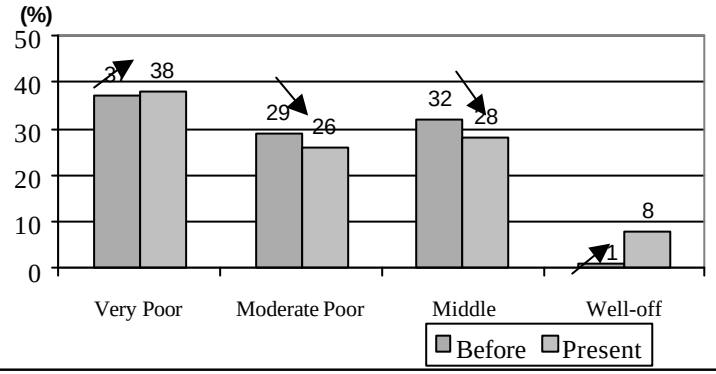
The advantage of using CAWS is that it gives us an average level of well-being of the households under each of the categories of quantitative terms which would be easily understandable to the readers. It may be an important aid in monitoring the trend of the well-being of any particular category. As its calculation does not demand using sophisticated mathematical tools and techniques, this measures can be calculated by any person having rudimentary arithmetic knowledge.

B. To measure inequality between the categories of households

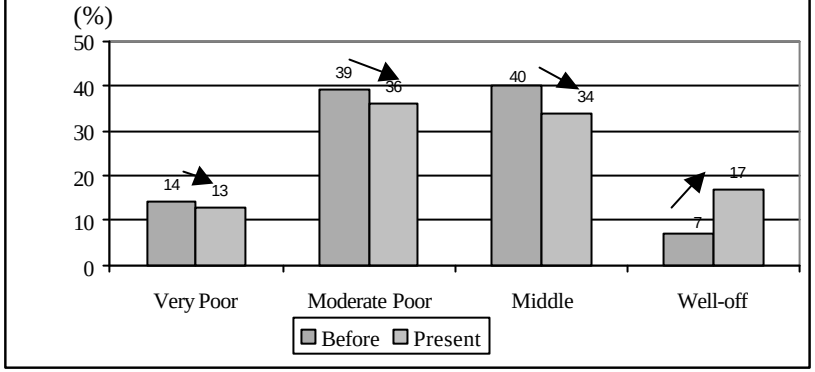
CAWS can be used to measure the degree of inequality between the groups by the CAWS of one category with another. This calculation also involves simple arithmetic calculation by calculating either differences between the CAWS of any two categories or by calculating ratios between one another.

Exhibit 6.9.1: Trend in well-being of Rural Households in Study Villages over Last 10-12 Years
(Participatory Poverty Assessment by well-being Ranking)
Period of Assessment: March 2000

A. Sailgun (South West Village, Kalai/Joypurhat
[Irrigation Coverage: Highest]



B. Dehergati (Middle), Babuganj/Barisal
[Irrigation Coverage: Lower]



C. Dehergati (East), Babuganj/Barisal
[Irrigation Coverage: Lowest]

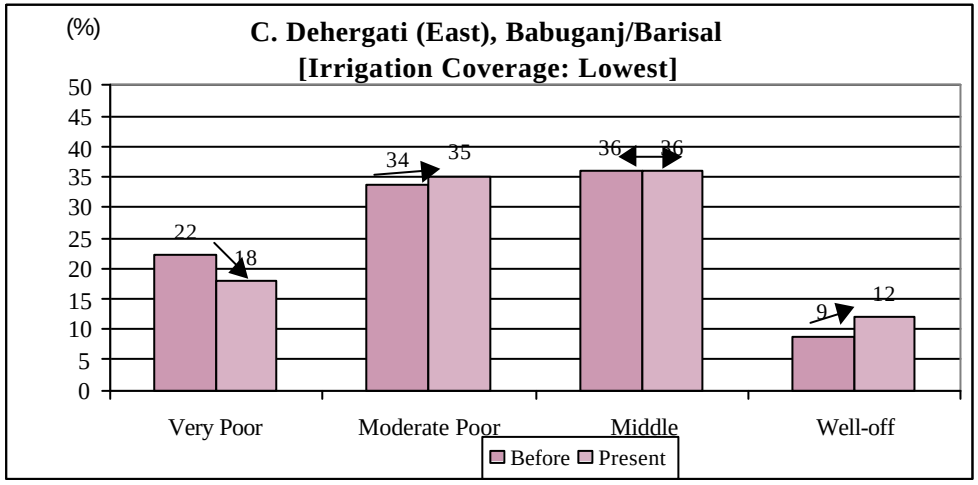
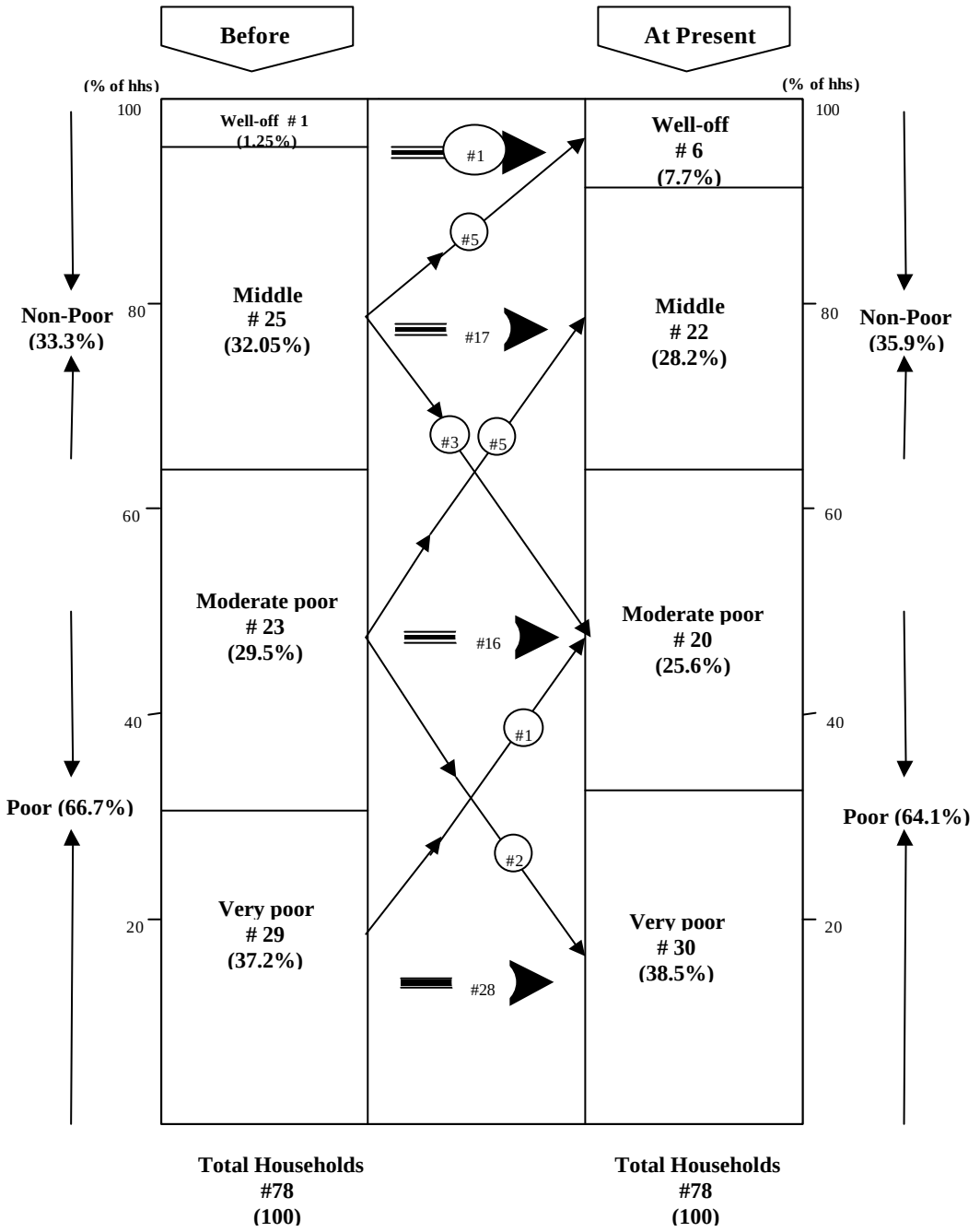


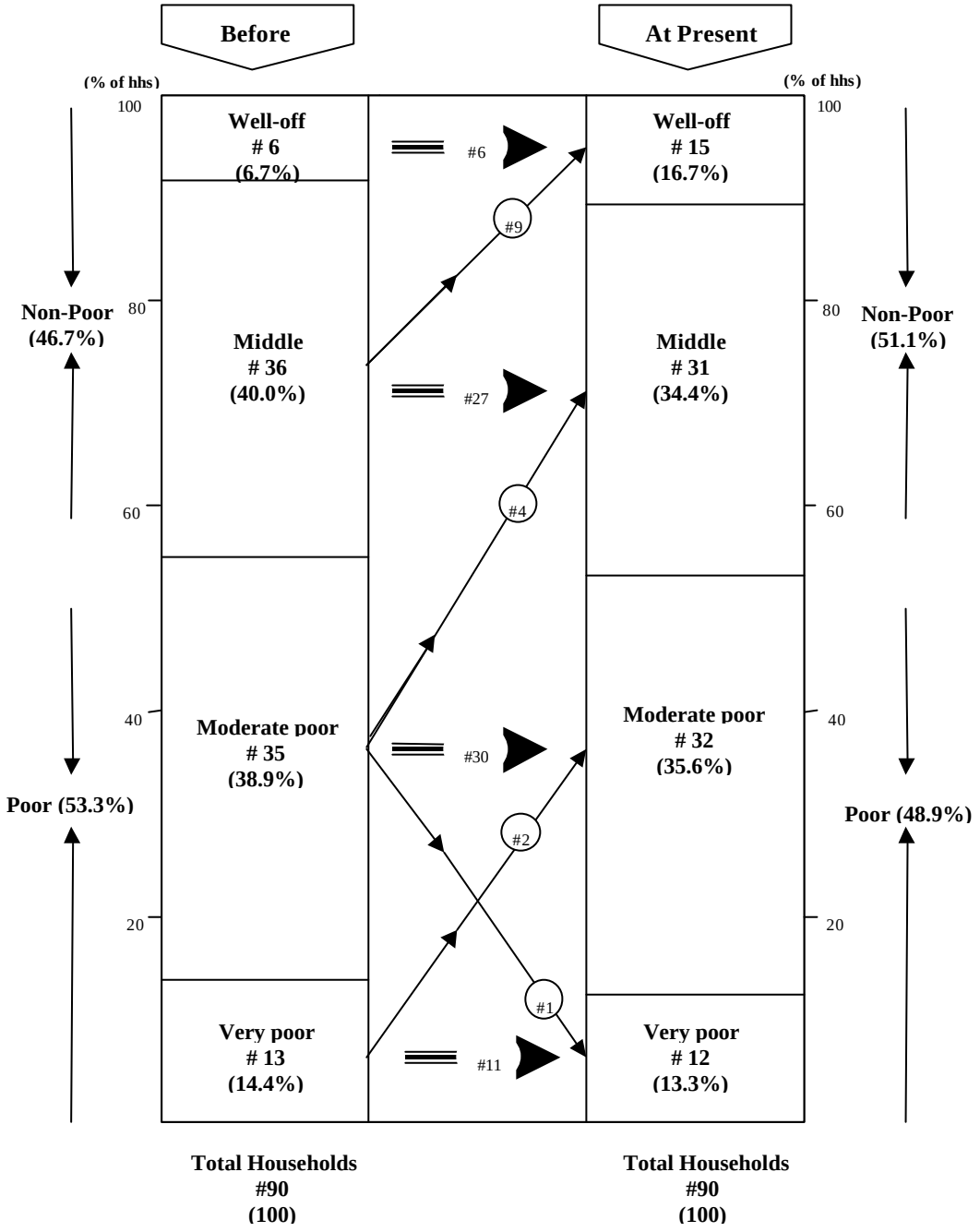
Exhibit 6.9.2: Graphical Representation of Poverty Dynamics in Study Villages
A. Sailgun(SW), Joypurhat [Irrigation coverage: highest]



Poverty reduction rate: 2.6 percentage point over 10-12 years

Source: Participatory poverty assessment, SAPRI/BIDS participatory investigation, March 2000

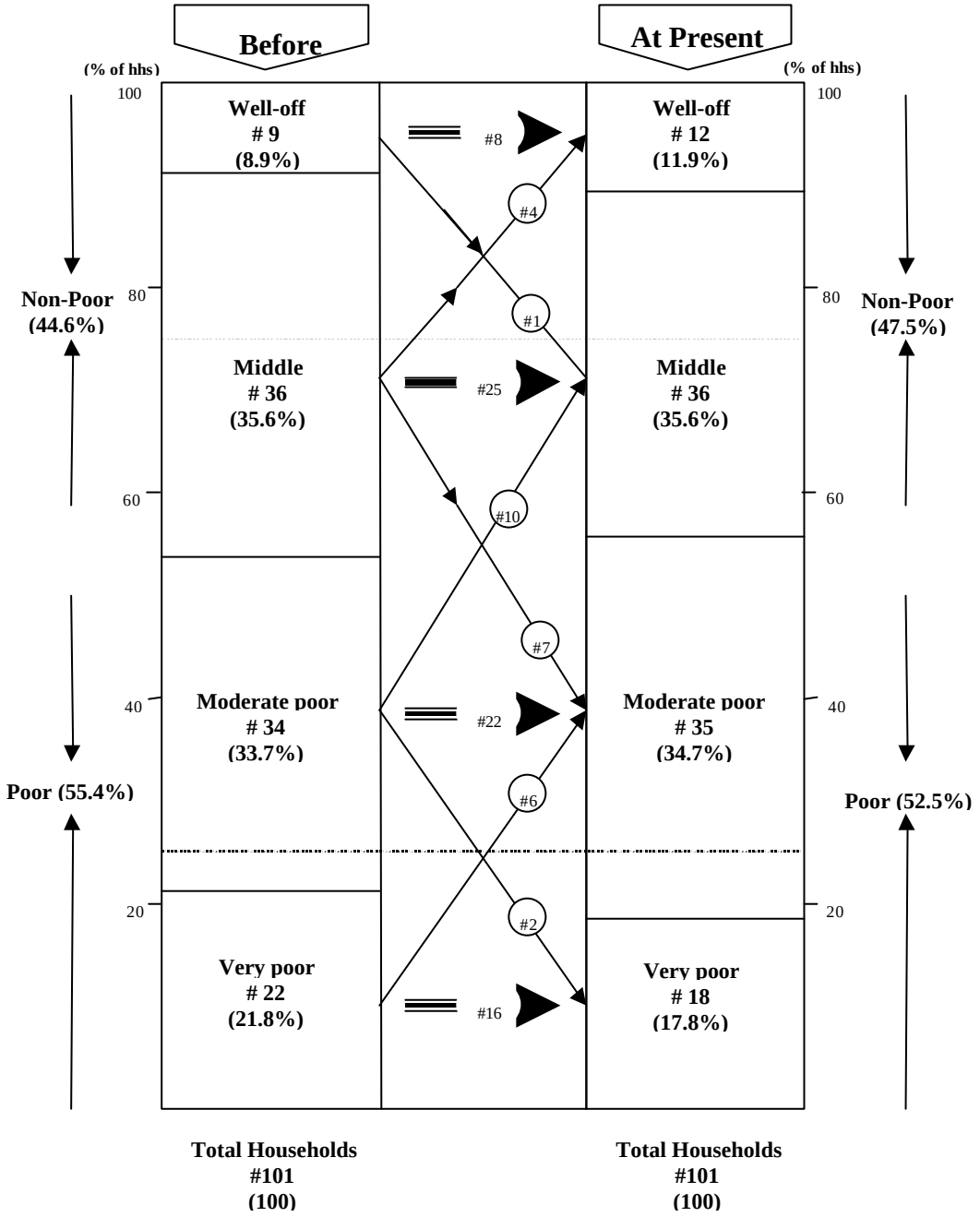
Exhibit 6.9.3: Graphical Representation of Poverty Dynamics in Study Villages
B. Dehergati (M), Barisal [Irrigation coverage: medium]



Poverty reduction rate: 4.4 percentage point over 10-12 years

Source: Participatory poverty assessment, SAPRI/BIDS participatory investigation, March 2000

Exhibit 6.9.4: Graphical Representation of Poverty Dynamics in Study C.Dehergat(E),Barisal[Irrigation coverage: lowest]



Poverty reduction rate: 2.9 percentage point over 10-12 years

Source: Participatory poverty assessment, SAPRI/BIDS participatory investigation, March 2000

6.10 The Markets: Labour, Land and Indegeneous Credit

6.10.1 Labour Market: Employment and Wage

6.10.1.1 Areas of Focus

The labour market in the study villages have been investigated in respect of six key issues, namely participation in labour market; unemployment; wage employment including child labour; out-migration; wage level, and labour requirement for the operations of agricultural activities.

This chapter seeks to answer the following key questions:

i. Did the agricultural workers increasingly (men and women) participate in the labour market over time?
ii. Has there been any incidence of child labour in the villages?
iii. Did unemployment decline over time?
iv. Did employment increase over time?
v. Has there been reduction in seasonal variation in wage level around the seasons' high level of wage?
vi. Has there been reduction in seasonal out-migration for wage employment?
vii. Did labour requirement for agricultural activities increase over time? Why?
viii. Did real income of agricultural workers increase over time?

Information were collected from as many as five sources — one at the individual level (household-level census) and the other four at the group level, namely agricultural workers; female agricultural workers; poor farmers, and non-poor farmers.

6.10.1.2 Findings

i. Extent of Participation in Labour Market

The participation of the rural population in the labour market depends on several factors. In the Bangladesh context, the pattern of landholding is one of the principal determinants of the labour force participation in the agricultural labour market in Bangladesh. In Sailgun, 44.8 percent of households constituted by absolute and functionally landless/marginal farmers (up to 0.5 acre landholding) had command over only 5 percent of land compared to 7.3 percent of landholding owned by 46 percent of the landless, and land-poor households in Dehergati (Table 6.11.1). The labour markets in these villages were participated mostly by those households.

The census results show that about one third of the village households were now participating in the labour markets in these villages. Moreover, their participation in the labour market rose over time in both these villages. In terms of the proportion of households, the participation rates went up from 23 percent to 29 percent over the last 10-12 years in Sailgun in contrast to that from 29 percent to 34 percent in Dehergati during the same period (Table 6.10.1)

The female participation in the labour markets was found too low in both the villages, albeit in remarkably varying degrees between these villages. As for female participation in the labour market, as low as 1 percent households participated in labour market in Dehergati, as against 10 percent in Sailgun.

While the incidence of child labour was nil before in both the villages, a few households were now sending their children in the labour market in both the villages. Although the census data do not show of the incidence of child labour before, other sources, however, indicate its existence (Data Boxes 6.10.7 and 6.10.8).

ii. Unemployment Trends

The data on the spell of unemployment were collected through two methods — one by undergoing seasonality analysis at the group level, by two groups, namely male agricultural workers and female agricultural workers, and another by conducting questionnaire-based village census at the household level. At the group level, the intensity of unemployment was measured on 1-4 points rating scale for all the months of a year. The summary of the data gathered at the two PRA sessions are presented in Tables 6.10.2 and 6.10.3. The results of the census data are shown in Table 6.10.4

Unemployment trends for the study villages appear to have moved in opposite direction during the last 10-12 years. In Sailgun, unemployment worsened over time. The data generated through both the above-mentioned methods exhibit the similar deteriorating tendency of unemployment in Sailgun. Table 6.10.2 based the perspectives of male and female agri-labourers recorded at the PRA exercises shows that out of total score of 96, the score (in negative sense) for male and female unemployment increased from 48 to 52 and from 40 to 60 over time as assessed by those groups respectively.

The hard data collected through village census highlight on the spell of unemployment measured in terms of weeks of unemployment. The results of census data show that out of 48 weeks a year average spell of male unemployment in Sailgun hovers around 9 weeks representing 19 percent of total weeks of a year with slight worsening tendency over the years (Table 6.10.3). The spell of female employment however rose over time by a higher margin

from 8.5 weeks (17.7%) to 12.4 weeks (25.8%) over the same period. The spell of unemployment, however, varied across the cropping seasons and gender. The female unemployment considerably worsened in *kharif-1* season from a period of 12.5 weeks to 6.4 weeks on an average, but there had been no change in other seasons. The spell of male unemployment however improved in *kharif -2(aman)* season but worsened slightly in other seasons.

Unemployment appears to have improved in Dehergati over the same time. As perceived by the agricultural workers of Dehergati, the intensity of unemployment declined for both men and women over time. As rated by the group on 1-4 points scale, the scores (in negative sense) for male and female unemployment markedly dropped showing remarkable improvement over time. Out of 48, the score for male unemployment felt from 28 to 21 while that for female unemployment dropped from 32 to 19 over time (Table 11.4 and Data Box 6.10.2).

iii Extent of Wage Employment

To investigate whether employment opportunities for the agricultural labourers increased over time in the study villages, seasonality analysis of employment were thoroughly carried out in Sailgun, by four different groups of villagers, namely non-poor farmers, poor farmers, male agricultural workers, and female agricultural workers.

The seasonality analyses encompass twelve months as units of analysis over a year. The participant groups posted a score for each month on 1-4 points rating scale showing the variation in the employment intensity ranging from 1 for 'very low' to 4 for 'very high'. In terms of total score, wage employment for both men and women appears to have increased over time as assessed by the three groups. Out of 96, total employment score for twelve months increased from 38 (40%) to 66 (69%), from 44 (46%) to 62 (65%) and from 36 (37%) to 54 (56%) as assessed by the poor farmers, male agricultural workers and female agricultural workers respectively over the last 10-12 years (Table 6.10.5). However, the non-poor farmers' assessment indicates that employment opportunities declined to some extent by showing a drop in employment score from 68 (712%) to 64 (67%) and from 70 (73%) to 66 (69%) for both male and female workers respectively. As the perspective of the non-poor is quite different from those of other three groups (because they are poor), the assessment by those poorer groups suggesting that employment opportunities increased over time is more likely to reflect the reality because the issue matters to them most.

The issue was further investigated by generating a set of hard data at a Focus Group Discussion with a group of agricultural workers of Sailgun. The participant labourers agreed on

approximate average number of working days for each month both now and before. Out of 360[3] days for a year, the total duration of wage employment in the village rose from 245 (68%) days to 269 (75%) days over time (Table 6.10.6 and Data Box 6.10.1). The increase in the duration of wage employment also supports the results based on more soft data presented above.

To shed more light on the issue, the problem was looked at across the major cropping seasons. Has wage employment increased over time in the village during the major crop periods of, namely HYV *boro*, potato and HYV *aman*? As perceived by the agri-labourers, the opportunities of wage employment in the village increased markedly over time for both men and women (Data Box 6.10.3). The employment opportunities for both male and female workers rose from 'very low' level of employment for them to 'very high' level of employment for men and 'high' level for women on 1-4 points rating scale over the period under investigation. The data based on their positive feeling about the trend in wage employment certainly corroborates other evidences presented in the foregoing paragraphs.

The seasonal analysis of wage employment conducted by the non-poor farmers of Dehergati, shows that the employment opportunities of male workers increased marginally over time (from 9 to 10 out of maximum of 48 score) in the village. According to the same analysis, the score for female workers however declined (from 9 to 7 out of 48 score) over the same time (Table 6.10.7).

The census data, however, tell us a different story about wage employment in both the study villages. Census data representing individual responses on it show that the duration of wage employment for men declined over time in both the villages. In terms of the number of weeks, out of 48 weeks[4] of a year, the average duration of wage employment for men dropped from 31 (65%) weeks to 25 (53%) weeks and from 22 (46%) to 21.8 (45%) weeks over time in Sailgun and Dehergati respectively (Table 6.10.8). The duration of wage employment for women, however, increased (from 14 weeks to 17 weeks) in Sailgun but declined (from 23 weeks to 21 weeks) in Dehergati. It is seen from Table 6.10.7 that male workers had a fairly longer period of wage employment in Sailgun than in Dehergati, but the opposite is true for women having a much longer period of employment opportunities in Dehergati compared to those in Sailgun. Another feature that stands out from the table is that the employment differential between male and female workers is more in Sailgun (53% vs 36% now and 65% vs 30% before) than it is in Dehergati (45% vs 44% now and 46% vs 48% before).

[3] 360 ⇒ 12 months @ 30 days
[4] 12 months @4, instead of 52 weeks of a year

iv. Child Labour

It appears that there had been no incidence of child labour before in both the study villages. However, it rose to the surface recently in both the villages. The incidence of child labour was found more widespread now in Dehergati (44 weeks) than in Sailgun (4-22 weeks) (Tables 6.10.8 and 6.10.9). At present, child labour was overwhelmingly accounted for by boys (22 weeks) whereas it was entirely constituted by girls in Dehergati (44 weeks).

v. Seasonal Out-migration for Wage Employment

Out-migration for wage employment was a common phenomenon in the study villages. Villagers of both the villages had to out-migrate for wage employment both before and now. In terms of the number of households with out-migrant workers, the incidence of migration, however, appears to have increased over time in both the villages. But, both the villages witnessed some decreases in the duration of out-migration across cropping seasons (Tables 6.10.10 and 6.10.11).

The seasonality analyses of the incidence of out-migration by various participants groups shed light on the trend of migration over time. In Sailgun, seasonality analyses were carried out by four groups of participants. The out-migration trend was found different for different groups of the participants (Table 6.10.12). Both agricultural workers and poor farmers perceive that the duration of migration declined, but female workers have observed it to be on the increase. The non-poor farmers held that there had been no change in out-migration over time. Notwithstanding differing observations, the observation held by the poor farmers and agricultural workers may be assumed to reflect the reality because it is they who actually migrate out.

The seasonal analysis of out-migration for the workers of Dehergati indicates that the duration of out-migration tended to rise over time. Based on the non-poor farmers' perception, out of 48, the total out-migration score for 12 months on 1-4 points rating scale increased from 15 to 17 over time. But this finding could not be cross-checked in the absence of the analysis by other group, of the participants in the village. The increasing tendency of the duration of out-migration is also found in the census data, although marginally over time (Table 6.10.11).

The declining tendency of the duration of out-migration for Sailgun is also corroborated by the hard data on the duration of out-migration. But as for Dehergati, the census data reveal an opposite trend. While the census data for Sailgun suggest that the total duration of out-migration dropped from 12 weeks to 9 weeks over time, it rose marginally from 19.1 weeks to 19.4 weeks for Dehergati during the same time (Table 6.10.11).

Wage labourers mostly migrate in *kharif-1 (aus* season) and *rabi* seasons. Workers of Sailgun mainly migrate during *rabi* season whereas those of Dehergati in *kharif-1* season. As analyzed by the agricultural workers of Sailgun, there occurred a change in the incidence of out-migration across seasons in the village. As perceived by the agricultural workers of Sailgun, agricultural workers used to out-migrate before in as many as six months throughout the year, although to some limited extent (Data Box 6.10.6 and Table 6.10.12). But nowadays out-migration occurred only in two months — from mid August to mid October — but exceeding extensively. This is because there was no employment opportunities available in the village during these two months.

In the case of Dehergati, the number of months of workers' out-migration similarly declined from seven to six months over time. But the extensive out-migration ('very high' and 'high' on the scale) occurred in only four months (Data Box 6.10.8 and Table 6.10.13).

vi. The Production Process set the Declining Labour Demand in Motion

An investigation was carried out to look into whether there had been any change in the labour demand due to changes in cropping patterns and the production process applied for those crops. The investigation was conducted at two PRA sessions in Sailgun — one for the poor farmers and another for the non-poor farmers. To estimate the labour requirement for each of the seven major crops either used to be cultivated before or were being cultivated now, seven operations were identified for estimating labour demand for performing those operations. The operations are as follows:

A. <u>Pre-harvest-related</u>

i. Land preparation
ii. Seed bed
iii. Transplantation/broadcasting
iv. Fertilization, irrigation, etc
v. Others insecticides

B. <u>Harvesting-related</u>

vi. Harvesting, carrying, threshing, retting, etc

C. Post-harvesting-related

Post-harvest-related operations (parboiling, husking etc).

The following major crops of the area have been selected for the investigation:

i. HYV *aman* (grown now)

ii. HYV *boro* (now)

iii. Potato (now)

iv. Oil seeds (now)

v. Wheat (now)

vi. *Aus* (before)

vii. Jute (before)

Both poor and non-poor farmer groups estimated labour requirement for each of the operations for the above-mentioned crops in terms of the number of workers per unit of cropped land.

Both the farmer groups provided estimates for labour requirement varying across the operations and crops. The estimate worked more precisely in terms of the number of man-days applied on a *bigha* (33 decimals) for an ideal situation. According to their assessment, the crop-wise labour requirement per *bigha* of land required for all the above operations aggregates in the following trend analysis (Tables 6.10.14 and 6.10.15).

Crop-wise Labour Requirement

Crops	Poor Farmers Group (man-days/*bigha*)			Non-poor Farmers Group (man-days/*bigha*)		
	Before SAP	At Present	Trend	Before SAP	At Present	Trend
1. HYV *aman*	18	14	↓	27	29	↑
2. HYV *boro*	33	20	↓	24	26	↑
3. Potato	32	29	↓	37	31	↑
4. Oil seeds	14	13	↓	15	14	↑
5. Wheat	19	15	↓	25	20	↑
6. *Aus*	24	-		23	-	
7. Jute	27	-		40	-	

As estimated by the poor farmers, total labour requirement for all the crops squeezed considerably over time in respect of all the crops. The non-poor farmers' estimates, however, show that the labour requirement for both the paddy crops (*aman* and *boro*) rose, although by a paltry margin. But other circumstantial evidences suggest that the labour requirement may have declined over time particularly due to technological adoptions such as mechanical technology and chemical technology.

There had been substantial reduction in labour requirement in the case of the following operations:

- Land preparation
- Fertilization, irrigation, etc
- Harvesting, carrying, threshing, etc

These operations had been subjected to technological treatment over time (details later).

vii. Female Wage Employment has Increased, but Marginally

We have already seen that the wage employment opportunities for women increased over time as evidenced by some results obtained from the participatory exercises, although the results portrayed a dismal picture. The issue was further investigation in a different PRA exercise more thoroughly with the participation by the poor women of Sailgun. A detailed list of poor women's income earning activities were first identified for rating by themselves in group on 1-7 points rating scale. The changes in the resultant score were also accounted for by them. By and large, there were seven major income earning activities in the village in which poor women got employed.

It is obvious from Data Box 6.10.8 that the processing of paddy had been their topmost income earning activity all through. Processing of *aus* and jute paddy, the major income earning activities in the *kharif-1* season before, completely withered away over time because of the change in cropping pattern and crop mix in the village. The other important activities for the women which sprang in recent years include harvesting of potato, processing of *boro* paddy, domestic service, and harvesting rapes and mustard.

The poor women's perspective indicates that the aggregate employment opportunities appear to have increased just marginally in terms of its score. Out of 77, total score for the seven activities on 1-7 scales increased from 35 to 38 during the peak seasons whereas it declined from 13 to 12 in slack seasons over time. The implication of the results is that on balance the change in the cropping pattern did not benefit women that much. Female workers found no employment during *kharif-1* season nowadays mainly because of the change in crop mix under the new cropping patterns in the village.

viii. Substitution and Displacement of Agricultural Workers

The declining trend in labour demand had been put in motion by a substitution and displacement process going on in the agriculture of Sailgun. The declining tendency was also accounted for by the poor farmers. The labour substitution and displacement processes in operation in Sailgun is depicted in Table 6.10.16. It is evident from the table that out of seven

major operations, two of them, namely land preparation; and, carrying, threshing, etc had been subjected to mechanization resulting in labour displacement in large scale in the village. As much as 95 percent of labour required for land preparation and 50 percent of the same for harvesting, carrying, threshing were currently being operated by mechanization in the village. Family labour was also being increasingly substituted for hired labour in other operations. The impact of the reduction in labour demand per unit of cultivated land resulting from mechanization of agriculture was gradually rising to the surface with the gradual exhaustion of land utilization potential in the village.

ix. Wage Level

a. Seasonal Wage Variation

The trend in wage level has been looked at from the angles of both the absolute and relative measures of the trend over time. The agricultural wage rate in Bangladesh is known to vary widely across seasons/months. The data of the past and present patterns of variation in wage level was collected in both relative and absolute terms from both the participant groups and individuals.

The seasonal wage variations in the study villages have been captured in relative measure through the participatory seasonal analysis over 12 months at the two points of time of the reference period. The wage level at each month was rated by four participant groups at the PRA sessions on the four points scale in the range of 'very low', 'low', 'high' and 'very high'. The results are presented in Table 6.10.17. Participant groups however differed in terms of the degree of overall improvement in wage level across the seasons over a year. Out of the four groups, the assessment by the two (poor farmers and female workers) indicates that the improvement had been spectacular while the other two (male workers and non-poor farmers) ruled out this improvement (Table 6.10.17). But the assessment by the agricultural workers of Sailgun shows that there had been a paltry improvement in the overall wage level across the seasons over time (from 70 to 71 out of 96 maximum total score). The assessment by the female agricultural workers on the other hand indicates that they witnessed marked improvement in the aggregate wage level with the score rising from 38 to 54 out of 96 over the same time.

The overall wage level in Dehergati increased for male workers but there had been no change in the wage level for females ones over time (Table 6.10.18).

The average seasonal variation in wage level tended to have improved/narrowed over time in both the villages. Compared to the year's peak, the average wage gap stood at one fourth to around one half in Sailgun compared to less than one fifth to one third in Dehergati.

Although female workers faced a higher degree of seasonal wage variation in both the villages than their male counterparts, female workers of Sailgun encountered a much higher degree of seasonal wage variation than those of Dehergati.

In absolute terms, agricultural wage rate varied around the two seasonal peaks in the year in Sailgun — one mid-May to mid-June and another in mid-November to mid-December (Exhibit 6.10.1). Wage rate followed a gradual declining tendency immediately after the peaks and touched its bottom thereafter in mid-March to mid-April and mid-August to mid-October. The two peaks represented two harvesting periods — one in *aman* and the other in *boro* seasons of the year. In Sailgun, the worst situation for wage labourers prevailed in mid-September to mid-October when they remain totally unemployed.

According to the agricultural workers of Sailgun, the present wage rate varied within the 'low' wage range of Tk. 20 to 30 a day through 'medium' and 'high' wage ranges of Tk. 40-50 and Tk. 50-60 a day respectively. About 10-12 years before, the wage rates had ranged between Tk. 10 and Tk. 50 a day there. These data being in conformity with the wage-related data provided by a cross-section of villagers are plausibly valid (Table 6.10.19). As estimated by the agricultural workers group, the duration of wage employment markedly varied across the seasons both before and now. Using the duration of employment as the basis of weight, the annual average (weighted) wage rate increased from Tk. 29.4 to Tk. 26.3 a day showing about 12 percent increase over time (Table 6.10.20).

b. Real Wage Rate: An Estimate

Did the real income of the agricultural workers increase over time? Against the price of coarse rice, real income was estimated based on the data collected from the villagers. For estimating real income, price of coarse rice been collected from two sources — one from the agricultural workers and other from the cross-section of villagers. As reported by the agricultural workers of Sailgun, the price of coarse rice has increased from Tk. 5/6 to Tk. 10 and from Tk. 10/12 to Tk. 14 in slack and peak seasons respectively over time (Exhibit 11.1). As collected from the cross-section of villagers, the price of coarse rice stood at Tk. 8 per kg before and rose to Tk. 9 per kg at present (Table 6.10.21). The price range for the peak seasons may not be so relevant for estimating annual average prices because of its persistence for shorter period, rather those for the lean season may better serve this purpose. Therefore, the price range of Tk. 5-6-10 per kg comes nearer to the price range of Tk. 8-9 per kg reported by the cross-section of villagers. The increase in the average price level of coarse rice from Tk. 8 to Tk. 9 per kg represents 12.5 percent rise over 10-12 years. It may therefore be inferred that

as far as the rice price is concerned, agricultural workers did not suffer income erosion due to price increase.

As against a 12 percent increase in rice price (from Tk. 8/kg to Tk. 9/kg)being neutralized by about 12 percent increase in (weighted) wage rate (from Tk. 26.3 to Tk. 29.4) accompanied by about 10 percent increase in employment opportunities, the real income of the agricultural workers seems to have risen by about 2 percent per year on an average over the period under investigation (Table 6.10.21).

c. Wage Rate for Women

Agricultural wage rate for women stood at Tk. 19 per day and Tk. 12 per day during the peak and slack seasons, around one third and half of those for men in Sailgun respectively (Table 6.10.19). However, the wage rate for female workers was about Tk. 8-10 per day 5 years before. In the peak season, female workers were mostly engaged for harvesting potato in the *rabi* season. According to the practice in the area, female workers were paid in kind, 7.5 kg of potato (@ Tk. 2.5 per kg) a day instead of cash. The wage rate for female workers increased at a much higher rate than that for male workers. However, the female workers benefited less because an extremely shorter period of employment opportunities was available for them in the village.

In Dehergati, the wage rate for women was in the range Tk. 40 to Tk. 45 a day at present compared to Tk. 25 to Tk. 30 a day before. The wage rate increased by 50 percent and 60 percent for female workers in the peak and slack periods respectively compared to 18 percent and 17 percent for male workers over 1985-2000 period. The wage differential between men and women was not that much spectacular in Dehergati as it was in Sailgun. In Dehergati, male-female wage differential presently stood at 1:0.69 and 1:0.73 respectively in peak and slack seasons compared to 1:0.38 and 1:0.60 respectively in Sailgun. While the male-female wage differential narrowed over time in Dehergati, it tended to worsen in Sailgun. In Dehergati, the wage differentials between men and women were higher at 1:0.54 and 1:0.53 in peak and slack periods before than they are now. The wage-differential in Sailgun marginally narrowed in the peak periods, but remarkably narrowed in the slack periods over last five years.

d. Wage Rate for Child Labour

The incidence of child labour was almost non-existent even five years ago in Sailgun. It is a more recent phenomenon in the village (Tables 6.10.8, 6.10.9 and 6.10.18). While the current wage rate for child labour in Sailgun was found even higher than it was for the female workers in the peak seasons, their labour was sold at the lowest rate, in the slack seasons.

Dehergati is long acquainted with child labour even before 1985. The wage rate for child labour was however lower than that for male and female workers in both the peak and off-peak seasons. The present wage differential between men, women and children stood at 1:0.53:0.46 and 1:0.60:0.50 in the peak and slack seasons compared to 1:0.54:0.45 and 1:0.53:0.38 respectively before. This indicates that wage differentials tended to narrow over time in favour of child labour.

x. Total Duration of Employment in a Year Increased Over Time, but it Disproportionately Increased in Low-wage Months and Decreased in Both the Medium and High-wage Months

The nature of wage employment and its growth over time has been looked into in depth in Sailgun. The hard data gathered at the FGD with agricultural workers and summarized and presented in Table 6.10.6 clearly demonstrate that the duration of wage employment increased from 245 days to 269 days a year, an increase of about 10 percent over time under the investigation. But the increase in mere numerical information masks its limitation due to wide variation in wage rate round the year which has been adequately unfolded in the table by providing a breakdown of the total duration of employment and linking it to the wage range throughout the year. The table shows that an overwhelming proportion of total wage employment is accounted for by low-wage employment (224 out of 269 days) representing 83 percent compared to 29 percent of against the same wage range (75 out of 245 days) before. On the other hand, high- and medium-wage employments declined over time from 71 days to 15 days and from 99 days to 30 days respectively over time.

The total nominal income earned by a wage worker increased from Tk. 6,440 to Tk. 7,925 a year, an increase of 23 percent over 10-12 years. The increase in nominal income is attributable to the simultaneous increase in wage rate and average duration of employment. Table 6.10.19 shows that the contribution of wage rate appears to have been more (it grew by about 12% over time) than that of employment creation (it grew by 10%) to the increase nominal income in year.

xi. An Interpretation of the Paradox

The agricultural workers do not appear to have benefited much from the present level of the agricultural activities in the intensively irrigated village. According to one group of agricultural workers of the IIV, the duration of their employment round the year increased from 245 days to 269 days by around 10 percent over the last 10-12 years in the village. But they had to work at low wage rates in most of days of their employment (Exhibit 6.10.2). The average wage rate increased by around 12 percent along with the rise in the price of coarse rice by the

same extent during the same period resulting in around 2 percent of real income over the years. The slow growth in employment opportunities and wage rate resulted in the sluggish growth in the real income of the agricultural workers of the village.

The intensive irrigation was usually accompanied by a change in the cropping pattern introducing a variety of HYV crops which is known to be highly labour intensive. Then why the intensively irrigated village such as Sailgun with almost 100 percent land under HYV *boro* and HYV *aman* could not generate considerably employment opportunities in the village over time? Then why did the very poor households of the village could not improve their condition over time? This paradoxical situation merits thorough investigation into the production process in the village.

The underlying causes of the slow growth in labour market lay in the mechanized irrigation, the cropping pattern and crop mixes in the village. So far, the IIV passed through the two interrelated phases of modernization of agriculture by way of its technological transformation (Exhibit 6.10.3). In the first phase the agriculture of the village was transformed from traditional to 'biological-chemical' technology. During this phase the employment of wage employment increased as expected. However, growth in wage employment seems to have decelerated during the following phase when there had been another round of transformation from the initial stage of 'biological-chemical' technology to a higher order of this technology and also to 'mechanical-engineering' technology. During the second phase of technological transformation, the farmers of the IIV started using herbicides, and a variety of mechanical devices such as tractor, power tiller, thresher, husking machine, etc. These new chemical and mechanical technologies had a tremendous impact on the labour market. It caused lower demand for the workers, and machines were now increasingly being used to operate a variety of agricultural activities which used to be performed manually by labourers before.

The labour market for the agricultural workers in both the irrigated villages was also found adversely affected by the changes in the cropping pattern and crop mixes (Exhibit 6.10.4). The present state of mechanization led not only to the introduction of new HYV varieties of crops, it also brought about a sweeping change in the cropping pattern which displaced a number of crops which used to be grown before particularly in the *kharif-1* (early monsoon) season such as jute, *aus*, etc which used to generate substantial employment for the workers. In the absence of these crops, labourers had been deprived of a lot of employment opportunities for both men and women. Particularly women were found to have been worst-hit due to the technological transformation of the agriculture of the villages. It is worthy to note that the total labour requirement seems to have peaked at certain points of time (usually at two harvesting periods of *aman* and *boro*) in a year under the present cropping pattern compared to a more diffused pattern of labour demand for a variety of crops throughout the year before. This

type of production process adversely affected not only the agricultural workers, it also set a motion leading to various social ills such as land concentration, inequality, etc.

6.10.2 Land Market: Tenancy and Price

6.10.2.1Tenancy of Cultivated Land

6.10.2.1.1 Operation of Cultivated Land

Trend over time: The study villages markedly differed in respect of the operation of land in the following respects (Table 6.10.22). *First*, the total cultivated land decreased in the IIV, but increased in the MIV. *Second*, while the proportion of the own-operated land in total cultivated land declined in both the villages, in absolute terms it dropped in the IIV and rose in the MIV. *Third*, both the villages had seen an increasing trend in the rented-out land, but with a lower proportion of land under this category (3%-7%) in the IIV than it was (19%-22%) in the MIV. However, the increase in the shared-out land was too small (around 4-5 acres in both the villages (Table 6.10.23). *Fourthly*, there had been a sharp drop (15 acres) in rented-in land in the IIV, but the MIV witnessed a marked increase (14 acres) in it over time. *Fifthly*, there is a paradox between the direction of change between the rented-out and rented-in land in the IIV. In the IIV, the size of rented-out land increased but there occurred a drop in its rented-in land over the years.

The current tendency of shrinking tenancy market in the intensively irrigated village and the more vibrancy in the tenancy market in the moderately irrigated village merit a special focus on its impact. This opposite trend in the tenancy markets in the study villages was more likely to be influenced by the change in terms and conditions prevailing for this market and the availability of other alternative development opportunities in the areas. Before embarking on the discussion on it, it needs to highlight the major forms of tenancy in operation in the study villages and the changes therein which are as follows.

6.10.2.1.2 Tenancy and its Dominant Forms

There were three major forms of tenancy in the IIV, namely fixed-term tenancy; medium-term tenancy and sharecropping. Fixed-term tenancy emerged as the most popular form of tenancy in the area while the other two were gradually disappearing. However, sharecropping was found the only tenancy form in the MIV and its terms and conditions do not appear to have undergone any changes over time. Terms and conditions of the major tenancy forms are presented in Table 6.10.24. In the IIV, sharetenancy in classic form (whatever the rate of share may be) had already been out of fashion in the area, although it did exist in some

revised form 10-12 years before. Currently, sharetenancy or *chana* as known locally featured in the provision of rent in kind — 15 *maunds* (40 kg) of paddy per acre — under the non-cost sharing arrangement compared to 12 *maunds* per acre before. Under this system, rent was paid after the harvest. Under another traditional system locally known as *khai khalashi* — a medium- term tenancy — land is usually contracted for five/seven years currently at the rate of Tk. 3,000-5,100 per acre/year., as against Tk. 1,200 per acre/year before. The landowner gets the total rent for the entire contract period at a time through the execution of a deed. A third form termed as *pattan* — a fixed-term tenancy was nowadays the most widely transacted tenancy mode in the area. Under this system, a tenant had to make a cash payment at the rate of Tk. 7,600 per acre per year. Under this system, the landowner had no stake in the produces whatever were grown round the year. The tenant was entitled to keep all the produces he would produce on the land. The rent was higher compared to the rate for cash rent under the medium-term tenancy. The change in the land transactions under different tenancy markets had perceptible impact on the demand and supply of the land on the tenancy market.

In the MIV, share-tenancy was the only practised form of tenancy, and the terms and conditions did not undergo any changes over time. At present, share-tenancy provided for one-fourth of the produce for the land-owner, one-fourth for the provider of irrigation service and the remaining other half for the tenant cultivator. This distribution of the harvest did, however, apply to the tenanted land which used irrigation services in the *rabi* season. However, for the unirrigated land, the sharing of the harvest had been in the 50:50 ratio.

6.10.2.1.3 Land Transactions in Tenancy Market

In the IIV, the tenanted land was mostly cultivated by small and marginal farmers, and landless tenant farmers. The number of the owner-cum-tenant farmers increased by 67 percent (from 12 to 20) over time but the land rented-in by them dropped by 54 percent (from 25.1 acres to 11.3 acres) (Table 6.10.23). Landless tenant farmers also faced the similar shrinkage in the tenanted land they had cultivated over time. The tight tenancy market in the IIV increasingly put the tenant farmers at a sheer disadvantage. Presently, the landowners became more interested in renting out not under the traditional sharecropping arrangement, rather they rented out more land through fixed-term tenancy. Fixed-term tenancy had by now become a popular form of tenancy in the IIV because the landowners preferred it because it was more profitable to them and they could earn income out of it in advance and in cash form without taking any risk of production. On the other hand, the tenants who were taking over the land under this new arrangement was also showing their interest because they could gain more from the land by cultivating three crops a year and without losing any part of it. The other traditional forms of tenancy such as sharetenancy and medium-term tenancy had been on the wane in the

area. Over the last 10-12 years, as *pattan*, a fixed term tenancy, became a dominant tenancy form in the IIV, its high rent and its pre-harvest payment practice made tenanted land quite inaccessible to the poor and landless farmers who had serious cash crunch. Those who had enough surplus land or were not in a position to cultivate themselves, were increasingly showing preference for this mode of tenancy in the village. The tight supply of land under this form of tenancy was further attributable to the owner operators also rent out who used to cultivate less before are now cultivating more land (from 8 acres to 15 acres). As a result, cash-poor tenant farmers were faced with serious difficulty in accessing land through the tenancy market because they could not afford pre-harvest cash rent needed for renting land. They could not get bank loan because of institutional exclusions. They could, however, borrow from NGOs but their programme coverage was limited in the IIV. Moreover, NGO credit unlike to be suitable for long-term investment. To cope with cash crunch, they had therefore to resort to various mechanisms such as borrowing from local moneylenders, selling land or other assets, increasing participation by family labourers (eg., women, children) in the labour market, etc. The increasing inaccessibility of cultivated land may be one of the reasons for some of landless families leaving cultivation as their occupation and going for other off-farm occupation. But the off-farm activities did not gain momentum, although it had already taken off on a limited scale in the area.

The increase in rented-out land, although expected to lead to the corresponding increase in rented-in land, was found to have reduced the rented-land in the village. This may be due to the use of a part of the rented-out land by the tenant farmers of the neighbouring village(s).

In the MIV, the situation seems quite different. The terms and conditions for tenancy appears to have been more advantageous to the poor and landless tenant farmers. Under the sharetenancy, tenant farmers did not need to bother about either cash rent or about paying rent before the harvest. Although tenant farmers were likely to be subjected to a higher degree of exploitation, this mode of tenancy appears to be convenient for them. Aside from the mode of tenancy, the supply of cultivated land increased over time. The number of the owner-cum-lessor operators not only increased over time (from 2 to 11), the total area of their rented-out land also multiplied (from 2 acres to 16 acres) in the village. Besides, some additional land on tenancy market had been available due to the increase in the number of absentee households in the village. Because of all these positive factors, the supply of land on the tenancy market went up in the MIV. On the demand side, not only the tenant farmers increased (from 23 to 38), the area of the rented out land climbed as well (from 17 acres to 31 acres). Lands rented in by both small farmers and landless tenant farmers increased from 7 acres to 15 acres and from 10 acres

to 17 acres respectively over time. Over and above, the number of farm households increased (from 70 to 80) and non-farm household decreased (from 20 to 10) over the same time.

The above trend in the transactions of land in the MIV convincingly suggests that the poor and the very poor did not have to confront any tight land supply on tenancy market particularly due to any change in tenancy market which might have led them to face credit crunch as the tenants of the IIV had to face. The increased accessibility of NGO credit also provided another cushion for the poor and landless tenant farmers in the village.

6.10.2.2Price of Land

The price of cultivable land depends, among others, on the availability of irrigation service. Availability of irrigation enhances the intensity of land utilization. Therefore, it makes a difference in the price of the land with and without irrigation service. It may be assumed, a priori, that an irrigated piece of land would have higher price than an unirrigated one.

In the IIV, all the cultivable land virtually turned into cultivated land (without any fallow land) with the aid of irrigation service. The price difference between the double and triple land was not only due to with and without irrigation services but more likely to some other factors such as socioeconomic and agroecological factors, cropping patterns and crop mix. The price differential between double- and triple-cropped land was not that much remarkable — Tk. 1,100 per decimal and Tk. 1,200 per decimal in the village (Table 6.10.25). The price of irrigated land leaped from Tk. 500 to Tk. 1,100 per decimal and from Tk. 600 to Tk. 1,200 per decimal for double- and triple-cropped land showing 120 percent and 100 percent increases respectively over time. The rate of price change had been lower (83%) for the homestead land over time.

A marked difference exists between the irrigated and unirrigated land in the moderately irrigated village in Barisal. In the MIV, the irrigation coverage was still low and therefore a piece of irrigated land commanded much higher price than that of the unirrigated land. Single- and double-cropped lands represent unirrigated and irrigated lands respectively in the MIV. The price trend represents 43 percent and 67 percent upward changes for the unirrigated and irrigated land over 14 years in the village (Table 6.10.25). At present, there is no triple-cropped land in the village. The homestead land witnessed much lower rate of change in its price at as low as 14 percent over the corresponding period. The higher rate of price change for the irrigated land in the MIV reflects the high profitability and therefore high demand for this type of land there.

11.3 Indigenous Credit Market

The indigenous credit market in the rural areas consists, among others, of private moneylenders as a major informal intermediary in the rural financial market. The inaccessibility of banking services to the rural poor has made the long-running presence of private moneylenders as an integral part of the rural financial market. They have been the last resort to the poor. The poor seek the services of the rural moneylenders to cope with emergency relating to hunger, cultivation, natural disasters, social obligation and so on. The indigenous moneylenders found in the study villages had the following features (Table 6.10.26).

i. The Intensively Irrigated Village

In the intensively irrigated village, private moneylenders were playing an increasingly important role as evidenced from their rising number from 6 to 10 over the last 10-12 years. They were providing financial services mainly for the small farmers at a 100 percent - 150 percent rate of interest (on six months basis). The loan was repayable in two installments a year which was very convenient for them. The clients of the moneylenders did not need to furnish any security, although a guarantor was needed. The private moneylending featured in high recovery rate of credit at around 99 percent.

Small farmers usually borrow from them at three different times such as before transplantation, during planting period and immediately before harvesting. The high interest-bearing loan from the moneylenders is used by the farmers mainly to cope with pre-harvest hardship/exigency such as buying food for consumption, and to defray production cost particularly to buy agricultural inputs.

The small farmers' increasing reliance on the private moneylenders led to the massive expansion of the lending business in the village over time. With its expansion of business, there had been no change in its operating terms and conditions in the village.

ii. The Moderately Irrigated Village

The private moneylending in the MIV was gradually shrinking with a drop in the number of the moneylenders — from 9 to 4 — over time. Their clientele group comprised the poor and the farmers of the village. The rural moneylenders usually charged interest in the range 10-12 percent per month. The lending procedure provided for monthly repayment of interest and of the principal in a single installment at the end of the year.

The borrowers usually used the loan for consumption purposes during the *kharif-1* season (mid-April to mid-July). Despite market shrinkage, the terms and conditions for the private moneylending do not appear to have been changed over time in the village.

6.11.4 Discussion

In the light of the information collected, the conclusions on the hypotheses developed before stand as follows (Table 6.10.27):

Hypothesis 1: The participation in labour market has not increased

As found from the census data, both male and female participation in the labour market in the villages increased over time. At present, around one third of the households were selling their wage labour on the labour market.

The hypothesis therefore stands rejected.

Hypothesis 2: The unemployment has declined

The data generated through multiple sources reveal opposing trends in unemployment and employment in the study villages. The disagreement is found to exist not only between the results generated through different types of data gathering techniques but also between different sources under the same type of data gathering techniques (eg between PRA groups).

As maintained by all the poor participant groups including farmers and labourers they unemployment has declined the hypothesis is accepted.

Hypothesis 3: The out-migration has been reduced

All the participant groups hold an identical view that the duration of out-migration declined over time in the intensively irrigated village, although it increased in the other village. The census results also indicate that out-migration increased in terms of the number of households with migrant workers over time.

The hypothesis cannot therefore be accepted.

Hypothesis 4: Seasonal variation has declined around the higher wage level across the seasons of the year

There exists a consensus among all the participant groups regarding the tendency of wage level to increase around the seasons' high in both the villages.

Therefore, the hypothesis can be accepted to be valid.

Hypothesis 5: The incidence of child labour has declined

The results coming out from all the sources confirm that child labour was a new segment of the labour market in both villages, although their participation was not that much conspicuous before.

The hypothesis therefore stands rejected.

Hypothesis 6: Land under tenancy has increased

Land on tenancy market (rented-in) is found to have markedly declined in the IIV and the trend has been quite reverse in the MIV.

The hypothesis therefore stands rejected for the IIV and accepted for the MIV.

Hypothesis 7: The price of the irrigated land has risen more than that of the unirrigated land

As expected, the information collected from the cross-section of villagers indicate that the price of the irrigated land increased sharply (100% - 120%) over time in the IIV compared to smaller increase (67%) in the MIV.

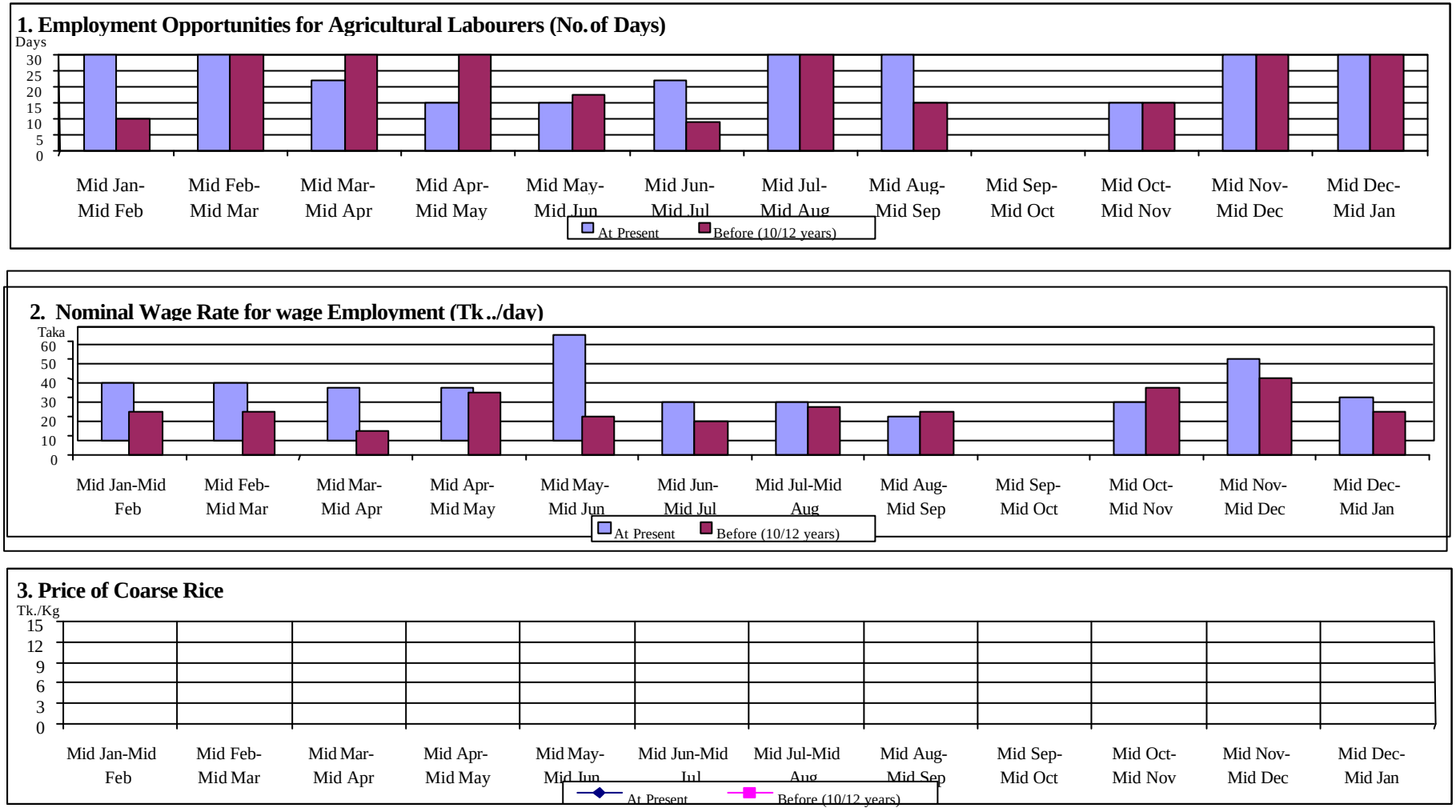
Therefore, the hypothesis stands accepted.

Hypothesis 8: The role of the moneylenders has been marginalized

There has been an increasing dependence of the poor on the rural moneylenders over time in the IIV. However, they were playing a minor role in the MIV due to the enhanced access to NGO credit facilities over time.

According to the 'decision rules', the hypothesis, therefore, stands rejected.

Exhibit 6.10.1: Seasonal Variations in Wage Employment, Wage Rate and Coarse Rice Price in Study VillageOver Last 10-12 Years
A. Village: Sailgun (SW), Joypurhat

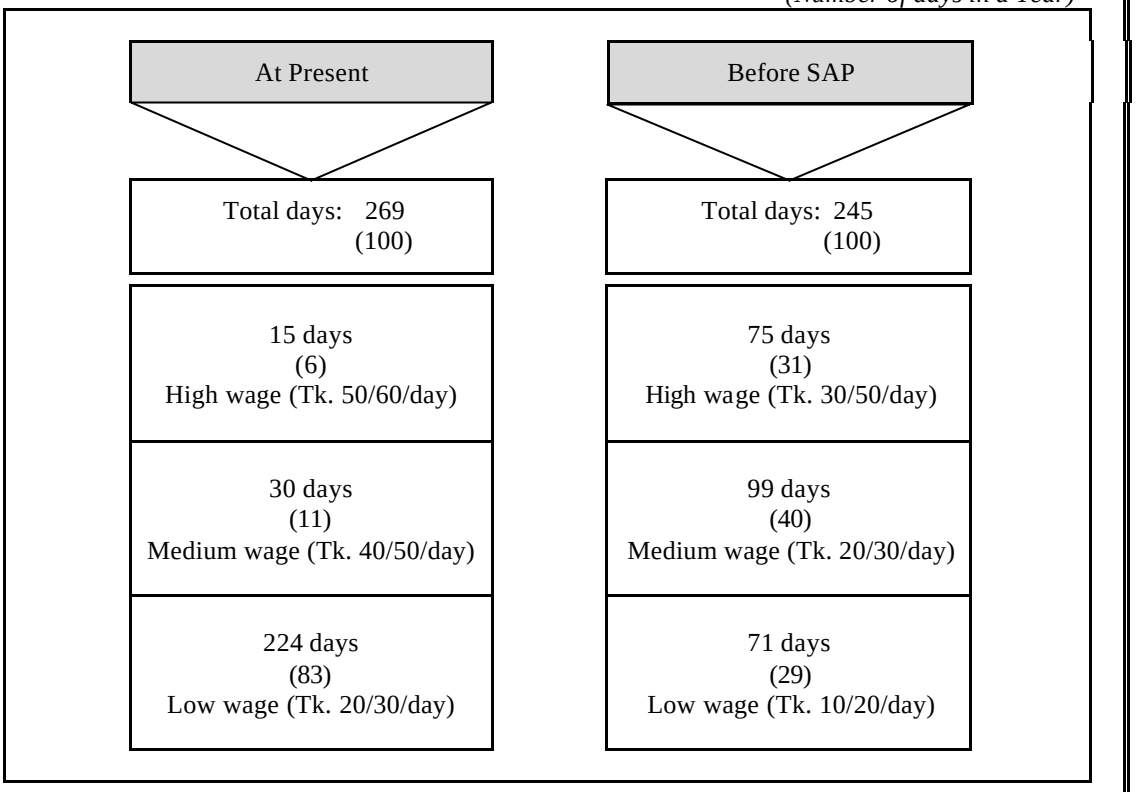


Source: FGD with agri-labourers, Data Box 6.10.1.

Exhibit 6.10.2: Diagrammatic Presentation of Wage Employment and Wage Rate in Crop Sector in Study Village Over Last 10-12 Years

A. Village: Sailgun (SW), Joypurhat

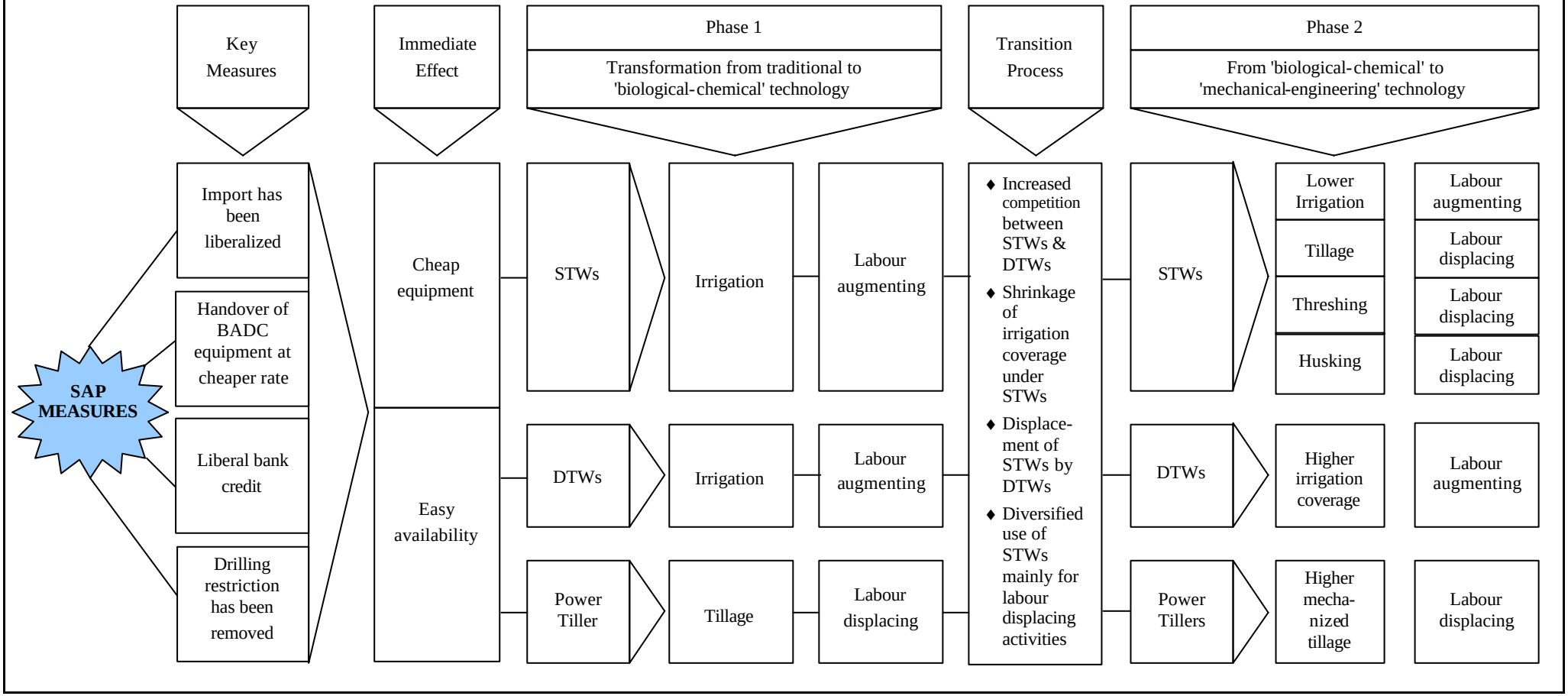
(Number of days in a Year)



Note: i. Figures in parentheses show percentages of total working days in a year
ii. Includes only wage paid in cash. Apart from cash wage, food provided as non-cash wage has not been included

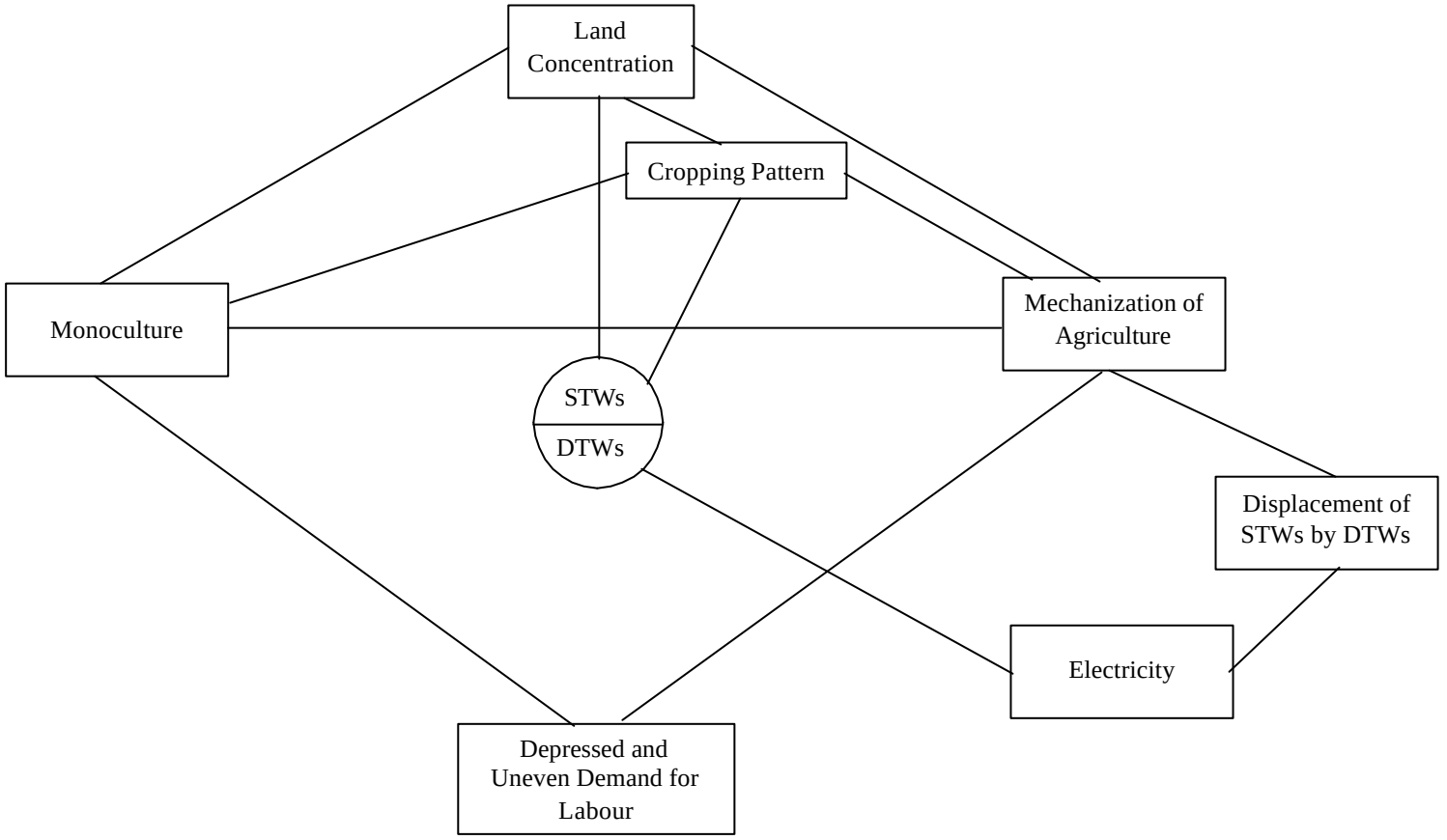
Source: Table 6.10.6

Exhibit 6.10.3: Diagrammatic Presentation of Impact of SAP-led Measures on Demand for Agricultural Labourers in Study Area (Intensively irrigated village)



Source: SAPRI participatory component, March-May 2000

Exhibit 6.10.4 : Impact of Mechanized Irrigation on Labour Demand in Study Area (Intensively irrigated village)



Source: SAPRI particip atory component, March-May 2000; Biswas and Mandal 1993.

6.11 Inequality: Polarity Between The Land-Poor and Land-Rich Households

"Some people have got poor but the rich have got richer"
— Jamal Uddin, An LLP Owner of Dehergati, Barisal

6.11.1 Land as a Focus of the Investigation

Development policy pursued by the government has important implications for income and asset distribution. Inequality in the rural area is influenced by a host of factors including agriculture sector policies.

Land still is a crucial factor determining asset base of most of the households in rural Bangladesh. Possessing and dispossessing of land determines the fate of a household in the rural areas. Area of landholding also determines his or her position on economic and social ladder in the rural society. Apart from land, other assets such as money, power, access, law of inheritance, education, linkage with party and state machinery, etc have also important bearing on the resource base of the rural households. Land has therefore been the focal point of this investigation into the extent and trend in inequality in the study villages. This investigation is focused on the following questions:

i. What is the magnitude and extent of landlessness and inequality in landholding?
ii. To what extent land transfer has occurred over time?
iii. Who have sold and bought land?
iv. Why has land been sold?
v. How resources have been mobilized to buy land?
vi. Is landholding related to well-being of the rural households?

6.11.2 Distribution of Landholding: Farm Size, Landlessness and Land Concentration

6.11.2.1 Overall, Intensively Irrigated Village (IIV) Witnessed the Reduction of Land But Moderately Irrigated Village (MIV) Acquired More Land

At the aggregate level, the households of the IIV lost more than 10 (8.7%) acres of land, but close to 15 (19.5%) acres of land were added to the total land assets owned by the households of the MIV over the last 10-12 years (Table 6.11.1). This implies that there had been a net transfer of land ownership from the IIV to the outside but the reverse occurred in the case of the MIV.

6.11.2.2Despite a Drop in Average Farm Size in the IIV and a Rise Therein in the MIV, the Large Farmers of Both the Villages Gained by Way of Enlarging their Farm Size

While the average farm size fell from 159 decimals to 141 decimals in the IIV, it however increased from 85 decimals to 101 decimals over time in the MIV (Table 6.11.1). With these opposite trends for both these villages, the average farm size for the large farmers (5.0 acres and above) of both the villages went up considerably. The average size of their farms increased by 61 percent, from 661 decimals to 1075, in the IIV. With none in this land class before, the present average farm size for the same class of farmers of the MIV stood at 597 decimals. The average farm size for the marginal farmers (landholding up to 0.49 acres) dropped over time in both the villages — from 25 to 17 decimals in the IIV and from 19 to 16 decimals in MIV. The average farm size for both the smaller farmers (from 0.50 to 2.49 acres) and medium farmers (from 2.50 to 4.99 acres) declined in the MIV but it remained virtually unchanged over time in the IIV.

6.11.2.3 Concentration of Landholding Worsened over Time in Both the Villages

In terms of total land holding, at present 3.8 percent of households of the IIV belonging to large-scale farm category owned 30.8 percent of land in the IIV, as against 29.1 percent of land held by 6.4 percent of household before (Exhibits 6.11.1 and 6.11.2). In the MIV, 19.6 percent of land was currently concentrated in the hands of 3.3 percent of households compared to the 45.5 percent of land held by 12 percent of the households before.

On the other hand, landless households defined broadly currently accounting for 44 percent of all the households owned 5 percent of all land in the IIV as against 42 percent of all the households falling under this category held 6 percent of land before. Similarly the landless households constituting 46 percent of all households in the MIV currently held as low as 7.3 percent of all the land whereas 11 percent of land had been under the ownership of 52 percent of all the households representing the landless category 10-12 years before.

The farm size comparison also sheds light on the trend in inequality in landholding. In the IIV, the farm size ratio between marginal farmer and large farmer currently stood at 1:63 as against 1:27 before. In terms of the farm size/ratio between the small farm and large farm, the inequality also worsened from 1:4 to 1:7 over the same period in the same village. In the MIV, the farm size-based inequality ratio between the marginal and large farms presently stood at 1:37, while that stood at 1:16 before between the marginal and medium farmers (as there had been no large farmers before).

6.11.2.4 Landlessness in Both the Villages Worsened

The number of absolutely landless households (having no land at all including homestead) was very few and it dropped over time — from 6 to 4 and from 4 to 1 in the IIV and MIV respectively (Table 6.11.1). However, landlessness including both absolute and functionally landless households (holding up to 49 decimals) was not only at the precarious level, but also worsened over time in both the villages.

In terms of number of households, landlessness worsened marginally (from 33 to 35 households) over time in the IIV, although it shows some sign of improvement in the MIV (from 47 to 42 households). However, in terms of landholding size, the landless/land-poor households suffered land loss in sizable scale in both the villages. The total area of land held by them declined by 22 percent (from 676 to 527 decimals) and 21 percent (from 841.5 to 665.5 decimals) in the IIV and MIV respectively.

The magnitude of the landlessness and land concentration in the study villages can be better understood if we compare the trend between the present landholding of the farmers under one category and that before of the same farmers who may or may not be under the same category before. That is, this involves looking at the current and past landholdings of the same households under the present categories. It is almost analogous to comparing of the two panel data sets. The results processed this way is presented in Table 6.11.2. The table shows that both marginal farmer and small farmer groups of the IIV suffered land loss to the extent of 72 percent and 18 percent respectively over time. Land had however been concentrated under the hands of both medium and large farmers and the total area of land under their ownership increased by 12 percent and 70 percent respectively. Similar is the case with the MIV where only one farmer group, namely marginal farmers lost land by 41 percent over the same period and all other farmer groups gained landholding over time. The concentration rate had been the highest for the large farmer group (195%) compared to that for the small (10%) and medium (16%) farmer groups over time.

6.11.3 Relationship between Landholding and well-being/ill-being

The integration between the Participatory Poverty Assessment (PPA) results and census results reveal that there is a close relationship between the level of well-being or ill-being of a household and its size of landholding. The well-being of a household and its size of landholding is positively correlated. The more the size of landholding of a household group increases, the more is their well-being which is shown in Table 6.11.3. The positive relationship between the two variables is true for both the villages. In the IIV, the poor households including both very poor and moderate poor accounting for 64 percent of all the

households owned 24.6 percent of all the land owned compared to 38.8 percent of land owned by the same households under this category before. This shows that the poor households of the IIV became land-poor over time. Table 6.11.3 also reveals that the landholding of the middle farmer group, a non-poor group, although declined marginally, the landholding by the well-off markedly increased from 23 percent to 37 percent over time.

In the MIV 49 percent of households belonging to the poor category currently possessed only about 19 percent of land as against 30 percent of land held before by the same households under this 1group. On the other hand, the non-poor households representing 51 percent of households presently owned 81 percent of land in the village compared to 70 percent of the landholding before by the same non-poor households. All these show that poverty and size of landholding moved in parallel in the study villages.

The integration of the two methods — PPA and conventional household level census — shows that higher landholding does not necessarily represent higher level of well-being and the lower landholding is not always analogous to ill-being of households. As can be seen from Tables 6.11.3 and 6.11.4 that land-poor households belonging to even the marginal and small farmers were not poor, rather they had been well-off in both the villages both at present and before. The implication of this finding is that only land-based targeting of the rural households should not be based on a single criterion rather it should be supplemented by other criteria such as PPA as well.

6.11.4 Movement across Landholding Classes

There occurred a silent movement of the rural households across various landless and landholding groups over time in the study villages, similar to the movements we have seen in the section on poverty. We have already seen that land being one of the vital resources in the rural areas crucially determines the level of the well-being of the households in the study villages. However, the direction and the momentum of changes in landholding varied significantly across various landholding classes in the study villages. In terms of the number of households, the IIV witnessed a higher rate of landlessness and lower rate of land acquisition regardless of the landholding classes compared to the revenue trends for the MIV.

In the IIV about 17 percent of the households slipped into the lower landholding classes and 10 percent of the households crossed over to the higher classes (Table 6.11.5). The rate of landlessness by way of sliding down into lower categories in the MIV was not that much worse in the MIV compared to that in the IIV. As low as only 6 percent of the households fell into the lower landholding classes in the MIV. A larger proportion of households (20%) however graduated into their higher landholding classes in this village. The findings showing

the positive association between landlessness and the extent of irrigation coverage will be further clarified later while discussing the causes of land transfer over time in these villages.

6.11.5 The Transfer of Landholding: Extent and Causes

The increasing polarization between the land-rich and land-poor households has already been revealed while discussing the land distribution patterns of the study villages. But the present highly skewed landholding pattern is the net outcome of the inner dynamics of land transfer to and from the various landholding classes over the last 10-12 years. The census results focus on land transfer from and to the households considerably varied across different landholding classes in the villages. This uneven rate of land transfer over time resulted in the wide gap between the land owned by the poor and the non-poor households in the study villages. It is found that in the IIV, the poor as a category sold as much as 51 percent of all the land sold over time in the village, but they could barely acquire 16 percent of all the land bought in the village (Table 6.11.6). On the other hand, 84 percent of all land sold in the village over time was transferred to the non-poor households of the village. Out of the four categories of households, the land loss had been the highest for the very poor households. They had to sell 34 percent of all the land sold and they had acquired only 5 percent of the land bought during the same period.

The increasing polarization trend was also evident in the land transfer process experienced over time in the MIV. In this village, while 53 percent of land was sold by the poor households, they bought only 2 percent of the land sold over the same time period in the village. In other words, the non-poor households bought almost all the land (98%) over the years. The condition of the very poor households was the most precarious. They sold 19 percent of all the land sold and bought only 0.2 percent of the land acquired by all the households in the village over time.

The increasing polarization between the poor and the non-poor groups can be better depicted in terms of the net transfer of land over time. Table 12.6 projects that as much as 17 and 19 acres of land in net terms were transferred to the non-poor households in the IIV and MIV respectively. These represents 28 percent (32.1% bought – 4.2% sold) and 37 percent (42% bought – 4.8% sold) of the land they held before respectively. Looked at the specific household categories, the very poor of both the villages had however been the net losers to the extent of 5.1 percent (9.3% bought – 14.4% sold) and 12.5 percent (0.6% bought – 13.1% sold) of the land held by them before in the IIV and MIV respectively. Although the moderate poor of the IIV have been the net gainers but their corresponding group in the MIV have become the net losers. As for the non-poor groups, the well-off of both the villages gained the most by

increasing their landholding by 133 percent (bought 152.3% – sold 18.7%) and 203 percent (bought 206.4% – sold 3.0%) in the IIV and MIV respectively over the same time.

Reasons for Selling Land

The reasons behind selling their land are presented in Table 6.11.7. Poverty-related factors mainly led the villagers to sell their land in both the IIV and MIV. The villagers sold their land mainly to cope with unemployment/hunger, to repay credit, and to repair their houses. The villagers particularly of the IIV also sold land for meeting some demographic/social expenses such as marriage. Among others, meeting health and education expenditure are found to lead them in selling land.

Ways of Mobilizing Capital or Buying Land

The agriculture in general and the crop sector in particular had been the major providers of capital for buying land in the intensively irrigated village. Out of 35 responses, selling agricultural produces accounted for a half of the responses (51%) followed by other major sources of capital such as borrowing (23%), selling farm animals (17%), etc (Table 6.11.8). In the MIV, savings out of the salaried jobs had been the topmost source of capital (34%). The villagers of the MIV also mobilized capital from other sources such as selling agricultural produces (20%), taking loan (23%), etc.

6.11.6 The Polarization Process and the Role of PSI Banks

The polarization process in the study villages was facilitated by both the production technology and the public sector institutions. The role of technology in the agriculture has already been discussed in the preceding chapter while discussing its labour displacing characteristics in the study village. The marriage of 'biological-chemical technology' and 'mechanical-engineering technology', and the adverse impact of which on the labour market has also been pointed out in the previous section. However, the role of some public sector institutions such as banks in the polarization process also needs to be highlighted. As is found elsewhere of the country, the access to bank loan by the non-poor is also found in the IIV. A large chunk of bank loan was channeled to the better-off households who had a better access to the banks. The non-poor households availed themselves of the bank loan and increasingly enhanced their productive capacity to make the best use of their assets and manpower and acquired assets. They bought irrigation equipment (STW/DTW), land preparation implements (tractor/power tiller), processing machines (husking/extraction mills), and went further for re-lending in the villages (Exhibits 6.11.3 and 6.11.4). This is how the non-poor households of the

IIV progressively accumulated assets in their hands. The banks played a vital role in modernizing/transforming the mode of production in significant way in the IIV where almost cent percent irrigation coverage was achieved. Had there been no bank loan available for the non-poor households, the progress in this respect would certainly have been slower. The MIV is a case in point where the PSI banks played a marginal role resulting in slow progress in strengthening the productive forces in that village. Although the PSI banks significantly aided the modernization process by providing loan for the land-rich households, the land-poor and landless households did not benefit that much from bank loan due to a variety of constraints such as complex lending procedure provision of collateral securities; corruption (more details later), and so on. The unequal access to bank loan exacerbated the inequality in the ownership of assets of the households of the IIV over time.

6.11.7 Discussion

Hypothesis 1: Inequality has been reduced

Land constitutes a vital asset for the households of the study villages. In terms of land ownership, landless households (absolute landless + functional landless) representing 44 percent of the households currently owned only 5 percent of land as against 29 percent of land held by about 4 percent of larger households before in the intensively irrigated village. Based on the comparisons between the average farm size of both the groups show that the ratio between the marginal and large farms currently stood at 1:63, as against 1:27 before in the IIV. The inequality is also found to have worsened in the MIV where the ratio presently stood at 1:37 in contrast to 1:16 before.

As far as land ownership is concerned, the hypothesis stands rejected.

Exhibit 6.11.1: Landholding Distribution in Study Villages Over Last 10-12 Years

A. Village: Sailgun (SW), Joypurhat

A. Distribution of Landholding by Category of Households

At Present		Before SAP	
Category of Households: [Total Households: #78 (100)]	Landholding: [Total area: 105 Acres (100)]	Category of Households: [Total Households: #78 (100)]	Landholding: [Total area: 115 Acres (100)]
Well-off 6 (7.7)	Well-off 39 (37.6)	Well-off 1 (1.2)	Well-off 6 (5.4)
Middle 22 (28.2)	Middle 40 (37.8)	Middle 25 (32.0)	Middle 55 (47.5)
Moderate Poor 20 (25.6)	Moderate Poor 20 (19.0)	Moderate Poor 23 (29.5)	Moderate Poor 39 (36.2)
Very Poor 30 (38.5)	Very Poor 6 (5.6)	Very Poor 29 (37.2)	Very Poor 15 (10.9)

B. Distribution of Landholding by Farm Size

Households by Farm Size: [Total households: #78 (100)]	Landholding: [Total area: 105 Acres (100)]	Households by Farm Size: [Total households: #78 (100)]	Landholding: [Total area: 115 Acres (100)]
Large Farmers 3 (3.8)	Large Farmers 32 (30.8)	Large Farmers 5 (6.4)	Large Farmers 33 ((29.1)
Medium Farmers 6 (7.7)	Medium Farmers 17 (16.4)	Medium Farmers 11 (14.1)	Medium Farmers 32 (27.5)
Small Farmers 34 (43.6)	Small Farmers 50 (47.7)	Small Farmers 29 (37.2)	Small Farmers 43 (37.5)
Marginal Farmers 31 (39.7)	Marginal Farmers 5 (5.0)	Marginal Farmers 27 (34.6)	Marginal Farmers 6 (5.9)
Landless 4 (5.1)	Landless 0	Landless 6 (7.7)	Landless 0

Source: Table 6.11.1

Exhibit 6.11.2: Landholding Distribution in Study Villages Over Last 10-12 Years

B. Village: Dehergati (M), Barisal

A. Distribution of Landholding by Category of Households

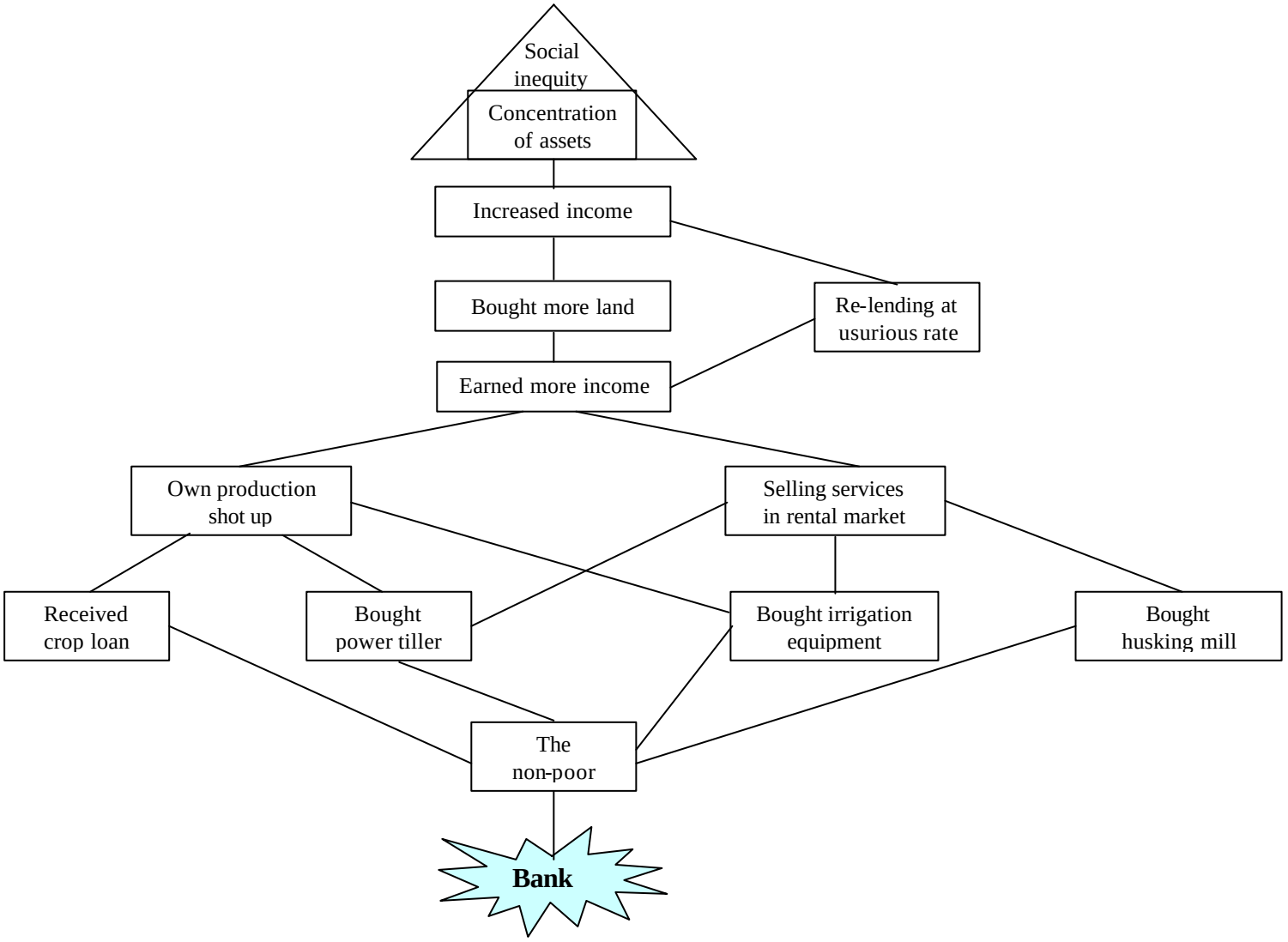
At Present		Before SAP	
Category of Households: [Total Households: #90 (100)]	Landholding: [Total area: 91 Acres (100)]	Category of Households: [Total Households: #90 (100)]	Landholding: [Total area: 76 Acres (100)]
Well-off 15 (16.7)	Well-off 44 (47.9)	Well-off 6 (6.7)	Well-off 8 (11.0)
Middle 31 (34.4)	Middle 30 (33.4)	Middle 36 (40.0)	Middle 44 (57.51)
Moderate Poor 32 (35.6)	Moderate Poor 14 (15.0)	Moderate Poor 35 (38.9)	Moderate Poor 16 (21.5)
Very Poor 12 (13.3)	Very Poor 3 (3.7)	Very Poor 13 (14.4)	Very Poor 7 (100.0)

B. Distribution of Landholding by Farm Size

Households by Farm Size: [Total households: #90 (100)]	Landholding: [Total area: 91 Acres (100)]	Households by Farm Size: [Total households: #90 (100)]	Landholding: [Total area: 76 Acres (100)]
Large Farmers 3 (3.3)	Large Farmers 18 (19.6)	Large Farmers 0	Large Farmers 0
Medium Farmers 11 (12.2)	Medium Farmers 33 (36.5)	Medium Farmers 11 (12)	Medium Farmers 35 (45.5)
Small Farmers 34 (37.8)	Small Farmers 33 (36.5)	Small Farmers 32 (35)	Small Farmers 33 (43.5)
Marginal Farmers 41 (45.5)	Marginal Farmers 7 (7.3)	Marginal Farmers 43 (48)	Marginal Farmers 8 (11)
Landless 1 (1.1)	Landless 0	Landless 4 (4)	Landless 0

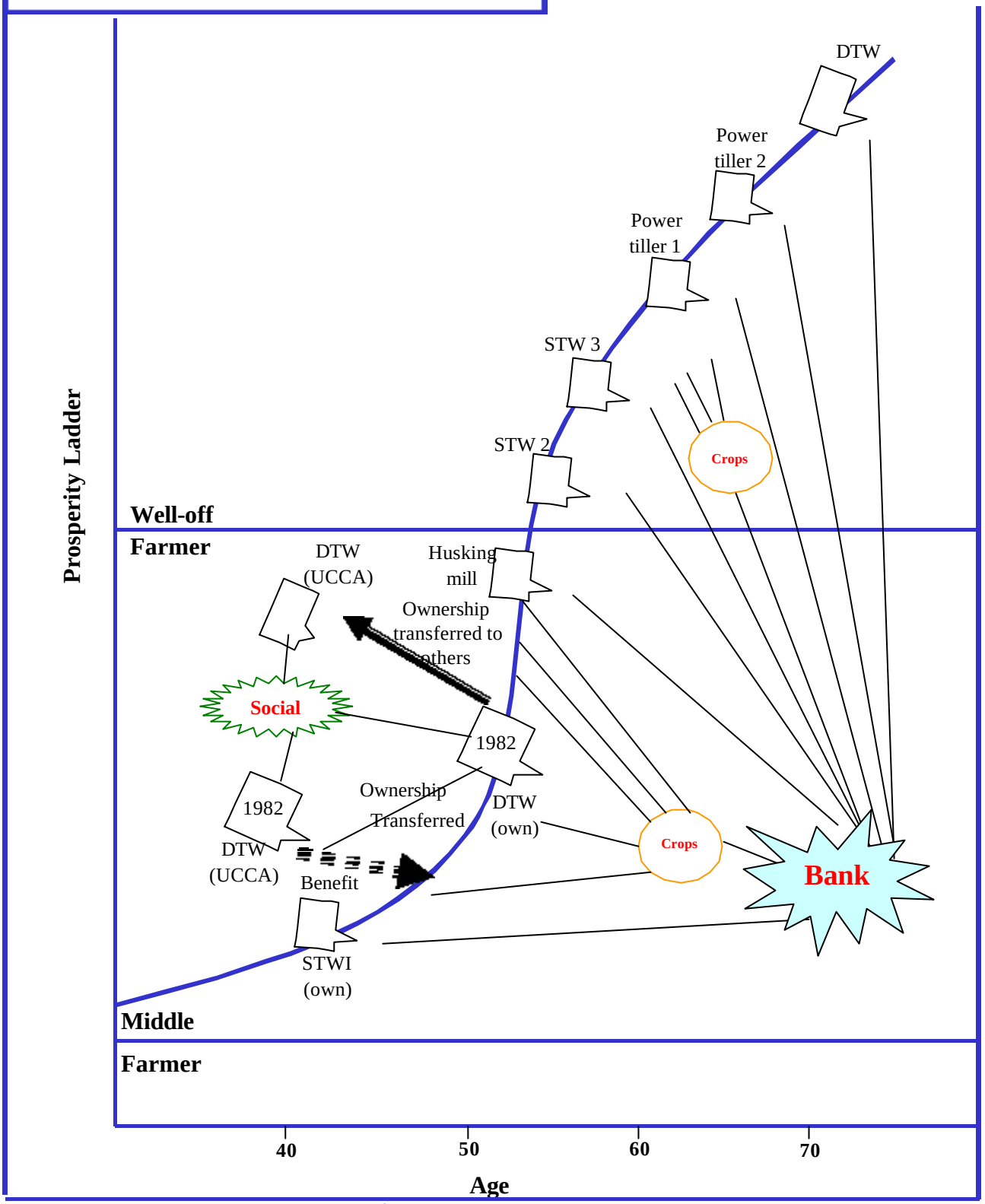
Source: Tables 6.11.1, 6.11.3 and 6.11.4

Exhibit 6.11.3: Causality between Bank Credit, Green Revolution and Social Polarization



Source: PRA exercises, SAPRI participatory Component, May 2000

Exhibit 6.11.4: Prosperity Line of Hazi Ishaq Ali



Source: Long interview with Hazi Ishaq Ali of Sailgun (SW), Joypurhat, SAPRI participatory component, March-May 2000

6.12 Food Security

6.12.1 The Issues Addressed

This chapter is about food security in the study villages. Food security at the household level has been the main focus of the investigation into this area. More specifically, the study seeks to look at the topic with the following questions in mind.

- What has been the extent of food-deficit -surplus status of the households in the study villages?
- Has it increased/decreased over time?
- What are the causes of food deficit in the villages? What has been the change in their relative importance over time?
- What mechanisms are usually resorted to by the deficit households to cope with their food deficit?
- Has the food insecurity improved/worsened in the study villages?
- Has the demand for consumption (food) loan gone up? Who have been the major providers of this loan?

6.12.2 Food Surplus/Deficit Status of Households

The central question as to whether the food insecurity in the study villages has improved or not necessitates one to look first at the actual food deficit/surplus status of the households. This is more true for a rural economy like Bangladesh where land still constitutes an overwhelming source of livelihoods of a large number of households — directly or indirectly. The understanding about food deficit/surplus status of the households, its causes and coping mechanisms followed would further serve to assess the various aspects of food security of the households in the study villages.

The participants and respondents were not, however, asked any direct question on the food security of the households of the villages, rather questions on food deficit/surplus status of households and other related issues were posed because it would be more easier for them to share their experiences and feelings about the issue. The status of food security of the households have been derived from the information collected on other related issues. Information on the above-mentioned issues were collected — some at the group level and some at the individual level. The both sets of information have been suitably integrated to answer the above questions.

6.12.2.1Extent of Food Deficit Seems to Deteriorated Widened in the Intensively Irrigated Village

Information collected through both the participatory and conventional methods suggest that the extent of deficit families increased over time in the IIV. But the divergent trends came out of the two sets of information for the moderately irrigated village. The assessment by the PRA participants of the IIV indicates that out of the four categories of farmers — surplus households, households with neither surplus nor deficit, households with temporary deficit (less than six months), and households with chronic deficit (more than six months) — the numbers of surplus households, and households with neither surplus nor deficit have proportionately dropped from 15 percent to 10 percent and from 25 percent to 20 percent respectively over time (Data Box 6.12.1). On the other hand, the numbers of both the temporary and chronic households increased from 25 percent to 30 percent and from 35 percent to 40 percent respectively over the same time. According to the participatory assessment, more households were afflicted with chronic food deficit all through, although deficit households of both the types in aggregate multiplied over time in the IIV. The participants held that large family size, higher expenditure and fewer earning members are the cause of the swelling numbers of the deficit families in the IIV.

The self-assessment by all the household heads also reveal that the IIV had more deficit households now than she had before. The proportion of the households with temporary and chronic deficit now stood at 38 percent and 19 percent as against 23 percent and 24 percent before respectively (Table 6.12.1). The self assessment shows that more households slid into the temporarily deficit household category, although some of the presently deficit category crossed over to other groups over time. As identified by the respondents of the self-assessment, the major factors responsible for the present worsening trend in food gap include low income/high expenditure, large family size, landlessness, smaller landholding, joblessness etc (Table 6.12.2). In terms of absolute number of responses, these factors became more prominent over time, although their relative importance however declined except for the factor smaller size of landholding. Landlessness and small landholding to together had been topmost factors (29% of all responses) in food deficit now in the IIV compared with that (24%) before.

The participatory assessment shows higher estimate (55%-70%) of deficit households both before and now than those (47%-57%) for the individual self-assessment. The participatory assessment indicates the worsening of both the types of the deficit households, but the individual self-assessment shows some improvement in estimate of chronic deficit and the deterioration in temporary deficit over time. Despite all these differences in the direction of changes across different categories of households, one common aspect that stands out is that in

terms of proportion of the households, the overall extent of food deficit worsened over time in the IIV.

In the MIV, the two assessments reveal two divergent trends. According to the participatory assessment, the numbers of both types of deficit households dropped over time. The number of surplus households however increased, although there has been no change in the number of the households with neither surplus nor deficit over the same time period. Developed cultivation, more income from it accompanied by other income earning opportunities in the village mainly contributed to the improvement in reducing the food gap at the household level in the MIV.

The self-assessment by the household heads provides a gloomy picture showing deterioration in both types of food deficit in the MIV. The proportions of temporarily deficit and chronically deficit households rose from 27 percent to 29 percent and from 24 percent to 33 percent respectively over time. On the other hand, the numbers of surplus households and those with neither surplus nor deficit decreased from 17 percent to 11 percent and from 31 percent to 27 percent respectively over the last 10-12 years. The major causes of the worsening trend in food deficit are low yield/production, smaller size of landholding, low income, large family size, landlessness, etc (Table 6.12.1). As in the IIV, landlessness and smaller size of landholding constitute an overwhelming part of the explanations of the food deficit all through in the MIV.

6.12.3 Food Insecurity and Coping Mechanisms

Food insecurity at the household level and the mechanisms applied by them to cope with it are interwined. The change in the type of coping mechanisms applied over time in turn reflect the trend in food insecurity over time at the household level. A household's primary focus of concern is to ensure the accessibility of food to household members. To assess the trend in food insecurity, it is more relevant to know the extent of food surplus/deficit status of households for farm households and also how they cope with the shortfall. For the non-farm households, it is more important to know how they 'acquire' or buy food and whether they have the ability to 'acquire' it (Hossain 1989: 51). How the households of the IIV and MIV acquire food and what have been the changes in their mechanisms applied are depicted in Table 6.12.3. Regardless of whether they are farm or non-farm households, the way they acquire food either to reduce their food gap or to gain access to it for consumption, shows whether a household is food insecure or not. That is, the coping mechanisms itself will highlight the status of the households and tell us who are food secure or not and its trend over time. In the study villages, there are five types of mechanisms usually used by the households to acquire food who either had food deficit or had lack of food but not food insecurity as such. They are: selling labour;

selling produced goods; earning salaries/pensions; depending on sideline, and doing petty trading. Table 6.12.3 shows that the proportionate shares of these mechanisms in all the responses made declined in both the study villages from about one half to around one-third in the IIV and from about three fourths to about one half in the MIV.

The declining role of those factors which were primarily meant for dealing with a lack of food or food shortage but not food insecurity as such suggest that the food security of the households tend to have been eroded to some extent over time in both the study villages. On the other hand, the food-poor households were increasingly relying on those types of mechanisms which were meant for tackling food insecurity of the households. They include: borrowing (loan/credit), liquidating household assets, undergoing starvation, mortgaging out land, depending on family handout and by gathering grains from the field.

The role of these mechanisms in coping with food insecurity appreciably increased over time from around one half to about two thirds, and from around one fourth to one half of the total responses of the use of coping mechanisms in the IIV and MIV respectively. Those households were increasingly resorting to borrowing (from 17-21% to 32-36%%), a most widely used mechanism in both the villages. But the role of other mechanisms, namely liquidating household assets, and undergoing starvation — top second and third mechanisms gained less importance over time in the IIV, although its use rose in the MIV. Overall, these indicate that the household-level food insecurity in the IIV worsened over the reference period but the trend for the MIV seems to be inconclusive because of the divergent results of the two methods. Despite some improvement in food deficit status in the MIV, the type of coping mechanisms being used to tackle food deficit and the change in their role over time provide much ground to believe that some deficit households must have faced formidable difficulties in coping with food shortfall which is more akin to food insecurity than to food shortage in the MIV.

6.12.4 Demand for Consumption Loan and its Resources

As viewed by the agri-labourers of the IIV, the demand for loan to buy food increased over time in the village. As rated on the 1-4 points scale (ranging from very unhappy to very happy), the agricultural workers expressed their 'unhappy' feeling nowadays although they had been 'happy' 10-12 years before showing that their need for the consumption (food) loan increased over time mainly because of population pressure (Data Box 6.12.2).

The range of providers of this credit and the relative importance of the providers were also ascertained by the same group of participants of the IIV in Data Box 6.12.3. NGOs had been the topmost providers at present (40% of all providers), followed by relatives (12%)

,moneylenders (20%), bank (10%) and rich farmers (10%). They, however, noted that agricultural labourers could not normally get bank loan, but those who could avail were required to offer bribe. Compared with the present wide range of the sources of this type of credit, there had been only three credit sources before, namely relatives (50%), moneylenders (30%) and rich farmers (20%). The importance of all these three credit sources, however, diminished over time in the IIV.

6.12.5 Discussion

Hypothesis 1: Food insecurity has improved

The results from both the participatory assessment and individual self-assessment indicate that an increasingly larger proportion of the households slid into food deficit-insecure status in the IIV. There was a tendency to increase the number of temporarily deficit households along with the increased number of the households with chronic food deficit over time in this village. However, for the MIV, the two assessments reveal two conflicting trends. The participatory assessment conducted by the poor farmers show improvement in both types of deficit households but the individual self assessment shows the reverse trend. Despite these opposite trends in the extent of deficit status, the results based on the coping mechanisms provide much ground to believe that the food insecurity in the MIV markedly worsened over the years. The finding can not be further cross-checked for lack of information/views of other groups of participants.

The hypothesis therefore stands rejected.

Hypothesis 2: Demand for consumption loan has dropped

The demand for consumption increased over time in the IIV but no information on this issue is available for the MIV.

The hypothesis, therefore, stands rejected.

6.13 Gender Equity

The impact of development policies does not necessarily confine itself to the domain of the targeted areas of the policy interventions. The policy-led interventions are most likely to have differential impact over men and women in the impact area. Men and women are unlikely to gain and lose equitably. Even the gender-focused policies and programmes are found to have unintended consequences on the vulnerable sections of the society such as women, children, elderly, etc. The field investigation was so designed as to particularly capture the gender-differentiated impact of the SAP-led measures. The changes occurred in the labour market has already been discussed highlighting its gender-sensitive aspects in the chapter on the markets. The present chapter is particularly concerned with some gender-sensitive issues more focused on relative participation by men and women in various activities, homestead gardening by poor women, relative share and trend in their consumption of some basic need items, and changes in socioeconomic condition of the poor women.

6.13.1 Participation by The Poor Men and Women in Major Activities

Using 14 different activities — six relating to traditional activities (household chores and reproductive), four relating to market-oriented activities and the remaining four relating to poverty-focused activities. The assessment of the relative participation by the poor men and women in those activities were conducted by the female agricultural workers of the IIV and the poor female farmers of the MIV by allocating their total time use out of 100. The traditional activities include: cooking and serving; cleaning; laundering; maintenance; animal husbandry, and childcare. Market-oriented activities are: shopping; processing food; outside income earning activities, and local market economy (buying, selling, etc). Poverty-focused activities encompass: gathering fuel, collecting water; constructing/repairing house, and others (gathering).

On the whole, the poor men and women together increasingly devoted more time to the poverty-related activities over time in both the study villages. While the time devoted to the traditional activities increased over time in the IIV, it dropped in the MIV. In the case of the market-related activities, the time spent on them in aggregate dropped in the IIV but rose in the MIV. Besides these general trends, there come out different trends if it is looked at from gender angle. Against the general declining pattern of market-oriented activities, while the participation by the poor women of the MIV rose (from 20% to 32% of total time use), the participation by the poor women of the IIV fell sharply (from 23% to 5%) over time (Table 6.13.1). In contrast to the increased participation in the poverty-focused activities in both the villages, the participation by the poor women of the IIV decreased moderately but that by the

poor men of the same village took a quantum leap (from 5% to 34%) during the reference period. Although the participation by both the poor men and women of the MIV in the poverty-related activities increased over time, a great deal of time is devoted by the men (55% - 60%) than the women to this type of activities (18% - 21%).

Regarding the traditional activities, the poor women of the IIV were giving much more time (from 40% to 69%) to those activities whereas remarkably less time was being devoted to those activities (from 62% to 47%) by the poor women of the MIV, apart from the marginal changes in the male participation in those activities in opposite direction in both the villages.

6.13.2 Differential Participation by Poor Men and Women in the Activities

To what extent the same activities were participated by both the poor men and women was also assessed by the same groups of participants. Male-female participation in each of the activities mentioned above was quantified relatively out of 100.

The degree of the male-female participation in various categories of activities varied across villages and directions. On the whole, the assessment by the female participatnts indicates that in terms of time use the female participation in the selected activities was not only at a much higher level, their participation also increased over time (from 69% to 74% in IIV and from 54% to 59% in MIV) compared with that by the men in both the villages (Table 6.13.2).

Looking from the disaggregate level, the overall participation by the female poor in the traditional activities is found much higher (77-85% in IIV and 80-81% in MIV) in both the villages than their male counterparts. However, the female participation in the traditional activities in the IIV went up (from 77% to 85%) and that by the men dropped (from 23% to 15%). On the other hand, while the female participation in these activities tended to decline, the male participation went up over time in the MIV. The female share in the activities such as cooking and serving, cleaning, laundering and childcare were overwhelmingly higher, although male participation is found modest in maintenance and animal husbandry.

The overall participation by the poor women in the market oriented activities were lower, but it rose over time from 42 percent to 50 percent in the IIV and from 18 percent to 25 percent in the MIV.

The poor women contributed an overwhelmingly higher proportion of their time use to poverty-related activities in the IIV (81% - 84%), although it slightly declined over time. The female participation in these activities however increased in the MIV from a modestly higher level of 49 percent to 61 percent over the same time period.

6.13.3 Homestead Gardening by Poor Women

The participant groups of the IIV — the poor male farmers and female labourers were approached to share their perception on the following questions:

- How many households (poor farmers/agri-labourers) have practised homestead gardening?
- What crops are grown in homestead gardening?
- Where the seeds are collected from?
- What services are received from the government (DAE), NGOs and private agencies?
- What are the problems that afflict the practising women regarding homestead gardening?

In some respects the two participant groups shared the same perspection, but they differed in many others.

Regarding the extent of the poor households practising homestead gardening in the IIV, the poor men's perspective indicates that the proportion of the practising households in the poor households was not only higher before, it also increased over time (Data Box 6.13.5) from 50 percent to 80 percent. The poor women on the other hand held that the proportion of the practising women was too low before and it increased marginally from 9 percent to 10 percent over the same time period.

About the crop items, both the informant groups differed. According to the poor farmers' perspective, the range of the crops grown by the poor households was wider than those viewed by the female informants. As informed by the poor women, the practising households mainly grew lady's finger and a variety of leafy vegetables. But according to the male participants, in addition to various leafy vegetables, other vegetables including climbers, bean, *jhinga, chichinga* were also grown by the practising poor households of the IIV.

Regarding the sources of seeds collected by the practising poor households, there emerged a new seed supplier, namely NGOs in the area, in addition to the two other sources, namely the market and solvent farmers, as reported by the poor male farmers of the IIV. But according to the poor women, there had been no new source of seeds in the village. According to them, the practising households usually collected seeds from the market and their neighbours.

Regarding the availability of extension services, the male informants informed that the poor practising farmers got seeds and extension services only from NGOs and these services also grew from a negligible base to a higher extent (from 1 to 9 — on the 1-10 points scale). But the assessment by the poor women shows that the practising households received

agricultural extension services from two services — cropping practices from the government (DAE) other and extension services for growing vegetables from the NGOs. As assessed by them, the availability of these services from both these sources sharply increased over time (from 1 to 10 points). Both the informant groups however informed that the households practising homestead gardening did not obtain the services from any private agency in the village.

The problems with homestead gardening as diagnosed by the poor male participants include inadequate land, pest attack, and lack of training. All these problems had not been so severely encountered before in the village but inadequate land, and pest attack merged as the topmost problems (from 1 to 10 points) over time in the IIV. On the other hand, inadequate land, damage caused by poultry birds and lack of good-quality seeds were identified by the female participants as the major problems with homestead gardening in the village. Out of these three problems, damage by poultry birds had been the most severe all through but inadequate land by now emerged as another serious problem with their homestead gardening in the village.

6.13.4 Gender-Disaggregated Change in Consumption of Some Basic Need Items

To know whether there has been any change in the consumption of some basic need items by the poor men and women of the study villages over time in terms of four selected items, namely food (in general), fish/meat, clothing, and medical services, two assessments were carried out by the two participant groups — agricultural labourers of the IIV and the poor farmers of the MIV. Apart from providing the explanations for the change in and the difference between their levels of consumption, these basic need items were, also measured on the 1-4 points rating scale (1 for 'very unhappy', 2 for 'unhappy', 3 for 'happy' and 4 for 'very happy') by those participant groups.

According to the assessment by the agricultural workers of the IIV, there had been no change in the level of consumption across both gender and selected items, although at a relatively lower level of consumption ('unhappy' for women and 'happy' for men) (Data Box 6.13.6). The difference in the level of the consumption by the men and women was accounted for by the participant group. They held that the differences were not due to the discrimination against women as such, but rather due to the consideration that men should consume more to remain physiologically active for earning livelihoods for the family members.

In the MIV, the difference in the consumption level of both men and women was sharper before but it markedly narrowed down over time. In respect of food and fish/meat, the difference still existed, at present although it was narrowed down. However, concerning clothing and medical services, the men of the village had been in a much better position relative

to the women before, but the women were happiest consumers now compared with the men. As explained by the poor farmers, the men consumed more than the women because of social customs. The women consumed more nowadays than they did before. The women now wore better clothes because they had now better access to NGO credit and increased cooperation from the men. Their access to medical services also considerably increased because of domiciliary medical programmes carried out by both the government and NGOs.

6.13.5 Socioeconomic Condition of Poor Women

To assess the trend in socioeconomic condition of the poor women of the study villages, the investigation has focused on the three aspects of the condition of the poor women of the study villages, namely capability, participation in decision taking and well-being. A total of 17 indicators were used to represent these three broad aspects — six for capability, six for participation and five for well-being. The indicators representing the capability of the poor women include employment opportunities, capacity to borrow, food security, ownership of assets, economic security (solvency) and self-reliance. The indicators used for participation in decision taking are agriculture (general), family planning, marriage of daughters/sons, education of children, expenditure on agriculture and other expenditure. Well-being includes workload at the household level, workload at the field level, stress/tension, leisure time and living standard. The assessment of the socioeconomic condition of the poor women was carried out by the three female participant groups — female labourers of the IIV, female labourers of the MIV and poor female farmers of the MIV. The participant groups used one to four dots as weights/degree to express the relative status of the indicators used. The dots converted into scores are presented in Table 6.13.3.

The assessment by the three female participant groups show the same trend for the three broad aspects of the socioeconomic condition of the poor women of both the villages. The capability of the poor women of both the study villages rose by a bit higher degree (from 8/10 to 20/21 out of 24) over time in the MIV compared to that in the IIV (from 10 to 19). Similarly, poor women's participation in the decision taking increased in both the villages. However, in terms of total score, well-being of the poor women declined over time in both the villages — from 13 to 8 in the IIV and from 11/14 to 7/10 out of 20 in the MIV. At the disaggregated level, although the standard of living, one of the indicators of well-being, increased over time in both the villages, the other indicators, namely workload at both the household and field levels, leisure time and tension/stress however set negative trends resulting in overall downswing of the well-being of the poor women of the study villages.

As explained by the participant groups, the improvement in their capability and participation is mainly attributable to the increase in cropping intensity and production resulting in increased employment opportunities and income of the poor households of both the villages. More specifically, the increase in the cropping intensity in the IIV and increased access to NGO credit in the MIV were seen to be the key determinants of the higher capability of the poor households. However, the increased female participation in agricultural activities was mentioned to be the main cause of decline in their well-being in both the villages.

6.13.6 Discussion

Hypothesis 1: It has expanded programmes for income generating activities by women through training, increased access to credit, and technical assistance

The women at large, let alone the poor ones, could not gain access to credit, training, and technical assistance from the government agencies/departments/organizations during the last 10-12 years. Whatever support was available, they could not make use of it due to a number of constraints and lack of support from the public sector institutions. The poor women of the MIV could undertake income generating activities with the support from the NGOs, but not from the government.

The hypothesis therefore stands rejected.

Hypothesis 2: The poor women have had lower workload

The assessment by poor women indicates that they suffered the burden of heavier workload than men and their suffering tended to rise over time in respect of most of the selected activities. The hypothesis therefore stands rejected.

6.14 The Environment

"[The SAP measures] contribute to those changes. Adulterated fertilizers, pesticides, and tractorization have had adverse impact on the environment. Adulterated goods such as fertilizers and pesticides are sold at the market unchecked".

— Poor farmers of Dehergati, Barisal

"In the absence of any control/ regulation, the government is mostly responsible for those changes. Adulteration has engulfed everything. The concerned departments of the government do not conduct timely test, investigation and take appropriate remedial measures."

— Non-poor farmers of Dehergati, Barisal

"The water table is dropping owing to the excessive groundwater abstraction for irrigation. The problem has worsened over time. It was less before. The problem has been aggravated in the area because of the multiplicity of irrigation equipment in a certain area. The problem turns acute during the drought time."

— Block Supervisors (DAE), Kalai Upazila, Joypurhat

6.14.1 The Issues Addressed

The present investigation has focused on a limited number of aspects of the environment, particularly including agro-hydrological issues of the study villages. This chapter presents the people's perspectives including the poor's and the non-poor's on the trend of those aspects of the local environment. Under three broader environmental aspects — soil, water, and biodiversity, the people's perspectives were sought on a number of issues, namely soil properties, soil erosion, soil fertility, availability of groundwater/water table, quality of the groundwater (contamination), quality of water in water bodies, crop diversity, availability of fishes, and number of domestic animals. Information were collected from three participant groups at PRA sessions — the non-poor farmers of the IIV, and the poor and non-poor farmers of the MIV. The trends of those issues were assessed on the 1-4 points rating scale with 1 for 'very unhappy' and 4 for 'very happy' reflecting very bad and very good condition of the specific environmental issues. Apart from the PRA sessions, environmental issues were also addressed at the four Focus Group Discussions, the two with the poor farmers and the other two with the non-poor farmers, in each of the study villages. The field investigation sought to find answers to the following questions:

- What have been the changes in the local environment and to what extent?
- Why have the changes occurred?
- What measures need to be taken to mitigate those environmental degradations?

6.14.2 Findings

Environmental Degradation Occurred in Both the Villages

The most of the issues/indicators used show that the environment of the study villages got degraded over the years. It is seen from the Data Boxes 6.14.1 and 6.14.2 that total score based on the rating of all the 9 indicators on the 1-4 points scale decreased representing environmental degradation in both the villages.

The participant farmers' reflections on the specific aspects of the local environment are presented below under three broad environmental components, namely soil, water and biodiversity (Tables 6.14.1 and 6.14.2).

6.14.1.1 Soil

Three aspects of the soil were brought into focus under the investigation, namely soil property (salinity, hardness, etc), soil fertility and soil erosion. According to the farmers' perspectives, regardless of their class position, the soil degradation a common problem in both the study villages.

The local environment underwent palpable changes over the last 10-12 years in both the study villages in the following respects.

Soil characteristics: Salinity worsened in the IIV and it appeared to be a problem in the MIV due to the application of chemical fertilizer (Table 6.14.1). PRA results also show that there occurred negative changes in both the villages. The degree of soil degradation was perceived to be 'low' in the IIV but it was 'medium' in the MIV. The factors which were perceived to contribute to the degradation in this aspect of the soil include use of adulterated pesticides and fertilizers, intense use of land, drought proneness, and silting up of rivers/canals that hinders cultivated land from being regularly silted up and fertilized (Data Boxes 6.14.1 and 6.14.2).

Soil fertility: The soil fertility declined in both the study villages. The soil degradation in this respect is also corroborated by PRA results which reveal negative trend in the soil fertility in both the villages. PRA results indicate that the degree of degradation was also 'low' in the IIV and 'medium' in the MIV. As reflected by the farmer groups, the increase in cropping intensity was the main cause of the declining soil fertility in the IIV. The excessive use of adulterated pesticides and fertilizers, and inadequate use of organic manure were thought to be the main contributing factors in the slowdown of the soil fertility in the MIV.

Soil erosion: Soil erosion worsened over time in both the study villages. The degree of the degradation was also found similar to that of other aspects of the soil mentioned above ranging from 'low' to 'medium' in the IIV and the MIV respectively. As mentioned by the participants,

soil erosion was caused by the increase in the cropping intensity and excessive use of fertilizers and pesticides in the IIV whereas excessive use of pesticides, fertilizers, silting up of rivers, use of adulterated fertilizers and pesticides, and the declining number of trees were perceived to be the main causes of the soil erosion in the MIV.

6.14.1.2 Water

The aspects of the water that came into the focus were the availability of groundwater/water table, quality of water in the water bodies, and the quality of groundwater.

Water table: The water table-related problem was particularly encountered in the intensively irrigated village in Joypurhat where the principal source of irrigation was groundwater. Tubewell-based irrigation in the area became possible there due to easy accessibility of groundwater at the sub-surface aquifer level. The problem was that the water table dropped during the dry season every year. As measured by the farmers there, the water table lay at a depth of 20 feet at the beginning of the season but it declined to 25 feet in the middle of the season and it drops further towards the end of the season when lifting of water was hardly possible. This problem with the groundwater was not faced in the MIV because irrigation was not based on groundwater there. Surface water constitutes the only source of irrigation water in the MIV. This area was faced with a serious geo-hydrological problem which represents the inaccessibility of water table within the reach of any mode of shallow tubewell. Groundwater lay at its long depth [around 1000 feet] and it was also declining further due to increased demand for drinking water in the area. On the other hand, the main contributory factor in the declining water table in the IIV was the overuse of the groundwater by a large number of irrigation pumps there.

Quality of water in water bodies: The pollution of water in water bodies was found to be a common problem in both the study villages. The problem deteriorated over time in the villages. Use of fertilizers and pesticides was the main cause of the contamination of the local water bodies in the IIV. In the MIV, less water in rivers/drying out of canals and the use of adulterated pesticides and fertilizers were considered to be the principal causes of the water pollution/contamination in the MIV.

Quality of the groundwater: To the farmers of the IIV, there had been no problem with the quality of the groundwater. But the quality of the groundwater in the MIV was subjected to degradation, albeit by a 'medium' degree. The groundwater in the MIV had several problems such as salinity, high iron content and arsenicism. As perceived by the participant farmers, less water in rivers/drying out of/silting up of canals and excessive use of water were the causes of the groundwater degradation in the MIV.

6.14.1.3Biodiversity

The attention of the participants was drawn to three components of biodiversity, namely fish, farm animals, and crop diversity. Key aspects of the farmers' reflections on these components highlighted below.

Fish: Both the study villages were increasingly confronted with a variety of fish-related problems such as availability, fish diseases and mortality. These problems deteriorated over time in both the villages. The IIV was particularly afflicted by fish disease and mortality. The MIV was confronted with the shortage of fish mainly because of less water in the canals/rivers resulting from the withdrawal of water for irrigation; silting up of rivers/canals due to less water at the sources, and the use of adulterated pesticides and fertilizers.

Farm animals: There had been a marked decline in the number of farm animals in the study villages. The decline appears to be sharper in the MIV. The scarcity of milk stemmed from the decline in farm animals in the MIV. The number of farm animals decreased because of the increase in cropping intensity, excessive use of fertilizers and pesticides, less grazing land, use of power tiller/tractor, etc.

Crop diversity: Crop diversity as viewed by the farmers increased over time in both the villages. Crop diversity was, however, meant in a narrower sense limiting it to HYV paddies only. According to the farmers, the range of HYV paddies widened over time with the introduction of new improved varieties. However, crop diversity in broader sense narrowed over time. As observed by the farmers of the MIV, HYV *boro* and HYV *aman* were curently the only two major crops in the area, other crops such as pulses (*mung* and *kheshari*) had been the minor crops over time in the area.

6.14.2 Farmers' Recommended Measures to Mitigate the Environmental Degradation

Farmers' recommendations are placed under three broader components of the environment (Data Boxes 6.14.3 and 6.14.4).

Soil: The following measures were recommended by the farms to improve the soil properties, and soil fertility:

i. Apply fertilizers of 18 ingredients in stages
ii. Apply more organic manure. Use organic manure instead of chemical fertilizers
iii. Reduce the use of chemical fertilizers
iv. Excavate/re-excavate canals, rivers to facilitate massive siltation of cultivated land in the rainy season
v. Undertake soil test and take measures accordingly
vi. Apply proportionate doses of zinc and gypsum

To mitigate soil erosion, farmers' perceived solutions are as follows:

vii. Do not cultivate repeatedly the same piece of land [for giving the land rest and bringing in change in the crop rotation]

viii. Plant more saplings

Water: Farmers' perceived solutions to deal with the groundwater-related problems are:

i. Delimit command area of irrigation pump

ii. Drill DTW [in the MIV], as there is no DTW in the area

To deal with the pollution of the local water bodies:

iii. Reduce the use of (adulterated) pesticides

iv. Reduce the use of fertilizers

v. Stop the dumping of industrial waste in the rivers.

Biodiversity: To improve fish habitat, the following measures have been suggested:

i. Apply less pesticides and apply it carefully

ii. Curb the adulteration of pesticides

iii. Stop using 'current' net for fishing

iv. release fingerlings in rivers, *beels* at government initiative

v. Excavate and re-excavate canals, *beels*, rivers

To have positive impact on the domestic animals, farmers' recommendations include:

i. Go for compulsory rearing of 3-4 domestic animals by every household.

ii. More government support is needed for the promotion of livestock

iii. Make veterenaries well-equipped/conscious

For improving crop diversity, the farmers' suggestion is:

i. Grow various types/varieties of crops.

Discussion

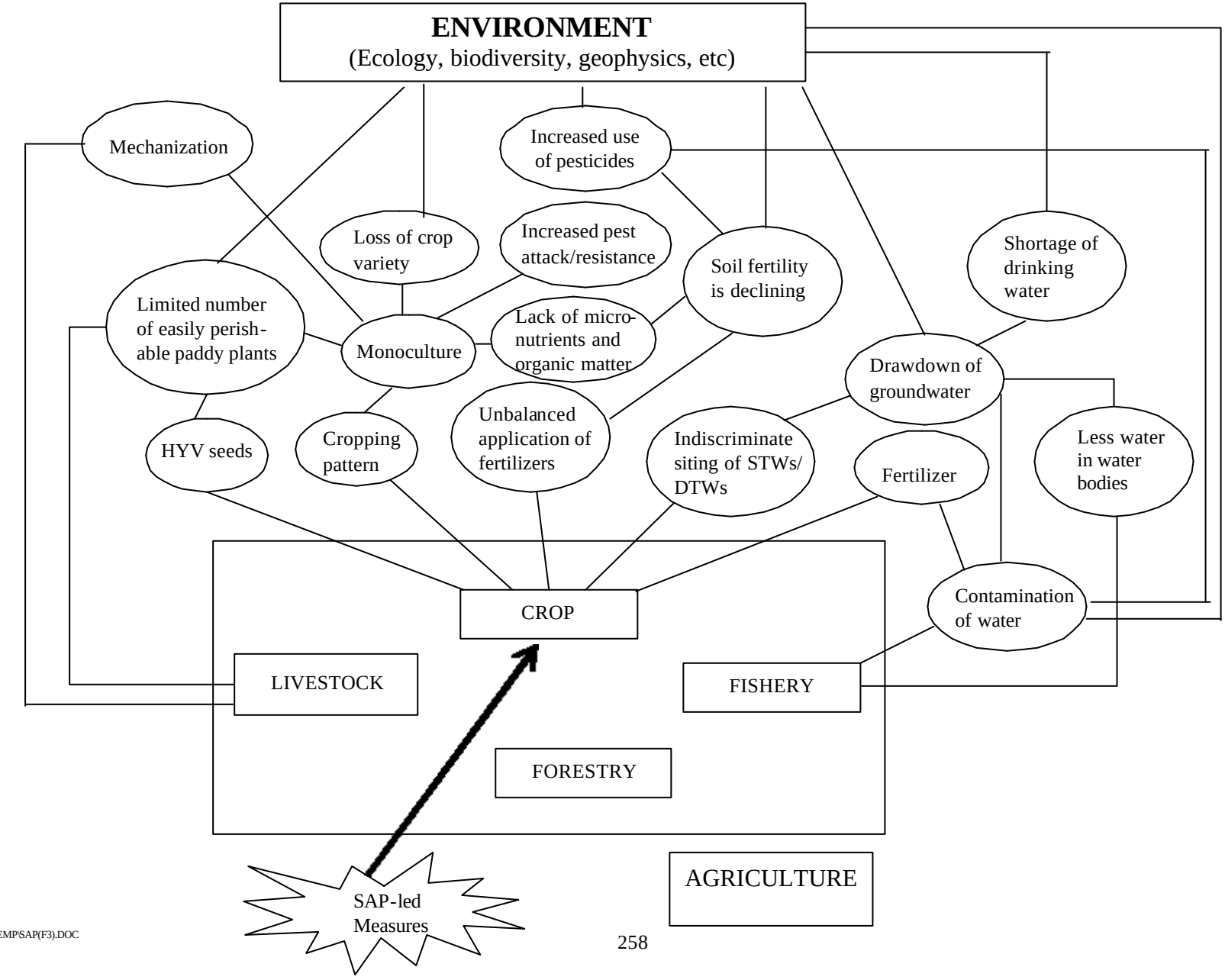
Hypothesis 1: It has improved the quality of the environment

The present production system set a number of forces in motion that worked in a system causing the degradation of the environment of the study villages (Exhibit 6.14.1). The crop sub-sector was generating the forces that degraded not only the environment but also other sub-sectors of the agriculture sector such as fishery and livestock. All the three basic components of the environment had a variety of symptoms of the environmental degradation such as soil erosion; depletion of soil fertility; acidification of the soil; drawdown of the

groundwater; monoculture; loss of biodiversity, etc. What is more menacing is that the degradation of the environment was worsening progressively.

The ample evidences on the environmental degradation in the study villages suggest that the hypotheses cannot be valid and therefore stands rejected.

Exhibit 6.14.1: Systems of the Environmental Degradation



6.15 Corruption

Corruption as a crosscutting issue is not limited to any particular sector or sub-sector of the economy. It pervades all related sectors, sub-sectors, institutions, etc. This investigation has not however focused on corruption as such by designing a separate module for the investigation, but rather has appended some relevant queries to each of other modules of data collecting instruments/tools administered in the field exercises in view of its high degree of sensitivity.

This chapter presents the relevant data collected from the investigations into other topics and issues. Corruption as is conventionally understood does not confine itself to only public sector corruption only, but its command area now extends to the private sector as well. How the agriculture sector is being afflicted by corruption in various public sector institutions and the private sector units have already been highlighted while discussing other sectoral/institutional issues in the preceding chapters. The diversity of corruption cutting across various public institutions is presented below in a classified manner.

6.15.1 Corruption in the Public Sector

The field investigation reveals that the agriculture sector appears to confront corruption on five fronts, namely public sector financial institutions (agricultural and nationalized commercial banks), purchase centres under the public domestic procurement programme, power supplier (Rural Electrification Board), concerned development agency (eg. Water Development Board) and poverty alleviation programmes of the government (eg Union Parishad). The mode of corruption as found from various informant groups are presented below under the rubric of the relevant activities (Table 6.15.1).

6.15.1.1 Bank Loan

Corruption in the concerned banks delivering loan to the agriculture sector seems to be the most widespread touching the grassroots-level farmers and labourers alike in both the study areas. As reported by various informant groups including cross-section farmers, non-poor farmers, and agricultural labourers, the intending borrowers were required to currently offer bribe to bank officials to the extent ranging between 10 percent and 20 percent of the bank loan in both the villages. Besides, the corruption in rural banking was now taking place in various novel ways. In the IIV, a group of informal intermediaries emerged to facilitate the occurrence of corruption by bridging the gap between the bank officials and the poor farmers (Box 6.7.1 for details). It appears that corruption in the study areas worsened over time by making institutional finance more costly and counter-productive.

6.15.1.2 Public Domestic Procurement Programme

The public domestic procurement programme was found riddled with corruption which tended to exclude the ordinary farmers of the study villages. As reported by the non-poor farmers of the IIV, the farmers could not avail themselves of the programme benefit due to failing to sell their produces at the procurement centre. Corrupt officials of the purchase centre were found reluctant to buy from the farmers even though their produces were of high quality. They bought mostly from the dealers/millers even their produces were not up to the mark. Farmers would have benefited from the programme if they could have sold produces there in the harvesting season when the market price was lower in the areas. As a result, both the farmers and the government missed the programme benefit due to pervasive corruption.

6.15.1.3 Rural Power Supply

Rural Electrification Board (REB) is entrusted with supplying electricity in the rural areas. This institution was a notoriously breeding ground of corruption particularly affecting irrigation in the IIV. The equipment owners having electric-operated devices were bled due to the corruption of the REB personnel involved in electricity supply. As reported by the non-poor farmers, it was a common practice in the area to offer a sizable amount of bribe to the REB officials for getting electric connection every cropping season. Electric line for irrigation equipment was provided on seasonal basis. The electric line was to be disconnected immediately after the cropping season was over. Farmers needed electricity in *rabi* season. Besides, the equipment owners had to suffer financial burden on another count. In case of loss of the transformer installed by REB for providing electricity to DTW owners, the equipment owners were to be fined Tk. 45,000/75,000/90,000 for its replacement. It was hunched that REB personnel were involved in the pilferage network of electric accessories such as transformers.

6.15.1.4 Canal Development Programme

Canal development programme suffered in the past because of corruption in implementing various canal development programmes in the MIV. As informed by the cross-section of farmers of the MIV, canal re-excavation programme could not be successful because of the poor quality of its implementation. The implementing agencies [eg BWDB] just tinkered and embezzled resources allotted for the earthwork in the past. Therefore, the area did not have developed canals apt for the expansion of irrigation in the area.

6.15.1.5 Poverty Alleviation Programmes of the Government

Various poverty alleviation programmes of the government ran into corruption in the study villages. The poor farmers group of the IIV reported that deserving beneficiaries were deprived of the programme benefits. Even the enlisted beneficiaries of the village did not get the benefit in proper amount.

6.15.2 Discussion

Hypothesis 1: Corruption has been curbed

The available information show that corruption of the officials of the PSI institutions such as banks, public domestic procurement programme of the Department of Food, Rural Electrification Board, Bangladesh Water Development Board and Union Parisad were reported to have ran into corruption in connection with the implementation of their programmes. The extent of corruption of bank officials had been rampant and the poor villagers fell prey to corruption. Not the farmers that much, but traders and millers had been the major beneficiaries of the public domestic programme. The private corruption also grew to large proportions.

The above evidences therefore suggest that the hypothesis be rejected.

6.16 Social Capital

The role of social capital in various facets of development is increasingly being recognized in the development discourse. More importantly, it contributes positively to poverty alleviation by generating synergies at the community level (Narayan 1997: 50-65). Social capital is defined as "… the rules, norms, obligations, reciprocity, and trust embedded in social relations, social structures, and society's institutional arrangements which enable its members to achieve their individual and community objectives" (ibid: 50).

This investigation looked at social capital at the community level in terms of the level of trust; unity, and villagers' membership in organizations/groups. Data were collected through different methods both at the individual and group levels. The investigation addressed the following questions:

i. Did farmers' participation in organizations/groups increase over time in terms of household coverage and the range of organizations/groups?

ii. Did the villagers' trust and unity increase over time in terms of the selected indicators?

iii. Did the villagers' interaction with the local-level institutions increase over time?

6.16.1 The Villagers' Participation in Organizations Varied Widely, Although Increased Over Time in Both the Villages

The present associational relationship between the villagers and the organizations was found very limited in the IIV (with 6 organizations) compared to that in the MIV (with 9 organizations) (Table 6.16.1). In addition, in terms of household coverage, villagers' association with these organizations was found dismally poor in the IIV, although it increased markedly from 8 (7 male and 1 female) to 20 (9 male and 11 female) out of 78 households over time. On the other hand, there had been immense participation in organizations by the households of the MIV and it increased by larger number from 39 (7 male and 32 female) to 66 (13 male and 53 female) out of 90 households during the last 10-12 years. The increased participation of the villagers in organizations was mainly due to much higher level of female participation. The growth of male participation was very sluggish in the IIV, although it increased remarkably in the MIV.

The type of organizations that the villagers belonged to varied between the two villages. The villagers' membership surged mainly in the member-based organization such as Grameen Bank and NGOs in both the villages. However, most of the male participants of the IIV belonged to the public sector institutions/organizations such as BRDB. It can also be seen

from the table that villagers' associational linkages were very limited in the case of community-based organizations (CBOs) in both the villages.

The institutional mapping of both the villages listed and rated by the participant groups also confirm a wider coverage of organizations that the villagers of the MIV had linkages to (Table 6.16.1).

6.16.2 The MIV Witnessed the Creation of Social Capital Over Time, but it was Eroded in the IIV Over time

The trend in the formation/erosion of social capital was assessed by the participant groups of both the villages in terms of eight indicators. All the indicators were rated on 1-10 points scale by the participant groups. The indicators used were: i. irrigators' trust in irrigation equipment owners; ii. farmers' trust in fertilizer traders; iii. villagers' trust in Union Parisad regarding poverty alleviation programme of the government; iv. villagers' trust in village leaders; v. unity among villagers; vi. cooperative attitude among the villagers; vii. good relationship with neighbouring villagers, and viii. the number of crime. Table 6.16.3 shows that out of eight indicators the IIV faced erosion of social capital in respect of seven indicators except for one. But in the MIV, the social capital was found to have been created in respect of four indicators. Irrigators' trust in the irrigation equipment owners increased over time in the IIV. In the MIV, villagers had higher level of trust in their village leaders; unity among the villagers increased; the villagers had more cooperative attitude, and irrigators had higher degree of trust in the equipment owners.

From the above findings, it appears that the MIV was endowed not only with a great deal of social capital than the IIV before, its formation also increased in the course of time. The erosion of social capital in the IIV seems to have a negative impact on the welfare of the villagers, particularly on the very poor and disadvantaged. This is reflected in the worsening trend in hardcore poverty in the IIV. On the other hand, the higher formation of social capital in the MIV appears to have had a positive effect on hardcore poverty resulting in the improvement in hardcore poverty in the village over the same time.

6.16.3 Discussion

Hypothesis 1: Social capital has been formed

The evidences suggest that there has been significant erosion in the social capital in the IIV, although the other village seems to have been better endowed with remarkable formation of it over time.

According to the decision rules, the hypothesis does not stand.

D. STAKEHOLDER PERSPECTIVES ON SAP-LED MEASURES AND OTHER RELATED ISSUES

6.17 Stakeholders' Perspectives: At The Institution Level

STAKEHOLDER PERSPECTIVES

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)*

Issues	Group Responses
The Key Questions: 1. What changes have been brought about by SAP-led measures in BADC in various fields of its activities/ programmes? 2. Where does BADC stand now on the policies and the resultant changes in it?	
A. Organizational Issues 1. Organizational mandates and overall achievements	*In the first place*, since its founding in 1962, BADC has been mandated by the government to operationalize the government policy respecting agricultural development through modern irrigation by making it accessible, acceptable and popular to the farmers, and also its expansion throughout the country. BADC sought to achieve the broad objective by implementing various policy measures and programmes in a fairly shorter time span. The farmers of all income groups have benefited from the programmes and activities of BADC. This is one of the achievements of BADC's goals. *Secondly*, BADC had been able to transfer the technology to the farmers in a fairly short time. BADC had an army of trained drivers to operate its 30 to 35 thousands irrigation equipment. They had been trained by the trained BADC technicians/engineers and they subsequently transferred their technical knowledge to the scheme managers of irrigation blocks. Farmers are now in a position to handle the equipment by themselves. *Thirdly*, BADC was mandated to make irrigation service available in every corner of the country including difficult areas at a relatively uniform cost. *Fourthly*, BADC had to be guided by the principle of equity with regard to the distribution and use of irrigation service through the formation of cooperative of farmers. Farmers' cooperative had been crucial in the spread of various services and providing social benefit to all the category of farmers. All those briefly discussed above are, inter alia, the positive aspects that could be achieved during the pre-reform period. The negative aspects that accompanied the above achievements had been the financial cost and subsidy that it involved.
B. Donor-driven Reform Measures 1. By whom	Reform measures were formulated by the donors not through consultation with BADC. They sought BADC's view points only but they did not take into consideration the recommendations put forward by BADC. The reform package designed unilaterally by the donor was just thrust on BADC.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
2. Sequence of Reform Measures	The reform measures that had been prescribed by the donors and implemented by the government were neither well-thought nor they were logically ordered sequence. For example, the moment an enormous storage capacity (6 lakh tons) was generated by the construction of godown at the cost of *taka* five thousand crore, then it was rendered unused/abandoned in consequence of reform measures. Secondly, the donors promoted groundwater irrigation instead of harnessing surface water and they supported installation of DTW, and thereafter STW. But the right sequence for adopting irrigation technology should have been LLP first to use surface water, then STW and DTW at last. This sequence has, however, been followed in West Bengal but not in Bangladesh.
C. Irrigation	Reform measures have brought about various changes in the irrigation sector of the country. Those changes are concerned not only with irrigation services but also with social morphology. Some of the important irrigation issues markedly impacted by reform measures are as under.
1. The Command Area	BADC used to lay emphasis on the compliance with the command area-related guidelines since 1967 because of their overriding concern about the long-term impact on the water resources of the country. Within one command area of an irrigation equipment, the installation of another pump was not allowed before. In 1987 the Groundwater Management Rules was passed in order to ensure proper management of groundwater utilization in the country. The ordinance provided for minimum distance required for the installation of any irrigation equipment away from a nearby one. The installation of a new equipment had to allow reasonable distance from its adjacent pump — 2500 feet between adjacent DTWs, 1,700 feet between DTW and STW and 800 feet between STWs. There was a committee for each command area of an equipment to ensure the compliance with the provision. This could avoid the risk of conflict over using groundwater. As the groundwater-related rules have been withdrawn and irrigation devices have been installed in the command area of others, the average command area of the machines have gone down and the machines have been subject to the underutilization of their potential capacities.
2. Standardization of the Equipment	BADC was conscious about the quality of irrigation equipment they procured from abroad. Each of the imported machines used to be subject to various checks and tests as per the specifications laid down in the standardization rules. This is why irrigation equipment under BADC provided good service and its durability ranged between 15-25 years. This standardization requirement had been withdrawn due to reform measures. The withdrawal of the restriction led to the surge of import of substandard equipment, albeit at cheaper rates, whose serviceable life is very short say 5-6 years. Nobody is now sure about the quality of the machines.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
3. Surface-water Irrigation	BADC was aware about the need for sustainable use of surface water and there had been various government programmes such as FFW, canal digging programme etc. aiming at the augmentation of the surface water before. At present, nobody cares about the augmentation of the surface water. The pump-owners at present are utilizing groundwater in indiscriminate manner causing drying up of surface water sources, although it is also attributable to various other negative factors. BADC did not allow installing STWs/DTWs within one mile from the river in order to force the farmers to use surface water for irrigation. BADC had programmes to augment surface water in the nearby channel through double lifting methods. Surface water irrigation in the country has suffered severely for various reasons. Surface water irrigation presupposes well-developed canal system around water sources. It needs to construct a canal of say 1 to 1.5 kilometers length for the conveyance of surface water from the river (source) to the field. Digging canal involves not only sizeable investment which is beyond the capacity of one individual farmer, the government has an important role to play in this regard. Besides, this type of irrigation also necessitates the formation of cooperative to involve 60 to 100 farmers for undertaking such a massive programme that an individual farmer cannot handle. Reform measures have thus wreaked havoc on the surface water irrigation in the country. Few LLPs, still in operation, are likely to be found along of very near to the rivers/canals.
4. Farmers Cooperative	BADC had a unique organizational model for operationalizing its irrigation programme. The model used to involve other organizations/ agencies for facilitating smooth spread and accessibility of irrigation service to the ordinary farmers. BRDB, one of the participating organizations in the irrigation model, used to provide organizational input by motivating and organizing farmers under an organizational framework known as KSS (farmers cooperatives) in order to form a users group. The users group was open to all irrespective of class position. Before the formation of BRDB, cooperative banks served as conduits for BADC for providing inputs to farmers. BADC used to interact with those farmers groups regarding using, installing, operating and repairing of the equipment. The group manager used to be elected by the group members as their representative to work for the irrigation scheme/block and BADC did not impose the leadership. BADC worked with the farmers very closely and no other organization in the country had done so closely with the farmers as BADC did. But this model has been axed by the SAP measures.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
5. Rental Programme for Irrigation Equipment	BADC had rental programmes under which its irrigation equipment could be used by the farmers group. The programme was very popular to the farmers. Farmers who could not afford to buy irrigation equipment could easily rent in the machines from BADC. Poor farmers benefited more from this programme. The use of LLPs under the rental programme had been extensive in the southern part of the country (e.g. Barisal area) during that time. With the discontinuation of the programme, the rate of use of LLPs fell drastically to a few at present. Farmers are still eager to use LLPs there under this programme. The high demand for LLPs under the rental system currently in use by the beneficiaries of the project titled Southern Region Agricultural Development Project (a DAE project) is a testimony to this contention. Farmers in Barisal district are using LLPs under the similar rental programme implemented by DAE. DAE is implementing the programme, but BADC is not allowed to.
6. Irrigation in Difficult Areas	BADC carried out countrywide investigation into the status of the groundwater of various parts particularly in difficult ones of the country (such as Sylhet) to formulate/design appropriate option and mechanisms for its utilization. But the private sector is not interested to come forward in this respect probably because of higher level of investment in it. BADC tried its best under the government patronization. However, the total government commitment appears to be lacking nowadays.
7. Groundwater Management	There had been virtually no problem with the availability of groundwater before because of its proper management. But, nowadays, an increasing number of STWs are being converted into deep-set STWs or very deep-set STWs due to the shortage of groundwater at the suction level. There are as many as 130 upazilas in the country where water table has gone far down beyond the suction limit, suitable for normal STWs. It is apprehended that this problem would worsen in the future. This worsening trend is the outcome of the present policy regime. The problem has been aggravated due to the combined effect of irresponsible water use in various ways e.g., installing STWs/DTWs/LLPs in each other's command area. The unavailability of groundwater is posing a threat to the agriculture.
8. Maintenance of the Machines	BADC had very good maintenance facilities for its irrigation equipment. Each of the irrigation equipment used to be tested, repaired and made usable for further use. Although equipment owners are now repairing their machines by themselves in the case of small problems, they face difficulties when the trouble is serious and many of their costly machines remain idle. No other institutions have come forward to deal with these problems. Farmers themselves are doing the job and many of the mechanics who are providing repairing services now belonged to BADC in one way or another.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
9. Impact of the Privatization	Under the private system, there have emerged waterlords in the rural areas who have capitalized the benefits which equally accrued to the marginal farmers before. The farmers are being charged by the water lords for irrigation water in the range of one-third to one-fourth of their harvest of the irrigated land. The rich have got richer under the policy prescription of the World Bank. Under the changed condition, there have emerged private owners of the equipment who use them according to their own will. The machine with the subsidy element of 62 to 67 percent that served 60 to 100 families (300 persons approximately) before, is now owned by only one farm household. The farmers although could attain a fairly stable condition during the sixties and seventies, they faltered during the eighties and nineties. They have increasingly become landless vis-a-vis wider expansion of irrigation in the country. Their condition has become miserable nowadays. Marginal farmers are gradually getting further marginalized day by day. They have fallen victims to the prevailing condition.
10. Multiplicity of Organizations/ Agencies Implementing Minor Irrigation Project	At present there are several organizations who are working in the field of minor irrigation in the country, such as, LGED, Grameen Bank, NGOs, and DAE. Some government departments are now implementing those programmes/activities at much softer terms compared to those allowed for BADC before. Even the ministry (MOA) itself is doing that, although they cannot. Although BADC is exclusively mandated to do that, they are not allowed to. This amounts to step-brotherly treatment by the government.
D. Fertilizer 1. Distribution of Fertilizer	i. *BADC dealers:* BADC was charged to distribute fertilizers throughout the country. BADC had 411 sales centres at the upazila level for fertilizer distribution. BADC had dealers even at the village level. All the dealers were imparted training on various aspects of fertilizers particularly about its quality. But the present dealers are not trained up in this trade. Those who have money can become dealer now. Earlier, dealers had a set of guidelines and instructions to follow. But under the present system dealers do not need to bother about it. ii. *Availability in remote areas:* BADC ensured availability of fertilizers in remote parts of the country. However private dealers and traders do not bother about the availability of fertilizer there because it is not profitable enough to them.
2. Unbalanced Application of Fertilizers	Fertilizers are not being used proportionately by farmers. Urea is being applied in incrementally higher doses every year. TSP and MP are being used less compared to its required dose. The ratios between nitrogenous (N). phosphatic (P) and potassium (K) fertilizers was N:P:K = 1:0.40:0.10 in 1989 stood at 1:0.12:0.10 at present. BADC was aware about the need for balanced use of the chemical fertilizers and their dealers resorted to push sale of TSP and MP so that farmers were required to procure TSP and MP while buying urea from the dealers. As a result, there had been less deviation from the standard/balanced proportion required before. But the increasing divergence is causing negative impact on the soil productivity in the post-reform days.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
3. Corruption	Corruption has multiplied tenfold at present. Many allegations against BADC were found baseless before. Some influential quarters were involved in maligning the image of BADC before. Those quarters are now controlling the fertilizer trade in the country. Civil administration and enforcement department have been their accomplices. Fertilizer traders complain that they have to pay 'tax' to the DC, ADC and UNOs. If there is any problem with the payment of the taxes, their godowns are checked, they have to give many explanations to the administration such as why they have brought it, why they have not sold it, etc. No such questions are asked if the 'transaction' is done properly.
4. No Price Differentials	Fertilizers used to be sold at the same rate throughout the country before irrespective of its distance or accessibility. But nowadays fertilizer traders are not marketing fertilizers at the same price everywhere.
5. A Mismatch: Distribution Responsibility now Lies with Fertilizer Producers	The responsibility of distributing fertilizer [up to factory/regional level] has been bestowed on BCIC for last five years who has had no experience of fertilizer distribution. Although BADC has long experience in this line, they had not been selected for carrying out the job. BCIC, at present is using BADC godowns for storing fertilizers. All BCIC's fertilizer buffers are housed in BADC's godowns
6. Assessmnt of the SAP Measures	The following objectives underlined the reform: (i) to reduce overhead cost; (ii) to scale down corruption and (iii) to reduce control. As far as these objectives are concerned, the reforms have had limited success because overhead cost has increased indirectly due to increased price; control has surged many fold and DCs have imposed their stranglehold in various places. All the underlying objectives of the reform therefore remain unfulfilled so far.
E. Seeds 1. Reform Measures	Reform measures have not brought about notable change in the areas of seed programme of BADC. BADC distributed seeds from a negligible low level of 3,000 tons during its initial years to 35-40,000 tons at present. Infrastructures of seed production still lie with BADC because private sector has not yet developed so far to substitute for BADC. BADC has experienced changes only in the field of marketing and distribution. BADC had 411 distribution points before, and they have been phased out gradually. BADC now has 100 distribution points including 36 at the upazila level, 42 at the district level and 22 at the old district level. Unlike BADC dealers, BADC had no seed dealers before. The dealership system for seeds was adopted by BADC in 1990-91 and there are now 1,200 seeds dealers across the country.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(A): Position of Bangladesh Agricultural Development Corporation (BADC)

Issues	Group Responses
2. Private Sector is Shy	The seed policy 1993 formulated in line with reform measures, lays emphasis on the development of the seed in the private sector. But the private sector is progressing very slowly, although they have made some progress in the case some minor crops such as pulse seeds, vegetable seeds, oil seeds, etc. BADC is still in command of the major seeds. BADC is now feeding around 5 percent of the national seed demand. Like fertilizer traders/dealers, seed dealers are also found reluctant in marketing seeds in remote and inaccessible areas of the country.
F. BADC as a Strangled Organization: 10 Years Off Farm an Organization's Life	The World Bank has made some recommendations about the future role for BADC. The World Bank suggested that BADC ought to be assigned that responsibility that could not be performed by others. More specifically, BADC should undertake only promotional as well as technical activities and BADC should have been oriented to that direction. But the policy makers and the government of the country out of overenthusiasm took some decision that was the last nail in the BADC's coffin and thus has taken 10 years off BADC's life. BADC has lost its human resources — an army of technically qualified and experienced personnel — during its lost decade [since 1992] because of frustration built up through institutional stranglehold and inaction — while institution wanted to work, the government did not allow to.

Note: * ⇒ Based on a topic-focused discussion with senior BADC personnel

STAKEHOLDER PERSPECTIVES

6.17(B): Position of Agricultural Extension Workers*
Location: Kalai Upazila, Joypurhat

Issues	Group Responses
Key Questions: 1. What are the major agricultural problems in the area particularly with irrigation, chemical fertilizers, seeds, etc. and its trends over the last 10-12 years? 2. What mitigating measures need to be taken to solve them?	
A. Irrigation 1. Irrigation Service	i. Drains/furrows ✧ Irrigation water is conveyed through *kutcha* (earth) drains/furrows in the area. This causes wastage of huge water every year. This is a serious problem with the present irrigation system in the area. ✧ Farmers of the distant plots under the command area usually get less water because of earth canals. Notwithstanding the intention and efforts of the pump owners, irrigation water cannot be properly conveyed to the distant plots within the command area. ✧ As all the drains and furrows used for irrigation are *kutcha*, they are temporary. Immediately after *boro* crop, all the drainage structures are demolished during the succeeding *aman* season. One major difficulty is that although *aman* is mainly a rain-fed crop and does not require irrigation that much, it cannot be irrigated [supplementary irrigation] when it is needed during the period when there is no rain fall or rain fall is inadequate only for lack of drains/furrows within the command area. This results in lower *aman* yield. ✧ It is urgent to build concrete drains/furrows for reducing wastage of water and also for the supplementary irrigation for higher yield of *aman* paddy. ii. Command area ✧ As there is no irrigation policy of the government, several irrigation pumps are drilled within the command area of another pump already installed there causing wastage of water. Under the private ownership, pump owners lift water as much as he intends to even higher than his requirement. ✧ The incidence of conflicts among the pump owners over the encroachment of the command area has increased in the area. People are increasingly running into litigation due to this problem. ✧ It is expedient to re-introduce the command area concept and the previous government circular in this regard should be put into effect to deal with the problem. iii. Water table ✧ The water table is dropping owing to the groundwater extraction for irrigation. The problem has worsened over time. It was less before. The problem has been aggravated in the area because of the multiplicity of irrigation equipment in a certain area. The problem turns acute during drought times. iv. Surface water irrigation ✧ There is no surface water in the area — all water has been dried up. The LLPs supplied before by BADC have been drilled to make operational in the area.

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STAKEHOLDER PERSPECTIVES(Contd.)

6.17(B): Position of Agricultural Extension Workers
Location: Kalai Upazila, Joypurhat

Issues	Group Responses
2. Equipment	i. <u>Quality, repairing and corruption</u> ✧ The machines supplied by BADC before were of high quality. But sometimes it was found that various parts of a high-quality machine had been replaced by BADC personnel with some locally made parts during the period under their possession. As a result, the machine would be serviceable for a shorter period. But irrigation equipment and spares on the market now are, of course, of poor quality. Now, the buyers of the equipment and spares get cheated by buying substandard goods on the market. They cannot identify spares properly. ✧ Previously, farmers would face problem when irrigation machines used to be disordered. BADC mechanics used to be unavailable at their office. But they would provide service if they are offered money for the service. ✧ But farmers can now buy easily on the open market.
B. Fertilizers 1. Smuggling	Fertilizers are being smuggled in Bangladesh and there is none to check it. SSP (dust), a banned item, is still being marketed inside Bangladesh.
2. Quality	The quality of fertilizers has been poor and they are not producing desired result. In addition, fake fertilizers are also being manufactured in the country.
3. Dealership System	✧ Under the present system, fertilizer dealers are under mounting pressure from various quarters, such as DC, political leaders, CI to offer them rents. Apart from this, the present system is better provided that the intention of the dealers is pious. ✧ Under the existing system, there are at best 10 dealers for one Upazila and all the dealers represent Upazila/urban areas. The present system does not have any provision to engage dealers for remote areas. But the question as to how the farmers of the remote areas would gain access to fertilizers has not been taken into account while formulating the dealership system. ✧ It is recommended that at least one dealer be engaged for one Union for the sake of smooth distribution of fertilizers.
4. Application of Fertilizer	<u>Testing the quality of fertilizers</u> ✧ The key question posed by the farmers — how to properly identify fertilizers — whether it is genuine or fake. There is no mechanical device lies with the BS to scientifically test the fertilizers on the market. Scientists at the testing laboratory can, however, properly identify the nature and proportion of ingredients of the fertilizers on the market. ✧ It is recommended to supply a mini-kit to the extension office for testing fertilizers. This would serve the farmers a lot. Only then an agricultural extension worker would feel confident about his recommendation. <u>Balanced dose</u> ✧ Many farmers have a wrong conception that yield can be increased as much as fertilizers can be applied. But it is wrong. There is a maximum limit, beyond which yield cannot be increased even though higher dose of fertilizers is applied.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.17(B): Position of Agricultural Extension Workers
Location: Kalai Upazila, Joypurhat

Issues	Group Responses
C. Seeds 1. Availability and Prices	✧ There is shortage of quality paddy seeds in the area. Of late, there has been an acute shortage of *aman* seeds (BR-11) in the area. Farmers could not procure *aman* seeds in time and they had to buy it at higher price. ✧ Seeds are not easily available on the local market.
2. Quality	✧ Seeds are critically important factor to the farmers. But it has become more difficult to become certain about its quality. When extension worker finds that the seeds he has recommended to a farmer has not given a better crop, his professional acceptability then becomes vulnerable among the farmers. They have been experiencing this sort of embarrassing situation in the course of their profession. By now, they have already had some untoward experience of the quality of seeds procured from both domestic and external sources. As a leading seed breeder and distributor in the country, BADC does not have that much technical expertise and it does not always comply with the principles need to be followed for breeding quality seeds.
3. Culturalization of Seeds	✧ The hybrid seeds procured from India should not be sown directly. It should have been sent first to BRRI for its indigenization. BRRI scientists need to certify those seeds prior to releasing for cultivation by the farmers
D. Soil 1. Soil Test	✧ Extension workers do not know the characteristics of the soil of the area he/she works at. He has no technical instruments/tools at his disposal to test the soil and identify its various characteristics needed for properly recommending the balanced dose of fertilizers. ✧ The country is losing foreign country through importing costly fertilizers such as TSP by wasting it without knowing exactly the required dose according to her soil characteristics. There is no doubt that the country is wasting her vulnerable nitrogenous fertilizer (urea) by applying excessive dose due to the same reason. ✧ It is recommended that a soil laboratory or soil testing centre be set up at every upazila.
E. Recommen-dations	✧ Modify the present dealership system to make it broad-based. There should be at least one fertilizer dealer for every union. ✧ Provide farmers with one-step service. That is, ensure the availability of all inputs required for cultivation at one place in order to save time and avoid hassle faced by the farmers. This would be convenient not only for farmers but also for other development agency/departments of the government to interact with farmers and coordinate among different providers.

Note: * ⇒ Based on a topic-focused discussion with Block Supervisors of DAE

STAKEHOLDER PERSPECTIVES

6.17(C): Position of Bangladesh Fertilizer Association (BFA)

Issues	Group Responses
The key question: There has been a number of experiments of fertilizer distribution systems in the country. Broadly, three distribution systems were experimented so far — public distribution system (under the BADC) with varying degrees of private participation until 1989; completely private distribution system (from 1989 to 1985) and a hybrid distribution system characterized by both public and private participation since 1995. Where does the BFA stand on the fertilizer distribution systems? Please put forward your recommendations for the improvement of the fertilizer distribution in the country.	
1. Fertilizer Distribution System	✧ We do want to revert to the completely private distribution system that worked successfully before [until 1995]. But this is not in the sense that we would buy cheaper from the BCIC and sell dearer. ✧ We demand that BCIC should set market prices at the level nearer to the international fertilizer price levels so that the private importers of the country can participate in the competition with BCIC by importing fertilizers alongside them. This would result in various advantages. Buyers would be benefited with a wider range of choices. They may buy BCIC goods or imported goods as they like. BCIC would be benefited in two ways — by exporting fertilizers at higher prices and their fertilizer factories would be able to tide over its present financial difficulties. The government would also gain by releasing a sizable volume of budgetary resources that is being wasted at present. ✧ Monitoring of the fertilizer sector [at the national level] should continue. The gap resulting from the withdrawal of the International Fertilizer Distribution Centre (IFDC) eventually caused the fertilizer crisis in 1994/95. ✧ We do not, however, recommend the re-appearance of the distribution principle — first come first serve — which fueled the 1994/95 fertilizer crisis.
2. Command Area	✧ Do away with the command areas of the fertilizer factories. The command areas are not judiciously defined. There are some command areas that comprise those districts some of which are far-flung from the factory; some have the fertilizer users with different choices for specific fertilizer varieties (eg some prefer granular fertilizers, some prefer prilled fertilizer); some have different transportation network etc. ✧ Under the present command area system, the transportation of fertilizer is also restricted. It cannot be sold in other districts. Within the same district, there are thana-wise command areas as well which also create problem.

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STAKEHOLDER PERSPECTIVES (Contd.)

6.17 (C): Position of Bangladesh Fertilizer Association (BFA)

Issues	Group Responses
2. Command Area (Contd.)	✧ The present command areas need to be reviewed for their readjustment across the districts and command areas. Conduct needs assessment in the district and re-align the districts on the basis of the local needs and context. ✧ We strongly recommend the unhindered operation of the private fertilizer distribution system in the country. ✧ Do away with Upazila command area as directed by local administration. ✧ Do not thrust the compulsory delivery of fertilizer in lean months on the dealers.
3. Buffer Versus Factories	✧ The enlisted dealers are issued fertilizer delivery orders by BCIC requiring that they would take delivery of a portion of their allotment from the concerned buffer stocks of the districts. They have no choice. The dealers have no choice but to take delivery of fertilizer from the respective buffer stock even if its quality and weight are questionable. These are the common problems with the present system. ✧ The fertilizer dealers are faced with a serious problem resulting from the different prices set by the factories and the buffer stocks — Tk. 240 per bag (50 kg) for the factories and Tk. 265 for the buffers. This serves as a basis for an unfair competition between the dealers of the factories and those of the buffers. The dealers of the buffers are at disadvantage now. Fertilizers from the factory areas move into the buffer areas because of the price differentials prevailing in the two areas. The present administrative control is not that much effective in preventing this inter-district encroachment. ✧ We recommend that the same price bet set for the fertilizers delivered from both the factory and buffer points throughout the country.
4. Fertilizer Distribution Monitoring by Local Administration	✧ Fertilizer distribution within the district is hampered due to the delays, formalities on the part of the local monitoring authorities. The dealers are required to report to multiple monitoring authorities, namely Deputy Commissioner; Deputy Director (DAE) and sometimes to the UNO on the arrival of fertilizers in the area. As the members of the monitoring body do not instantly inspect the goods and issue the sale certificate, which sometimes take a couple of days. The dealers have to lose market and sustain loss as a result. ✧ Besides, there is a lack of coordination between DCs of the adjoining districts with regard to the transportation of fertilizers across their districts. DCs are found lackadaisical in preventing the entry of fertilizers from other districts. ✧ We strongly recommend that there should be a single authority to monitor the fertilizer distribution within the district in order to minimize delay and duplicity.

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STAKEHOLDER PERSPECTIVES (Contd.)

6.17(C): Position of Bangladesh Fertilizer Association (BFA)

Issues	Group Responses
5. Counterfeit/Fake Fertilizers	✧ It is a crime and it must be dealt with an iron hand. By and large, fertilizers traders are not involved in this practice. We recommend the following to check the problem: i. Ensure that poor-quality fertilizer cannot enter the country and there should be adequate checks at the entry points. Pre-shipment inspection agencies should play an effective role in this regard. ii. Some unscrupulous importers are involved in this heinous deeds. They import fake or substandard fertilizers from those countries which are not at all producers of those fertilizers. Banks, therefore, need to keep their vigilant eyes on those while opening LCs in their favour. iii. Banks should also be more careful about the loan against fertilizers kept as pledge with the bank. Banks need to physically verify pledge goods against which they provide loan.

Note: * ⇒ Based on a topic-focused discussion with central BFA leaders

6.18 Stakeholders' Perspectives: At The Community Level

STAKEHOLDER PERSPECTIVES

6.18(A): Position of STW Owner*
Village: Sailgun (SW), Joypurhat

Issues	Responses
The Key Questions: What are the notable changes you have witnessed in the case of procurement, availability, price, quality of irrigation equipment and irrigation service highlighting it consequent outcomes over last 10-12 years in the village?	
1. Brief Profile of the STW Owner	Name : Md. Abdul Karim Age : 40 years Education : Seven years Land owned: At present : 2 acres Before SAP : 1.5 acres Members of the family: At present : 5 Before SAP : 3 Primary occupation : Farming Major assets owned: At present : One STW (jointly owned), one animal drawn country plough Before SAP : One power tiller, one STW, one animal drawn country plough Economic status: At present : Middle farmer (non-poor) Before SAP : Middle farmer (non-poor)
2. Characteristics of the STW	Installation year : 1990 Purchased at : Open market Cost : Tk. 52,000 Whether bought old/new: New Capacity : 12HP Manufacturing country : China Brand name : Dong Feng Mode of power : Diesel

3. Operation of the STW

Year	Number of irrigators	Total area irrigated (*Bigha*)	Irrigation charge (Tk/*bigha*)
1991	-	-	600
1992	-	-	600
1993	-	-	600
1994	12	22	600
1995	12	20	600
1996	12	20	600
1997	10	20	600
1998	10	15	600
1999	10	15	600

Note: i. *bigha* ⇒ 33 decimals
ii. - ⇒ not available

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STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
4. Procurement of the STW	i. <u>Mode of ownership</u> The STW was bought jointly by three brothers and it is still under the joint ownership. ii. <u>Ways of financing</u> The capital was mobilized in various ways such as by: (a) borrowing from relatives; (b) by selling farm animals and (c) selling agricultural produces. They did not, however, take bank loan for this purpose. iii. <u>Accessibility of bank loan to poor farmers</u> The accessibility of bank credit to poor farmers has not improved over time. The binding of submitting collateral security has made bank credit inaccessible to poor farmers. iv. <u>Problems faced by poor farmers for getting bank loan</u> Poor farmers are required to meet the following pre-conditions for getting bank loan: a. Submission of security (land) b. Submission of various documents c. Prior-acquaintance with the bank manager d. Recommendation by a local elite e. Enough money is required to offer bribe to bank officials f. Cooperation of a middleman v. <u>Corruption, if any</u> Bribe in depth and breadth along with procedural complexities have been rampant over time. As the demand for credit has gone up, intending clients have to approach the bank through a middleman. The rate of bribe has therefore increased for this purpose.
5. Reason for Buying the STW	It was purchased to meet the demand for irrigation service in the village. Moreover, tilling the land was also another object of the purchase of the STW. Besides, cultivating own land free of charge while concomitantly irrigating others' land had also been another underlying purpose of the venture.
6. Quality of the Machine	They encountered no problem in using machine for the first two years after its installation. The machine was used first for tilling land and for irrigation thereafter which brought them financial benefit.
7. Availability and Private Distribution of Irrigation Equipment	Irrigation machines of different varieties have been available on the local market. These machines have come within the purchasing capacity of the farmers. Apart from the durability problem with some variety of irrigation machines, people have benefited from the present distribution system.

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STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
8. Site Selection for Drilling the Machine	The equipment owners learned from some problems with the first DTW in the village before and the following factors were considered while selecting the place for the installation of the machine. They had to; i. select a relatively upland plot ensuring that their own land would be covered under the command area; ii. ensure that others' land could be irrigated; iii. construct furrows in their own land iv. allow adequate passage for the installed machine v. construct a house for the machine vi. try not to use the land of contentions farmers while constructing furrows for irrigation purposes. vii. drill the machine at least 300 yards apart from a DTW and 200 yards from a STW.
9. Technical Support for Drilling the Machine	It was installed by a local mechanic and they did not encounter any problem while drilling it. The seller of the machine did not provide any technical support to install the machine.
10. Issues on Groundwater, Water Table and Restrictions on the Command Area	The water table in the area has gone down by 3-4 feet compared to the level during normal time. The water table further goes down — by 10-15 feet — during March-May when the machine is required to be re-installed far down the ground level for gaining access to the groundwater. They have been encountering this problem since three-four years after the installation of the machine when another STW had been drilled within the same command area. This is the cause of the shortage of water in the above months. In the initial years, STWs used to be installed in the village according to the principle required to be followed for its installation. As the STWs installed later did not comply with it, the people have been facing the problem in the village.
11. Maintenance of the Machine	i. <u>Availability of mechanics:</u> Machine used to be maintained with due care and, therefore, there had been less need for repairing the machine within the first 2-3 years. In the case of repairing, local mechanic used to be called for. The mechanics had been in short supply in the initial years. The owners of the machine had been self-trained through gaining experiences within 2-3 years after the installation of the machine. Now they repair their machine by themselves and they do not need to call any mechanic for this purpose. The area has got a pool of adequate trained mechanics at present. ii. <u>Repairing charge</u>: The repairing charge was much higher — Tk. 200/300 for one call — in the initial years of the mechanized irrigation in the area because of fewer mechanics available that time. But with the increased supply of the trained mechanics in the area, repairing charge has appreciably gone down to Tk. 80/100 for a call nowadays

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STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
12. Fuel and Power	i. Availability and stability: Diesel is available at fair price in most of the years. But it becomes scarce in March-May in some years if there is any disruption to its supply from Dhaka. The availability of diesel has been worse particularly during the peak season (March-May) compared to that before due to the rise in overall demand for it as a result of expansion of irrigation coverage in the area. There has been an acute supply crisis of diesel in the middle of the preceding decade when farmers had to purchase diesel at a much higher price. ii. Storage of fuel: There should be a depot for diesel in the area for maintaining smooth supply of diesel and meeting crisis situation. However, no such diesel depot has been constructed so far.
13. Capacity Utilization of the Machine	The capacity utilization rate for the said machine is as low as 33 percent. The demand for irrigation service is lower compared to its supply because farmers are now irrigating their land by buying STW/DTW at the market. Irrigation machines have been drilled within the command areas of other machines in the village leading to the underutilization of the capacity of the operating machines in the village. More irrigation machines are likely to be installed in the village in the future which would have further depressing effect on the capacity utilization of the operating machines.
14. Spares of Irrigation Equipment	i. Availability: All types of spares are now easily available on the local market. Pump owners had to buy spares at the upazila- and district-level markets before. However, there are a number of spare shops in the nearby markets nowadays. ii. Price: With the multiplication of spare shops at the markets, spare prices retail at competitive rate. The prices of spares are also found stable at the local market. iii. Quality of spares: In some cases, pump owners come across poor-quality spares and they fall victims to deception by buying fake/substandard spares. Unscrupulous traders import and manufacture fake and substandard spares, and market it. The government should take remedial measures to deal with the situation. Besides, the government should restrict the import requiring the importers to import the quality spares of some specified spare manufacturers.

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STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
15. Irrigation Charges	i. Basis of irrigation charge: Irrigation charge is usually determined in view of the following factors: a. Fuel charge b. Price of spares c. Repairing cost d. Salary of the operator e. Irrigation charge of the nearby machines, etc. ii. Per unit irrigation charge: Irrigation charge has declined, although marginally over the period. Irrigation charges had been a bit higher during the initial period around Tk. 650 per *bigha* for STWs and Tk. 500 per *bigha* for DTWs. Due to the mounting pressure caused by increasing number of irrigation machines, the charges consequently fell to Tk. 600 per *bigha* for STWs and Tk. 500 per *bigha* for DTWs. The irrigation charge for DTWs has not declined due to the squeeze on its command area because of the multiplicity of the machines in the area. iii. Mode of repayment: The farmers usually pay Tk. 100-Tk. 150 per *bigha* during the plantation period while the rest of the charge is paid in phases later on. In some cases, farmers pay their dues after getting the harvest. Although, in most of the cases, farmers pay water charges according to the above practice, they are willing to pay the charges after the harvest. iv. Possibility of the further reduction of irrigation charges: For diesel operated machines, irrigation charge can be reduced if the supply of diesel can be made stable and pump owners can purchase fuel at a stable price. Similarly for electrically operated machines, the charge is likely to drop provided that the present provision of keeping security money (Tk. 25,000) is done away with, and the connecting line is not considered industrial one. If irrigation charge can be made low and if the practice of post-harvest payment of irrigation charge can be introduced in the area, small and marginal farmers would be able to expand their cultivated land under irrigation coverage.
16. Distribution of Irrigation Water	i. Structure: Irrigation water is distributed through *kutcha* canals/furrows causing high wastage of water. Sometimes, water is conveyed to the distant plots not through any drains/furrows but by overflowing other adjacent plots which involve huge wastage of water. As the distribution structure is a temporary one, the structure is removed immediately after the crop has been harvested. Irrigation water also gets wasted by overflowing other plots under the adjacent command area which overlaps that of the machine under discussion. ii. Conflict over command area: Because of the overgrowth of irrigation machines in the village, pump owners compete with each other to expand their respective command areas resulting in conflict among themselves. The more the farmers delay to select their water sellers, the more they help to fuel the conflict. The moment they decide on it, the hazard of the conflict goes.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
17. Profitability of the Machine	i. Trend of profitability: The profitability of the machine has slid because of the squeeze on the command area compared to that before. Occasionally, the pump owners have to buy diesel at a higher rate which results in lower profitability of the machine. ii. Ways of improving profitability: Improving the profitability of the machine necessitates fuller utilization of its irrigation capacity; to buy diesel and spares in advance [to avoid scarcity], to reduce wastage of water etc.
18. Enhancing Irrigation Service	i. Access to irrigation service: At present all the cultivated land has been brought under irrigation coverage compared with the 75 percent 10-12 years before. Now there has been no more unirrigated land in the village. Increased number of irrigation machines has had dampening effect on irrigation charges, which facilitated expansion of irrigation coverage by poor farmers in the area. ii. Comparison with the previous system: The present system is better compared to the BADC one because: (a) it has facilitated the growth of technically skilled people in the area; (b) farmers are benefiting from the [emerging] practice of paying irrigation charge after the harvest; (c) farmers are now getting more than enough irrigation water from the excess irrigation capacity of the existing machines. iii. Measures to be taken for the benefit of poor farmers: The following measures may be taken for the benefit of poor farmers: (a) expand the practice of paying irrigation service after harvesting the crop; (b) provide credit to pump owners in the season; (c) engage poor farmers for constructing irrigation drains/furrows; (d) provide interest-free credit for buying fertilizers and pesticides.
19. Withdrawal of Various Restrictions on Procurement, Marketing and Installation of Irrigation Equipment	i. Import liberalization and privatization of the procurement and distribution of irrigation equipment: ***Advantages:*** (a) A wide range of STWs/DTWs are now available on the market. Farmers can procure it according to their abilities. (b) Spares are also available on *upazila* and district-level markets. (c) Irrigation charge has dropped due to the increased number of machines. (d) As large farmers cannot cultivate/manage their farming operations properly within short turnarounds in *boro* cultivation, they rent out a part of their land from which poor farmers benefit. (e) Agricultural labourers benefit from the higher wages resulting from intensive and extensive cultivation by large farmers.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner
Village: Sailgun (SW), Joypurhat

Issues	Responses
19. Withdrawal of Various Restrictions on Procurement, Marketing and Installation of Irrigation Equipment (Contd.)	***Disadvantages:*** (a) Substandard irrigation machines are now being imported. (b) Farmers are being cheated [by way of buying these poor-quality goods]. In some cases, [new] machines become unserviceable immediately after taking start. (c) Land is available on tenancy market only in *boro* period but not in other cropping seasons due to which poor farmers cannot economically manage their farming operations. ***Recommendations:*** (a) Import of high-quality machines. (b) Take administrative [legal] action to recover the loss caused to the affected buyers. (c) Ensure the availability of land on tenancy market. (d) Ensure at least two-years-long contract for the cultivation by tenant farmers/sharecroppers. (e) Extended the accessibility of bank credit for the farmers to buy STWs. (f) Ensure the availability of electricity and diesel by taking administrative action. ii. <u>Removal of the command area related restriction:</u> ***Advantages:*** It has been a write decision to withdraw the restriction from which farmers have gained the following payoffs: (a) Pump owners are now irrigating not only their own land but also others' land by installing irrigation machines. They are thus recovering a part of the capital cost incurred to install the machines. (b) Farmers are now free from the tension of unavailability of irrigation water in the area. (c) Apart from *boro* crop, irrigation service has also been available for other crops grown in the village. There are no worthnoting disadvantages in this respect in the area.
20. Cropping Pattern	*Aus* (local) is no more cultivated in the area and HYV *boro* has taken place of it. HYV *boro* is now widely cultivated in the area. Similar is the case with local *aman* which has been displaced by HYV *aman*. HYV China used to be cultivated in the early stages of mechanized irrigation in the area and it has been replaced by HYV Usha, a popular variety grown nowadays, due to its susceptibility to storm. Potato was not cultivated before as extensively as today because of the increased accessibility of irrigation service in the locality.
21. Food Security	Large farmers cultivate primarily for profit. Medium farmers cultivate for both consumption and better living. But poor farmers certainly cultivate for their subsistence. Thirty percent of people cannot meet their food requirement by growing food. Villagers did not have the same opportunity of cultivating land under sharetenancy as they can do today resulting in mass starvation in the village before. Although poor farmers and agri-labourers subsist on sharecropping and selling wage labour, they do not have to starve now.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(A): Position of STW Owner*
Village: Sailgun (SW), Joypurhat

Issues	Responses
22. Demand for and Supply of Labour	There has been a shortage of labour in the area particularly during plantation and harvesting periods of *aman* and *boro* crops. The acute shortage of agricultural workers is encountered in the months of *Agrhayan* (from mid-November to mid-December) for harvesting *aman* crop and also mid-*Baishak* to mid-*Jaistha* (May) for harvesting *boro* crops.
23. Employment Opportunities for Women	Employment opportunities have been created for women in the area in *rabi* season particularly for harvesting potato. They get employed throughout the harvesting period of potato. There has been no other major employment opportunity for women in the area. They had been engaged in domestic services for well-off families before. Their wages are paid in kind, 5 to 7.5 kg of potatoes a day, for harvesting potato. Increased *boro* cultivation by large farmers has also generated [some] employment opportunities for them. The wage rate for female workers has risen over time.
24. Income Distribution	The living condition of all the people has improved over the last 10-12 years period. The well-off have definitely made remarkable progress during this time but the poor could not fare well at the same pace.
25. Social Conflict	There had ensured a conflict between two contending groups over the ownership of the DTW under *samity* over last 10-12 years. This conflict reached the climax when one group consisting 9 members lodged a suit against another group comprising 12 members. [These two rival groups are being headed by two rich farmers in the village almost since the installation of the machine in 1982 in the village.] This long drawn conflict has not yet come to a resolution. The apprehension resulting from this legal complexity that the operation of the *samity*-DTW might be off any time prompted other farmers to install new STW/DTW in the village. Regardless of their background and status, the owners of STWs and DTWs are inclined to play as rural elites in the village. This eventually leads to various problems in the village.

Note: * ⇒ Based on a long interview

STAKEHOLDER PERSPECTIVES

6.18(B): Position of Low Lift Pump (LLP) Owner*
Village: Dehergati (M), Barisal

<table>
<tr><th>Issues</th><th>Responses</th></tr>
<tr><td colspan="2"><u>The Key Questions:</u>
What are the notable changes you have witnessed in the case of procurement, availability, price, quality of irrigation equipment and irrigation service highlighting it consequent outcomes over last 10-12 years in the village?</td></tr>
<tr><td>1. Profile of the LLP Owner</td><td>Name : Mr Jamal Uddin
Age : 30 years
Education : Ten
Primary Occupation : Farming
Agricultural Implements Owned : One LLP and one power tiller</td></tr>
<tr><td>2. Characteristics of the LLP</td><td>Installation year : 1997
Purchased from : The former user
Cost : Tk. 4,000 (four thousands)
Whether bought old/new : Old
Capacity : 3 HP
Manufacturing country : China
Brand name : Air Cooler
Mode of power used : Diesel</td></tr>
<tr><td>3. Beneficiaries, Capacity Utilization and Irrigation Charge</td><td>
<table>
<tr><th>Year</th><th>Number of Irrigators</th><th>Total Area Irrigated (acres)</th><th>Irrigation Charge</th></tr>
<tr><td>1997</td><td>30</td><td>32</td><td>1/4th of the harvest of the irrigated land</td></tr>
<tr><td>1998</td><td>25</td><td>28</td><td>1/4th of the harvest of the irrigated land</td></tr>
<tr><td>1999</td><td>30</td><td>32</td><td>1/4th of the harvest of the irrigated land</td></tr>
</table>
</td></tr>
<tr><td>4. Operational Costs</td><td>
<table>
<tr><th rowspan="2">Cost Items</th><th colspan="3">Cost (Tk.)</th></tr>
<tr><th>1997</th><th>1997</th><th>1998</th></tr>
<tr><td>1. Fuel and lubricant</td><td>1,400</td><td>13,860</td><td>1,386</td></tr>
<tr><td>2. Wages (construction of drains)</td><td>1,400</td><td>1,300</td><td>3,500</td></tr>
<tr><td>3. Spares</td><td>3,000</td><td>3,000</td><td>2,800</td></tr>
<tr><td>4. Repairing</td><td>200</td><td>300</td><td>1,000</td></tr>
<tr><td>5. Operator</td><td>6,000</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>12,000</td><td>18,460</td><td>21,160</td></tr>
</table>
</td></tr>
<tr><td>5. Procurement of the LLP</td><td>i. <u>Mode of ownership</u>
The LLP is individually owned
ii. <u>Ways of financing</u>
✧ The LLP was bought with his own savings accumulated over 10-12 years and the loan from moneylenders at interest rate of Tk. 100 per month for Tk. 1,000 [10% per month basis].
✧ Although he tried to get bank loan before for buying the pump, he did not get the loan.
iii. <u>Problems faced by poor farmers</u>
They face the following problems while approaching bank for loan:
a. requirement for mortgaging land
b. improperly maintained title of land
iv. <u>Lending procedure</u>
Lending procedure for bank loan has remained unchanged and the poor farmers are facing those problems until now.</td></tr>
</table>

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(B): Position of Low Lift Pump (LLP) Owner
Village: Dehergati (M), Barisal

Issues	Responses
6. Reason for Buying the LLP	The LLP has been bought to improve the economic condition by cultivating HYV *boro*
7. Quality of the Machine	✧ The owner of the said LLP is not satisfied with its quality because it gets disordered repeatedly and sometimes runs into ignition. ✧ The poor performance of the pump is due to its substandard spares. ✧ The pump owner did not consciously select the substandard pump. ✧ The pumps used before under the rental system of BADC were immune from those problems. Substandard pumps are being imported by the private traders under the unrestricted import regime.
8. Site Selection for Fielding the LLP	✧ The following factors have been considered by the pump owner while selecting the site for fielding the LLP: a. the command area would be around 20 acres b. easy availability of water for irrigation c. gradient of the plots within the command area d. the distance of the plots from the canal ✧ However, the pump owner seriously took into account whether water would be available in the canal and the farmers in the area would be willing to buy water from him prior to deploying the LLP at the selected site.
9. Technical Support for Deploying the LLP	✧ The LLP was fielded by a mechanic called from Barisal town. The pump was fielded properly but the pump ran into ignition due to improper handling [mistake] of the pump by the owner. There occurred various technical problems in the course of fielding the pump.
10. Maintenance of the Pump	i. <u>Type of problems encountered</u> ✧ The pump gets disordered repeatedly. ii. <u>Training on irrigation equipment</u> ✧ The owner have had no prior training whatsoever on irrigation equipment and its maintenance. The lack of training has been a cause of various technical difficulties afflicting the pump and causing financial loss to the pump owner. ✧ The pump owner needs training on irrigation equipment. iii. <u>Availability of repairing facilities</u> ✧ There is no repairing facilities around the area. Therefore the pump is repaired at the workshop in the Barisal town. iv. <u>Repairing expenses</u> ✧ Repairing facilities have not been that much convenient compared with those before. ✧ Lack of quality spares on the market. ✧ Repairing expenses have also risen resulting in the marketing of substandard spares. The pump owner gets the spares manufactured by lathe in order to reduce the repairing cost. v. <u>Recommendations for improvement</u> ✧ Workshops need to be set up under both the private and public sectors; training needs to be imparted to the pump owners/ managers and quality spares should be supplied for repairing and maintenance of irrigation equipment.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(B): Position of Low Lift Pump (LLP) Owner
Village: Dehergati (M), Barisal

Issues	Responses
11.Fuel and Power	i. Availability ✧ The availability of diesel has increased. It is now available on the open market and its supply stability has also improved. There has been no problem with both the supply and stability of diesel during the peak season as well. But the area witnessed a diesel crisis for as long as one month in 1998 when the pump had to be operated for shorter period. Price of diesel sold at higher price during that period. ii. Storage of Fuel ✧ There is no need to construct a depot in the area because of the close proximity to the district town.
12.Capacity Utilization of the Pump	i. Demand for irrigation service ✧ The demand for irrigation service is much higher compared to the capacity of the pump. The demand is rising in the area. ii. Utilization of the pump ✧ The pump is still underutilized compared to its capacity and the command area. The capacity utilization rate of the pump has been around 50 percent. The main reason is the unavailability of water in the canal. iii. Future plan ✧ The pump owner is planning to buy another pump by taking bank loan in the future.
13.Spares of the Pump	i. Availability There is no spare shops in the locality. Spares are usually bought at the market in Barisal town. In case of its unavailability, spares can be had manufactured by lathe machine at workshops. ii. Price Spares cannot be procured at reasonable price. However, prices have been stable because it can be locally manufactured in the area. iii. Quality of spares The quality of the spares is not up to the mark. The government should import quality spares and sell them direct to the equipment owners.
14.Irrigation Charge	Until 1999, $1/4^{th}$ of the harvest of the irrigated land was collected as irrigation charge. However, the irrigation charge has been lowered to $3/16^{th}$ of the harvest (instead of $4/16^{th}$) which would take effect in 2000. There has been an agreement between the pump owner and the irrigators on the changeover.
15.Distribution of Irrigation Water	i. Structure ✧ Irrigation water is conveyed to the plots within the command area through *kutcha* (earth) drains/furrows. ✧ A lineman has been engaged to look after the conveyance structure. ✧ Irrigation water cannot be conveyed to the upland and distant plots within the command area. This causes discontent among the irrigators. ✧ Farmers also participate in constructing furrows to ensure the accessibility of irrigation water for their plots.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(B): Position of Low Lift Pump (LLP) Owner
Village: Dehergati (M), Barisal

Issues	Responses
16. Profitability of the Pump	Trend of Profitability ✧ Irrigation service is a profitable business. The profitability is increasing day by day. Farmers' benefit ✧ Poor farmers have benefited from the irrigation service rendered by the LLP. Their fallow lands are now being cultivated. ✧ But the benefit gained by the large farmers has been too much. Ways of improving profitability ✧ Pump owners' profitability can be enhanced in the following ways by a. reducing diesel price b. ensuring the supply of spares and c. making water available in the canal.
17. Enhancing Irrigation Service	i. Access to irrigation service ✧ As much as 50 percent of the cultivated land has been brought under irrigation coverage at present compared to 25 per cent before. ✧ The accessibility of irrigation service has risen under the private system from the level 10-12 years before. ✧ Irrigation under the private system has more advantages than those under BADC. Now anybody can buy a pump. ii. Measures to be taken for enhancing irrigation service for poor farmers ✧ More pumps need to be deployed. There is a considerable area of land which is beyond the accessibility of irrigation water. ✧ The canal needs to be re-excavated for ensuring the availability of water. ✧ Diesel price and irrigation charge need to be reduced for enhancing the benefit of poor farmers.
18. Withdrawal of Restrictions on Import and Private Marketing	i. Import liberalization and privatization of the procurement and distribution of irrigation equipment Advantage ✧ The measures for liberalizing the import of irrigation equipment and its distribution under the private sector have been right steps. They have opened up the opportunities for all in using irrigation machine. ✧ The availability of irrigation service has expanded throughout the country as a result of these changes. Disadvantage ✧ Substandard equipment are being imported. ✧ The equipment owners have been subjected to cheating. ii. Remedial measures ✧ The government should exercise its control and does not allow the import of substandard products. ✧ The import of the equipment should be restricted to those countries which have good reputation for producing quality machines. ✧ There should not be any duty on the equipment. ✧ The government should have quality control measures. ✧ Ensure the marketing of the equipment at a cheaper rate for the benefit of poor farmers.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(B): Position of Low Lift Pump (LLP) Owner
Village: Dehergati (M), Barisal

Issues	Responses
19.Cropping Pattern and Land Utilization	✧ A new crop is being cultivated now in the fallow lands in the area. ✧ There occurred a marked change in the cropping pattern in the area over the last 10-12 years. ✧ The HYV crops such as IR-8, *Kazla*, BR-29, BR-31, BR-32, etc. have been introduced to the farmers in the area over time.
20.Food Security	✧ As many as 30 percent of the households cannot produce food for its annual requirement. They sell labour power to earn their livelihoods. However, the number of the deficit families has declined over time. ✧ Small and marginal farmers use irrigation service mainly for growing food for their consumption but large farmers cultivate for selling produces.
21.Demand for and Supply of Labour	✧ Agricultural labourers are available but there occurs shortage of labourers during *boro* period when agricultural activities rise more relative to the supply of the workers.
22.Employment Opportunities for Women	✧ Employment opportunities for women have been on increase in terms of type and scale. ✧ They are participating in farming activities. ✧ The wage rate for female agri-workers has increased over time as a result of the change in cropping pattern, and increase in production.
23.Income Distribution	✧ Some people have got poor but the rich have got richer
24.Social Conflict	✧ Social conflict has increased in the area because of increased poverty and the desire to get rich. ✧ But there happened no conflict over irrigation-related issues.

Note: * ⇒ Based on long interview

STAKEHOLDER PERSPECTIVES

6.18(C1):Position of Poor Farmers*
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
The Key Questions: During the last two decades, the government has implemented a number of policies and programmes for the development of Bangladesh agriculture and the people. What important changes have been brought about by those policy measures particularly in the fields of irrigation, fertilizers, pesticides, public domestic food procurement and credit with focus on procurement, distribution, availability, accessibility, price, quality etc.? ✧ What are the impacts of those measures on poverty, food security, environment and gender?	
A. Irrigation 1. Irrigation Equipment	i. <u>Availability of spares</u> ✧ Spares are now easily available on the open market. ii. <u>Price of the equipment</u> ✧ The price of irrigation equipment has dropped over time.
2. Installation of the Equipment	Farmers are not faced with any specific problem in this regard.
3. Irrigation Service	i. <u>Availability</u> ✧ Availability of irrigation service has increased from the level before. ✧ As the number of machines has increased under the ownership of large and medium farmers, the availability of irrigation service has risen in the area. ii. <u>Quality of irrigation service</u> ✧ Farmers do not get irrigation water timely and adequately. However, the problems have been mitigated during the last 2 years. ✧ The quality of irrigation service in respect of timeliness and adequacy has improved compared to that before because of the increased number of STWs in the area. iii. <u>Accessibility</u> ✧ The number of STWs has multiplied in the area because of the differential access for farmers to irrigation service in the area. ✧ There is none in the area who cannot access irrigation facilities if he wants to. ✧ Farmers face uncertainty about getting irrigation water due to lack of drains/furrows. ✧ Poor farmers get more water now due to increased number of DTWs and STWs in the area iv. <u>Irrigation charge</u> ✧ Mode of payment of irrigation charge has changed. ✧ Now farmers are paying irrigation charge after getting harvest. v. <u>BADC system versus present system</u> ✧ Irrigation service was not available before due to fewer DTWs but it has been more available now because of the multiplicity of DTWs and STWs in the area. ✧ Everybody can buy it [irrigation equiment] now as and when needed. ✧ Irrigation charge has not declined.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C1):Position of Poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
4. Measures to Improve Accessibility of the Service to Poor Farmers	✧ Construct concrete (*pucca*) drains/furrows ✧ Reduce irrigation charge ✧ Ensure that irrigators can get the opportunity to use irrigation water on credit
5. Withdrawal of the Restrictions on the Equipment Import	Positive ✧ The decision on the withdrawal of the import restriction has been in the right direction. Now farmers are getting more water. Negative ✧ Substandard equipment is being imported now. ✧ At present, buyers are being deceived.
6. Impact 6.1Cropping Pattern	i. Crops grown There has been changes in the cropping pattern in the area. New varieties of *aman* , HYV oilseeds (mustard), potato, *Usha (boro)*are usually grown in the area. *Aus* is no more cultivated in the area. ii. Purpose of cultivation Large and middle farmers are engaged in the cultivation primarily for making profit. Small and marginal farmers, however, cultivate mainly for consumption purposes.
6.2Food insecurity	Around 30 percent of farm households cannot produce food to meet their total consumption of food round the year. But their number has declined over time.
6.3 Demand for Labour	Demand for labour has increased.
6.4 Water Table	Water table has dropped
6.5 Women	Employment opportunities for women have been created
6.6 Poverty	There has been reduction of poverty
6.7 Corruption	Corruption has been rampant
B. Chemical Fertilizers 1. Availability	The availability of fertilizers has increased
2. Mode of Purchase	Farmers usually buy fertilizers on credit.
3. Price	Prices have shown moderately increasing trend.
4. Intensity of Application	The application of fertilizers has increased
5. Smuggling	It has been a problem during both the past and the present
6. Corruption	It has declined marginally
7. Quality	Quality has deteriorated to some extent.
8. Privatization	It has benefited the farmers
9. Subsidy	Poor farmers had benefited.
C. Credit 1. Demand for Credit	Farmers' demand for credit has increased over time to buy agri-inputs. Increased population has been another factor to the growth of the demand.
2. Sources of Credit	They borrow from bank, NGOs and rural moneylenders.
3. Affordability to buy Inputs	Farmers usually face problems to mobilize money out of income from the cultivation. However, it becomes easier for them to buy inputs in the years when they get better price of paddy.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C1):Position of Poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
D. Profitability of HYV *Boro*	✧ The HYV *boro* cultivation is profitable for the following reasons: - increased yield resulting from the application of higher doses of fertilizers, irrigation service and pesticides; - higher price of produce in some years ✧ *Aman* is also profitable because it does not require the application of fertilizer.
E. Public Domestic Procurement 1. Farmers' awareness of procurement program	✧ Farmers can come to know the schedule for the procurement program from the local agriculture extension workers. ✧ They have been cognizant of the program for the last 2-3 years. ✧ The program has been for both *boro* and *aman* paddies in the area.
2. Beneficiaries of the Program	The [local] purchase centre does not purchase from the farmers.
3. Procurement Price	Last year (1999), the procurement prices for *boro* and *aman* paddies were set at: Procurement Price / Market Price *Boro* : Tk. 220/maund / Tk. 190-200/maund [in early harvesting period] *Aman* : Tk. 320/maund / Tk. 280/maund [in early harvesting period]
F. Pesticides 1. Intensity of Use	It has increased.
2. Availability	Pesticides are now more available.
3. Knowledge about its Application	They are more knowledgeable about its application for the last 2/3 years.
4. Price	Prices of pesticides have been fairly stable.
5. Quality	It is average.
6. Recommen-dation	Provide subsidy.
G. Poverty Alleviation Programmes of Government	✧ The people in area have benefited. ✧ The programmes are not free from corruption. The deserving beneficiaries miss the benefit. The enlisted beneficiaries do not get benefit in proper amount.
H. Environment	✧ Impact of mechanized irrigation: The water table has dropped. ✧ Impact of applying chemical fertilizer: Water in ditches gets contaminated. Fish also contracts diseases. ✧ Other impacts: Salinity has worsened. Fertility of the soil has declined.

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(C2):Position of Poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
The Key Questions: During the last two decades, the government has implemented a number of policies and programmes for the development of Bangladesh agriculture and the people. What important changes have been brought about by those policy measures particularly in the fields of irrigation, fertilizers, pesticides, public domestic food procurement and credit with focus on procurement, distribution, availability, accessibility, price, quality etc.? What are the impacts of those measures on poverty, food security, environment and gender?	
A. Irrigation 1. Equipment	i. Expectation ✧ Farmers expect to have pumps to cultivate their land. ✧ Their expectation may be materialized if the government provides support. ii. Causes of few LLPs in the area ✧ Although there are cultivable lands in the area with the accessibility of canal water, they cannot be irrigated simply for lack of irrigation facilities there. People cannot afford to buy LLP for lack of fund. iii. Import liberalization ✧ Advantage: Irrigation pump has been available everywhere now. ✧ Disadvantage: Many substandard pumps are being imported now. Irrigation is hampered due to the trouble with the pumps. iv. Price of the equipment ✧ Now pumps are selling at lower price on the market. v. Spares ✧ Spares can be purchased according to one's own choice.
2. Credit	i. Problems with bank credit ✧ Borrowing from a bank involves the following problems. - not timely available - hassle of submitting various documents - submission of photograph - uncertainty of getting the credit - they have no land for collateral security
3. Irrigation Service	i. Siting of the pump ✧ All the pumps in the area have been deployed at appropriate sites through the consultation with the farmers. ii. Accessibility of irrigation water ✧ Irrigation water will be accessible to all farmers provided that there is water in canals [under irrigation block]. ✧ Irrigation water is also inaccessible to many upland farmers [under the irrigation block]. iii. Irrigation charge ✧ Irrigation charge remains unchanged [one-fourth of the crop of irrigated land. In 1999, farmers, however, have decided to pay $3/16^{th}$ of the harvest instead of the current $4/16^{th}$ in the next season].

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C2):Position of Poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
3. Irrigation Service (Contd.)	iv. Quality of irrigation service ✧ Irrigation water is currently being provided to the irrigators in time. v. Farmers' cooperation ✧ Farmers cooperate with the pump owners with regard to the distribution of irrigation water. vi. Gainers ✧ Most of the land around the pump is owned by well-off farmers [most of the benefits are, therefore, likely to acrue to the well-off]
4. BADC Versus Private Owners of the Equipment	✧ Farmers have benefited in various ways from the private ownership of the equipment. Now they can look after/manage the affair by themselves. But under the BADC system, all farmers would not get water.
5. Impacts	i. Cropping pattern ✧ There has been changes in the cropping pattern of the area. There are some crops grown before are no more cultivated now. They are: Pulses (*moong*), pulses (*khesari*), Jute and *aus.* These crops are not cultivated now because their yields are low. ii. Availability of agricultural workers ✧ Agricultural workers are available in all seasons except for *rabi*. The area faces labour shortage during the *rabi* season. iii. Wage rate ✧ There has been some increase in wage rate over time in the area. iv. Food Security ✧ The area has 75 to 80 percent households with food deficit. ✧ Many of them fall back on borrowing, and selling land and other household assets. v. Poverty ✧ The rich are getting richer and the poor getting poorer vi. Corruption ✧ Corruption has been more acute now. ✧ Bribe must be offered for getting bank loan. ✧ Elites have greater access to bank credit vii. Social conflict ✧ Chaos and conflict had been more acute before. Block Manager used to face difficulties in collecting irrigation charge which occasionally resulted in conflict among the farmers.
B. Fertilizers 1. Source and Mode of Procurement	i. Sources of procurement ✧ Farmers procure fertilizers from local markets upto union-level markets — such as Rahmatpur, Teharia and Gutra. ✧ Local markets are fed from Barisal and Faridpur districts. ii. Mode of purchase ✧ Fertilizers are bought by farmers both in cash and on credit.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C2):Position of Poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
2. Import Liberalization, Availability and Price	✧ Necessary fertilizers are available on the market during cropping season. All sorts of fertilizers are available round the year now. There is no shortage of fertilizers. There had also been no problem with the availability of fertilizer before. ✧ Import liberalization has had no effect on the stability of supply in the area. ✧ Price of fertilizers show an upward trend during the cropping season [*rabi* season]. Farmers have to pay an extra sum of Tk. 1 to Tk. 1.5 per kg during the cropping season. Fertilizers never retail at reasonable/fair price in the area.
3. Subsidy and Intensity of Use	i. <u>Beneficiaries of subsidy</u> ✧ Farmers benefited more from the subsidy ii. <u>Intensity of use</u> ✧ Withdrawal of the subsidy have had depressive effect on the application of fertilizers. ✧ Farmers keep on applying fertilizers for getting higher yield despite price increase. ✧ As organic manure is not being applied now, farmers have to apply higher dose of chemical fertilizers to increase the yield. ✧ Poor farmers are applying smaller dose of fertilizers. Those who can afford to buy fertilizers, apply higher doses of fertilizers. ✧ As TSP is more costly, farmers tend to apply it less and apply urea more to make up for this reduction. ✧ If prices of other types of fertilizers [except for urea] had been lower, farmers would have applied them more. ✧ Farmers would have been affected if the price of urea was higher. ✧ Most of the farmers apply gypsum and sulphur except for a handful of them. [It is hunched that] these fertilizers are damaging the soil health.
4. Fraudulent and Illegal Practices	✧ Corruption has increased over time in the area. i. <u>Quality of fertilizers</u> ✧ Fertilizers could be procured at lower rate before. But adulteration has been more severe nowadays. ✧ Mainly TSP is being adulterated. Farmers can be certain after its application. It is very difficult to identify genuine TSP. Dust is mixed with SSP. ✧ Fertilizer traders are involved in this fraudulent practice. ✧ Applying adulterated fertilizer damages soil health and crops as well. ii. <u>Artificial crisis</u> ✧ Now and then, big traders hoard fertilizers after taking delivery from the fertilizer factories to sell them at higher rates in the *boro* peak when demand surges. ✧ However, this malpractice has been on decrease compared to that before. iii. <u>Smuggling</u> ✧ This area does not encounter this problem.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C2):Position of Poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
5. Systemic Issues	✧ With privatization, the availability of fertilizers has increased accompanied by higher degree of adulteration. There would not have been various types of adulterated and fake fertilizers on the market, had there been government control.
6. Remedial Measures	The government is required to take the following actions to curb the fraudulent practices: ✧ The government will have to exercise its control. ✧ Locally-manufactured fertilizers should be supplied
C. Credit 1. Demand for Credit	✧ Demand for credit has risen over time for both production and consumption purposes. The demand for consumption loan has increased because of poverty [not so severe as starvation] now and then. The demand for production loan has also escalated due to the expansion of productive activities.
2. Availability of Credit	✧ Credit is not available from government sources. It is however sourced from Grameen Bank, PROSHIKA and ASA.
D. Profitability of *Boro* 1. Trend and Cause	✧ Profitability has increased over time. ✧ The profitability has been due to increased yield. The introduction of new varieties of *boro* has been the main source of the yield increase. The yield is increasing day by day.
E. Poverty Alleviation Program of the Government 1. Beneficiaries	✧ They have not benefited from various government programs, namely Food for Program, VGD, VGF, Food for Education etc.
F. Public Domestic Procurement 1. Farmers' Awareness of the Program	✧ Farmers are aware of the program. ✧ The procurement price was set at Tk. 220 per maund for *boro* paddy and Tk. 13 per kg of rice last year [1999]. The market price of *boro* paddy stood in the range from Tk. 100 to Tk. 175 per maund during the same time.
2. beneficiaries	✧ Farmers could not sell their paddy at the procurement centre. ✧ They cannot but sell paddy in open market in order to meet their various obligations such as the repayment of borrowing.
G. Pesticides 1. Availability	✧ Now pesticides are available everywhere.
2. Price	✧ Prices fluctuate more now. ✧ Prices are also high now.
3. Application	✧ Pesticides are applied more in *boro* cultuvation. ✧ Well-off farmers use it more and poor farmers apply less because of their low affordability. ✧ The application of fertilizers has risen over the last 10-12 years. ✧ They do not face any problem in applying pesticides, although they did not have any training in it.
4. Quality	✧ Adulterated pesticides are on sale now.
5. Impacts	✧ The application of pesticides affects soil fertility
6. Remedial Measures	✧ The government should take appropriate measures to check adulteration of pesticides to stave off loss to the farmers.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(C2):Position of Poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
H. Environment 1. Soil	✧ Salinity has appeared as a problem due to excessive application of fertilizers. ✧ Fertility of the soil is declining.
2. Biodiversity	i. Crop mix ✧ *Boro* accounts for an overwhelming proportion of crops grown in the area. Pulses (*moog* and *khesari*) have been the minor crops over time. HYV *boro* and HYV *aman* are the two major crops in the area. ii. Livestock ✧ Farm animals have been declining as a result of increasing use of power tillers in the area. ✧ The use of animal-driven ploughs must yield advantages. ✧ Milk and fish are scarce in the area. iii. Fishery ✧ The area faces scarcity of fish due to less fish in the canals and rivers resulting from the withdrawal of water from the canals for irrigation purposes. ✧ Fish contract diseases.

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(D1):Position of Non-poor Farmers*
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
The Key Questions: During the last two decades, the government has implemented a number of policies and programmes for the development of Bangladesh agriculture and the people. What important changes have been brought about by those policy measures particularly in the fields of irrigation, fertilizers, pesticides, public domestic food procurement and credit with focus on procurement, distribution, availability, accessibility, price, quality etc.? ✧ What are the impacts of those measures on poverty, food security, environment and gender?	
A. Irrigation 1. Equipment	i. Availability ✧ It is available now. It can be purchased when needed. Demand can be met now. ✧ Although the quality of the equipment is poor, they are easily available now. ✧ But the demand could not be met before, not at all. Irrigation scheme/block could not be done properly [in those days]. ii. Price of the equipment ✧ STWs now retail at Tk. 10,000, Tk. 12,000 and Tk. 15,000 each. But Japanese STWs cost Tk. 33,000, Tk. 43,000 and Tk. 50,000 each before. ✧ DTWs machine presently cost Tk. 1,50,000 each which it cost Tk. 50,000 before because of the provision of subsidy. iii. Quality ✧ We have no education. We cannot judge the quality of the machine and spares while buying. ✧ Sellers are selling substandard machines. They sell old/used machines after its repairing and dyeing. We have benefited from Chinese machines. These machines are being resold after dyeing and repairing. Farmers have to suffer loss due to those [substandard/fake] machines [bought unknowingly]. ✧ BADC's equipment had been of high quality. ✧ Although cheap now, an STW hardly remains serviceable throughout a season. Its serviceability is exhausted in a season because it is fake/counterfeit. Abdur Rashid of this village has been a victim of a substandard STW. ✧ Counterfeit power tillers are also being marketed now. Used/old spares are being installed in power tiller after its repairing. iv. Repairing ✧ Everybody can now repair STW. STW owners usually repair by themselves. ✧ Mechanics/repairers are now easily available. One advantage for STW/DTW is that repairers have been available now along with its spares, although its quality is poor. A mechanic can be called anytime from Matrai market [Union market]. ✧ Farmers can now work independently.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
A. Irrigation 1. Equipment (Contd.)	iv. Repairing (Contd.) ✧ BADC used to repair machines single-handedly. Mechanics used to be unavailable before, although they would pay visits [to the scheme]. Equipment had been of high-quality during that days but it used to get disordered repeatedly [probably due to overuse for extended period beyond its normal life]. Time used to be wasted for looking for mechanics. Sometime, farmers had to remain idle due to the unavailability of mechanics. It used to cause damage to the cultivation. v. Mode of ownership ✧ Irrigation devices which used to be rented out by BADC to farmers before are now being used under private ownership. This has been a good step paying farmers much dividends. Everybody has been able to use irrigation service. The demand for irrigation services has also risen now.
2. Installation of Irrigation Equipment	i. Siting of the equipment ✧ STWs/DTWs have not been installed at appropriate sites at present. Tubewells are multiplying in the area without following proper norms and practices [technical requirement for spacing]. They have been drilled not according to the norms and criteria. As a result, equipment owners have to lose/forego the unused part of the pre-paid charge even if electricity is not consumed up to the pre-paid [Tk. 25,000] limit; machines cannot be operated up to their maximum operational capacity; and the country and the equipment owners have to suffer as a result. ii. Drilling of the equipment ✧ At present, DTWs are drilled by local consultants. They least bother about the technical niceties such as the depth of the boring, type of sands layer bored through (fine sands or coarse sands). Moreover, they use old/used spares. ✧ BADC mechanics used to install machines at their own responsibility after conducting necessary tests and investigations. iii. Command area ✧ [The command area concept commonly known as] the irrigation scheme has been done away with towards the end of the eighties. ✧ The withdrawal of the siting restrictions have facilitated goes-as-you-like-type installation of the machines. It has benefited the farmers. This has led to the reduction of distances between the adjacent machines through the installation of machines in other's command area. There has been multiplicity of equipment following the withdrawal of command area-related restrictions. ✧ It causes chaos among the farmers. Even brawl and killing ensue as a result of it.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
3. Power/Fuel	i. <u>Electricity versus diesel</u> ✧ Electricity has benefited farmers very much. Everything is now being operated by electricity. Electricity has an edge over diesel in various ways. The frequency of disorder is much more for diesel-operated machines than for power-operated ones. Apart from low cost, spares are also more available for power-driven machines than for diesel-operated ones. Diesel-operated machines have more risks than its counterparts. ✧ There are no diesel-operated DTWs in this area. Out of disorder, all the diesel-powered DTWs in this area have been abandoned. ✧ The price of diesel has surged to Tk. 14 per liter at present from Tk. 7 per liter 10-12 years before. ii. <u>Charge/rate</u> ✧ Under the present arrangement, a DTW owner has to pre-pay as much as Tk. 25,000 at a time for one season for taking electric connection, no matter how much he uses electricity for that season. ✧ The problems with REB is multiplying day by day. iii. <u>Corruption</u> ✧ It has been a common practice to offer a sizeable amo unt of bribe to REB officials for getting electric connection at present. ✧ In case of loss of the transformer installed by REB for providing electricity to DTW owner, the equipment owner will be fined Tk. 45,000/75,000/90,000 for its replacement. [It is hunched that] it is REB personnel who are involved in this sort of pilferage of electrical accessories.
4. Irrigation Service	i. <u>Irrigation charge</u> ✧ Irrigation charge has declined while the cost of diesel has risen two-fold from Tk. 7 to 14 per liter over t ime. ✧ The increased competition among pump owners resulting from the multiplicity of tubewells in the area has had depressive effect on irrigation charges. Competition has been fierce over the fixed area of the cultivated land in the area. ✧ The irrigation charges for STW irrigation have dropped from Tk. 650/700 per *bigha* (33 decimal) 10-12 years before to Tk. 600 per *bigha* at present. The irrigation charges for DTW irrigation also declined over the same period from Tk. 600/650 per *bigha* to Tk. 500/400 per *bigha*. ✧ Now irrigators are not paying irrigation charges in advance, rather they are inclined to pay it after the harvest. ✧ Small and marginal farmers have benefited more out of the reduced irrigation charges. ii. <u>Conveyance of irrigation water</u> ✧ Pump owners encounter some problems regarding the conveyance of irrigation water due to earth drain. They have to construct furrows/drains every year which involve Tk. 5,000.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
5. Impacts	**5.1 Land utilization and cropping pattern** ✧ Most of the cultivated land in the area had been either single-cropped or double-cropped before. Currently, farmers of the area are cultivating three crops every year. This increased intensity of land utilization is attributable to the access to irrigation service. ✧ Farmers are now cultivating *aman*, potato and/or oilseeds (mustard) and *boro*. Potato cultivation has expanded over time and it was cultivated on a limited scale before. The cultivation of three crops in a year would not have been possible in the area without irrigation facilities in the area. **5.2 Demand for labour** i. Trend ✧ The demand for labour has increased over time in the area because of the expansion of irrigation service, increased availability of seeds and fertilizers open market. They contribute to cultivating triple crops in the area. They have positive impact on the demand for labour. The labour demand had been lower before because of the cultivation of single/double crops before. Labourers used to remain idle before due to limited employment opportunities. ✧ Increased number of tubewells in the area has directly created some employment opportunities for the labourers. Each DTW creates directly employment for three labourers, whereas STW creates for one. ✧ More employment has been created due to the cultivation of triple crops. Labourers are now earning both in cash and kind together. ii. Migration in and out ✧ The area faces labour shortage for cultivation during the following periods: - the transplantation and harvesting periods of *boro* - transplantation and harvesting periods of *aman* - sowing and harvesting period of potato ✧ Labourers migrate-in in the area during the above season. They usually flock from neighbouring districts/upazila, namely Rangpur, Gaibandha, Gobindaganj **5.3 Hardship and drudgery** ✧ All sorts of employment has increased at present. Employment opportunities were limited before. It used to take much longer time for tillage by animal draft power before compared to that by power tiller nowadays. Tilling of one *bigha* of land takes as much longer time as one month and a half for six times tilling. Power tiller can till the same land within the space of eight days. Although employment has increased, hardship and drudgery have been reduced to a significant degree. iii. Food security and poverty ✧ Close to 80 per cent of villagers can meet their food requirement by cultivating land now compared to 40/45 per cent before. ✧ The spell of poverty has been less now than it was before.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
5. Impacts (Contd.)	**5.4 Women** i. Employment ✧ Employment opportunities for women particularly vulnerable/handi-capped women has increased over time. The areas of employment for women created over time in the following areas. - harvesting of potato - threshing of paddy - drying of paddy ii. Wage ✧ Their income has risen. They will invariably get meals if they are employed [in addition to wage]. This implies that their survival has now become secure. **5.5 Social harmony** ✧ Social chaos and conflict have worsened over the last 10-12 years mainly due to irrigation. This can be dealt with if rules and norms are observed and command area-related problems can be solved.
B. Fertilizers 1. Procurement of Fertilizers	i. Source of procurement ✧ Farmers mostly procure fertilizers from nearby markets, namely Matrai and Shamsira (Union-level market place). Supply of fertilizes to local markets is controlled by traders at Kalai upazila. ii. Availability ✧ Fertilizers are available now, but its prices are higher. iii. Mode of purchase ✧ Farmers buy fertilizers mostly on credit. iv. Intensity of application ✧ Zinc is not applied by the farmers, although it contributes to the soil health. ✧ Farmers mostly use urea, phosphatic and potassic fertilizers. ✧ Gypsum is used mostly by farmers who cultivate tenanted land. [It is believed that] Gypsum causes paddy yield to rise by extracting the vitality of the soil but it reduces soil fertility. ✧ The quantum of doses has increased over time from say 10 kg to 20 kg because soil fertility has declined. Fertilizers are found not so effective now as it was before.
3. Price of Fertilizers	✧ Phosphatic (TSP) and potassic (MP) fertilizers are costly and they retail at Tk. 600-700 per 50 kg and Tk. 500 per 50 kg respectively. It used to be sold at in the range of Tk. 200 - Tk. 300 before. ✧ Urea sells at Tk. 300 per 50 kg now which it sold at Tk. 232 per 50 kg in middle of the nineties.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
4. Fraudulent Practices of Fertilizer Traders	i. Adulterated/counterfeit fertilizers ✧ Adulterated fertilizers are now being marketed by the traders. White fertilizer (urea) is mixed with salt. Low cost Indian TSP (Tk. 300 per 50 kg) is used as a material to adulterate pure one which sells at Tk. 700 per bag. ✧ Using adulterated fertilizers damages soil fertility causing both farmers and the country losses. ii. Selling low-weighed fertilizer bag ✧ Fertilizers usually sell in 50 kg standard bag. But when weighed by farmers themselves, less fertilizers are found in the bag weighing in the range of 40-45 kg.
5. Smuggling	Phosphatic fertilizer (in powder form) is usually smuggled in from India which costs lower at Tk. 250 [per 50 kg] compared to the Bangladesh TSP selling at Tk. 600/50 kg. The smuggled TSP is substandard and farmers suffer who use it. Last year (1999), farmers lost potato who applied it.
6. Privatization of Fertilizer Distribution	The adulteration and fake practices in the fertilizer market has been rampant now. Where government control has been withdrawn fraudulent practices have become more widespread there. Quality of fertilizer is alright when the government exercises its control.
7. Subsidy	Farmers of all categories (large, medium, small and marginal) had benefited before from subsidized phosphatic and potassic fertilizers. Those who cultivated more, benefited more.
8. Remedial Measures	The government must take action in the following ways: ✧ Ensure that the exporters supply quality goods. ✧ Form vigilance teams to see that nobody can commit such crime (adulteration).
C. Credit 1. Demand For Credit	✧ The demand for credit has risen over time for various reasons such as buying irrigation equipment (STW, DTW), meeting tilling expenses, buying agri-inputs, etc. The growing potato cultivation has been an important factor for the increased demand for credit nowadays.
2. Availability of Credit	i. Timeliness ✧ Credit is not available in time. ✧ It takes two months for getting credit from bank ii. Adequacy ✧ Credit is not available adequately. Say Tk. 10,000 is available if the demand is Tk. 20,000. Credit is not provided according to the amount applied for.
3. Lending Procedure	✧ The lending procedure has become more difficult [bureaucratic] over time because credit is not available in time and it is not provided adequately.
4. Corruption	✧ Borrowers are required to offer bribe for getting credit from bank. Currently, bribe is offered at the rate: Tk. 100/200 per Tk. 1,000 of bank credit

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1): Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
5. Sources of Credit	i. Formal source ✧ Farmers usually get credit from Rajshahi Krishi Unnayan Bank, Kalai Branch for buying various agri-inputs. ii. Informal sources ✧ Moneylenders also provide credit to farmers. Its advantage is that it is easily available but farmers have to suffer losses. Farmers have to repay 1.5 maunds of paddy after the season [3-4 months] if he borrows 1 maund of paddy. If he borrows in cash, he has to repay Tk. 1,500 after the season against the borrowing of Tk. 1,000.
6. Period of Accessibility of Credit	✧ Bank credit has been accessible to the farmers for about 12 [sic] years in the area since 1984.
7. Beneficiaries of Bank Credit	✧ The number of borrowers has markedly increased over time.
D. Profitability of HYV *Boro*	i. Profit margin ✧ Farmers are getting lower profit at present compared to that before because price of the produce has increased at a rate not as high as the cost of production over the period. Both the price of the produce and the cost of production had been lower before. Although product price is remunerative now, the yield has been declining over time. ii. Cost of production ✧ Cost of production has escalated over time. The application of fertilizers has risen and pesticides are being applied extensively now. Pesticides/herbicides are used at various stages of the cultivation for weeding at the growing stage, for killing predators at the ripening stage etc. iii. Yield ✧ At present farmers get 20 maunds [of *boro* paddy] per *bigha* compared to 14 maunds before. There has been no yield growth for *aman* with regard to BR11 [*aman*]. Farmers have sustained loss this year [1999].
E. Public Domestic Procurement	i. Farmers' awareness of the programme ✧ The government makes public announcement about the procurement of foodgrains through loudspeaker in the area. The announcement is made before the harvesting season starts. ii. Buyers of farmers' produces ✧ Farmers sell their produces at the open market. iii. Procurement price ✧ The procurement price is found higher compared to the market price in harvesting season but it gradually turns lower subsequently.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
E. Public Domestic Procurement (Contd.)	iv. Beneficiaries of the procurement programme ✧ Farmers cannot avail themselves of the benefit. They cannot sell their produces at the procurement centre because of the corruption of the officials of the purchase centre. Officials of the purchase centre are reluctant to buy from the farmers even though their produces are of higher quality. They buy from dealers [millers] even their produces are not up to the mark. Corruption is on there. Farmers would have benefited from the programme if they could have sold produces there in the harvesting season [when market price is lower]. v. Remedial measures ✧ The government has to take measures to curb the corruption.
F. Pesticides	i. Availability ✧ Pesticides are now available everywhere. ii. Intensity of use ✧ Pesticides were not used before but they are being used widely by farmers at present. Farmers have to apply pesticides four times [round the crop cycle]. There had been no pest attack before but now the problem has been worsening now. iii. Fraudulent practices by traders ✧ Adulteration: Adulterated and fake pesticides retail at the market which are not effective in killing pests/predators. Fake/adulterated pesticides are bottled in thrown-out bottles for retailing. ✧ Farmers cannot distinguish between adulterated/fake pesticides and pure ones. [They are cheated]. They can realize it only after it have been applied. iv. Price ✧ Prices of pesticides have risen over time. v. Impact ✧ Soil fertility has declined. ✧ Bio-diversity is affected. It kill frogs, snakes, fish; fish gets diseased, etc. ✧ Pest attack has been intensified. ✧ Increased use of fertilizers, irrigation water and pesticides are the contributing factors for the above mentioned negative impacts. vi. Remedial measures ✧ The government should take measures to check adulteration/fake practices. ✧ Impart training to farmers.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D1):Position of Non-poor Farmers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
G. Environment	i. Water table ✧ The water table drops during the dry season every year. The availability of groundwater has declined. Water table is measured several times by farmers during the dry season every year. Water table lies at a depth of 20 feet at the beginning of the season, and it declines to 25 feet in the middle of the season and it drops further towards the end of the season when lifting of water comes to a halt. ii. Remedial measures ✧ Irrigation scheme [command area] needs to be restored because the multiplicity of DTWs and STWs at a closer distance is doing much disservice [to the people around].

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(D2):Position of Non-poor Farmers*
Village: Dehergati (M), Barisal

Issues	Group Responses
The Key Questions: During the last two decades, the government has implemented a number of policies and programmes for the development of Bangladesh agriculture and the people. What important changes have been brought about by those policy measures particularly in the fields of irrigation, fertilizers, pesticides, public domestic food procurement and credit with focus on procurement, distribution, availability, accessibility, price, quality etc.? What are the impacts of those measures on poverty, food security, environment and gender?	
A. Irrigation 1. Equipment	i. Expectation ✧ Farmers expect to buy irrigation machines. With the machine, cultivation can be done as and when needed and irrigation water can be sold as well. ii. Access to bank credit ✧ Farmers tried to avail themselves of bank credit, borrowing from bank, however, entails problems such as - lack of adequate security - bribe to be offered - hassles ✧ The procedural complexities facing the borrower remain unchanged. Bank loan has not been easily accessible. ✧ Small and marginal farmers face the following problems while trying to borrow from bank: - lack of land to offer as security - recommendation by the UP chairman - submission of various documents - hassle ✧ The accessibility of bank credit to small and marginal farmers has not eased over the last 10-12 years. iii. Import liberalization/withdrawal of restrictions (eg standardization requirement) Advantages ✧ The decision has been in the right direction. ✧ Anybody may become equipment owner now. ✧ Equipment has been more available nowadays ✧ Machines retail at lower prices ✧ All sorts of spares are available now ✧ Prices of spares have gone down Disadvantages ✧ Substandard machines are being imported. Machines become unserviceable within short span of time. ✧ The poor have not gained whatsoever from it. ✧ The quality of spares are poor. iv. Contrast between the earlier rental system and the present private ownership The rental system under BADC Advantages ✧ Operators used to be engaged by BADC ✧ Repairing responsibilities lay with BADC

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D2):Position of Non-poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
1. Equipment (Contd.)	iv. Contrast between the earlier rental system and the present private ownership (contd.) Disadvantages ✧ Subsequently, the services provided by BADC declined. ✧ BADC could not provide machines to meet the demand for the machine Beneficiaries All categories of farmers benefited from the previous system. The private system Advantages ✧ Machines are adequately available now. ✧ Repairing of the machine is possible within short time. ✧ As it is his property, the machine is properly taken care of by its owner now. ✧ All responsibilities now rest with the block manager. Disadvantages ✧ Farmers are compelled to buy substandard machines. ✧ Spares have also been of poor quality. ✧ But the capacity of the machine has been low because the machine is substandard. ✧ In view of the above, the present system is better.
2. Irrigation Service	i. Problems ✧ Sometimes irrigation is hampered for lack of canal water. ✧ The problem has worsened over time because of the overdue canal re-excavation program in the area. ✧ Not withstanding an ample area of unirrigated land along the canal, irrigation is also hampered for lack of pumps in the potentially accessible land along the canal. ✧ All the pumps have been rented out from the office (DAE) and no more is available from there. ✧ There is no capable entrepreneur to buy pump in the area. ii. Siting ✧ The equipment has been installed at the appropriate site. iii. Irrigation charge ✧ Irrigation charge is lower now compared to that before. Irrigators have to pay in kind equivalent to $3/16^{th}$ of the produce grown in the irrigated land. ✧ Competition [among the pump owners/managers] has contributed to this reduction of the charges. ✧ The present practice of paying irrigation charge in kind is convenient for the farmers. iv. Beneficiaries ✧ Poor and non-poor irrigators alike can benefit provided the canal has enough water. ✧ All categories of farmers have land within the command area. v. Quality of irrigation service ✧ In terms of timeliness and adequacy, farmers of the command area do not encounter any problem if there is enough water in the canal.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D2):Position of Non-poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
2. Irrigation Service (Contd.)	vi. Contrast between the system under BADC and that under the present ✧ Irrigation service was adequate [within the command area] but the machines had been in short supply before. Farmers had to solely depend on BADC but farmers have lower degree of dependence now. ✧ Technical capability of the block manager has been enhanced. ✧ Irrigation charge has declined. ✧ Irrigation services have increased [quality]. vii. Accessibility of irrigation service ✧ Since the irrigation is sourced from canal water, only lands along the canal can be irrigated. ✧ Irrigation water cannot be conveyed to the upland plots. ✧ Plots lying at the farthest distance from the pump cannot be irrigated properly. viii. Water distribution channels ✧ Earth drains/furrows are constraints on the water distribution within the command area. ix. Farmers cooperation ✧ Although the block manager assume all the responsibilities, farmers cooperate with the manager in constructing drains/furrows, looking after the pump, etc.
3. Impact	i. Cropping pattern ✧ Cropping pattern has undergone changes over time. Cultivation of *aus*, oilseeds (sesame, linseed), pulses, fruits, etc has declined after the irrigation-based cultivation began in the area. ii. Food security ✧ Only ten percent households can produce foodgrains to meet their consumption requirement. The number of deficit households is on decrease. iii. Demand for labour ✧ Agricultural worker is available but the area experiences slight shortage during *boro* period. ✧ The demand for agri-labourers has increased to some extent in the area. iv. Poverty ✧ The rich have grown richer and the poor have made some progress. v. Women ✧ The employment opportunities for women have been created. vi. Corruption ✧ Bank officials are involved in corrupt practices regarding lending operations and it is growing. vii. Social conflicts ✧ There has been no conflict over irrigation issues here. ✧ Social conflict is declining with the expansion of employment opportunities.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D2):Position of Non-poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
4. Recommen-dations	✧ Mobilize more rental pumps. ✧ Rent irrigation pumps at easier terms for poor farmers. ✧ Total restriction on the import is not desirable. ✧ There should have been partial restriction. Quality spares should be allowed for import. ✧ Impose restriction on the import of some spares. ✧ Take measures against the marketing of substandard spares.
B Fertilizers 1. Procurement of Fertilizer by Farmers	✧ Farmers procure fertilizers at local markets, namely Rahamatpur and Gutta. ✧ They buy fertilizers in cash and/or on credit
2. Availability	✧ Fertilizers are adequately available on local market during cropping seasons. ✧ The availability of fertilizers has increased and the market is stable here now. ✧ Both supply and its stability have improved during the last 10-12 years.
3. Price	✧ Fertilizers cannot be procured at fair price. ✧ Prices fluctuate more nowadays. Price stability for all sorts of fertilizers has declined over time.
4. Import liberalization [since 1992]	✧ The supply of fertilizers has increased and the market has been stable in the area. ✧ Farmers can procure fertilizers as much as they need. ✧ Fertilizer traders can import fertilizers as and when need arises. ✧ Farmers can procure fertilizer at lower price but the traders charge higher price when its demand surges. ✧ Poor farmers are more affected due to price fluctuation because they cannot afford to buy fertilizers at higher price for lack of capital.
5. Quality of Fertilizers	Adulteration What type of fertilizer(s) and how? ✧ Adulterated fertilizers retails on the market. ✧ Substandard SSP is being marketed. ✧ Substandard SSP is mixed with TSP and adulterated TSP has been onto the market. Who are involved? ✧ Fertilizer traders are involved in this fraudulent practice. Causes of the problem ✧ There is no provision to check adulteration now. BADC had measures to check it. Trend ✧ Adulteration and fake practices have escalated under the privatized system. Impact ✧ Farmers at large are affected but poor farmers are worse affected. Both soil health and crops are damaged. ii. Measures to check it ✧ Exercise the [government] control because it is essential now. ✧ Take appropriate punitive measures against both suppliers and manufacturers of adulterated fertilizers.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D2):Position of Non-poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
6. Privatized Distribution System	✧ It has caused competition among traders and they seek to control market through competition. ✧ The possibility of monopolizing the market is minimum. ✧ The availability of fertilizers has been easier but at the cost of higher price and quality (adulteration).
7. Application of Fertilizers	✧ The use of fertilizer has increased many fold [compared to the earlier days]. ✧ Well-off farmers apply it more. ✧ Gypsum and zink are used as well. Gypsum is used to treat the salinity problem.
8. Withdrawal of subsidy	✧ All categories of farmers benefited from it because fertilizers were cheaper. ✧ As prices have increased, farmers use less fertilizers [in the recent past]. ✧ In contrast to urea, the use of other types of fertilizers has been lower. ✧ With the current tendency to use higher dose of urea, lower price of urea gives farmers impetus to apply it more. ✧ The higher urea price [if set in line with the international price level] would have left everything in a mess. ✧ Farmers would have been worse affected if the price of urea was set at the level of international price.
9. Smuggling	✧ This area has not witnessed smuggling. ✧ There had been no smuggling under BADC but corruption and smuggling have erupted in the private sector. ✧ Smuggling is a contributory factor to adulteration.
C. Credit 1. Demand for Credit	✧ The demand for credit is rising because farmers cannot mobilize enough fund out of income from their produces.
2. Accessibility of Credit	✧ The accessibility of institutional credit [bank] has not increased during the last 10-12 years. ✧ As regards the institutional credit, the complexities involved in the lending procedure persist. ✧ However, the accessibility of credit from other sources has increased. The credit from NGOs has been easier now. ✧ The major sources of credit in the area are Grameen Bank, ASA and PROSHIKA. ✧ Although NGOs lend for some other purposes, borrowers use the credit for cultivation. ✧ The use of credit has expanded.
D. Profitability of HYV *Boro*	✧ Having taken account of all costs and revenue, HYV *boro* cultivation is profitable. But the price of the paddy varies over time. ✧ The yield has increased because of improved variety of seeds and increased application of fertilizers. ✧ Farmers cannot make profit every year. ✧ *Boro* cultivation was profitable before as well because of higher fertility of the soil and lower input prices
E. Public Domestic Procurement	✧ Farmers become informed about the program by radio ✧ Farmers have not benefited from the program.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(D2):Position of Non-poor Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
F. Pesticides 1. Application	✧ It is being used extensively in HYV *boro* ✧ Large farmers apply it more. Small farmers apply it less because they cannot afford it. ✧ Its use has risen because pest attack has been intensified.
2. Availability	✧ Pesticides are easily available now. ✧ Its supply has been stable.
3. Price	✧ Prices of pesticides have soared. ✧ It shows high degree of fluctuation nowadays than it did before.
4. Quality	✧ The quality of pesticides was better before. ✧ Adulteration has been worse for the last five years. ✧ Its effectiveness is very low/it cannot kill predators. ✧ With numerous varieties on the market, farmers get confused to identify genuine pesticides and the fake ones on the market.
5. Extension Knowledge	✧ Farmers came to know how to apply it from Integrated Pest Management (IPM) training [held at the horticulture centre — an office of DAE]
6. Impact	✧ The fertility of the soil has markedly declined. ✧ The incidence of fish mortality and its disease has increased. ✧ Pest scourge has been intensified. ✧ The air has been polluted.
7. Recommen-dation	Provide sprayers, pest catching nets, etc.
G. Environment 1. Impact	Use of modern technology has had negative impact on the environment in various ways: <u>Soil</u> ✧ The soil fertility has declined. ✧ The soil has been affected by worsening trend of hardness and salinity. ✧ The soil lacks in nutrients. <u>Water</u> ✧ Water has been polluted. <u>Fishery</u> ✧ The incidence of fish mortality and its disease has increased.
2. Remedial measures	✧ Ban the marketing of all types of harmful pesticides. ✧ Apply organic manure in conjunction with chemical fertilizers.

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(E1):Position of Poor Female Farmers*
Village: Dehergati (M), Barisal

Issues	Group Responses
The Key Questions: During the last two decades, the government has implemented a number of policies and programmes for the development of Bangladesh agriculture and the people. What important changes have been brought about by those policy measures particularly in the fields of irrigation, fertilizers, pesticides, public domestic food procurement and credit with focus on procurement, distribution, availability, accessibility, price, quality etc.? What are the impacts of those measures on poverty, food security, environment and gender?	
A. Irrigation 1. Affordability of the Pump	Irrigation has now become accessible by poor farmers. Anybody can buy a pump at the market. Now many farmers are buying irrigation pump by taking bank loan resulting in increased accessibility of irrigation facilities by the poor.
2. Accessibility of Irrigation Service	Irrigation water is now easily available. As the number of fielded pumps has multiplied, irrigation charge has been lower and its mode of payment has also been convenient for farmers. Irrigation charge is currently paid in kind after harvesting.
3. Quality of Irrigation Service	There is not much of uncertainty about the accessibility of irrigation service in the area. Pump owners are more caring about their own pumps and they can now repair their pumps either by themselves or get it repaired instantly by mechanics. Previously, both pumps and its mechanics had been in short supply. But now there is no shortage of machine and mechanics in the area. Thus everybody has gained access to irrigation service at present. The present system is therefore better.
4. Irrigation Coverage	The irrigation coverage has expanded in the area compared to that before. This expansion is due to various factors. Population have increased resulting in higher demand for food. Besides, farmers have already gained enough experience about HYV *boro* cultivation.
B. Fertilizer 1. Availability of Fertilizer	Fertilizers can be procured easily now. Fertilizer shops are found everywhere. There are several fertilizer sellers even in the village.
2. Price of Fertilizer	Prices of fertilizers were lower before. But prices of all types of fertilizers have increased over time.
3. Trend in Application of Fertilizers by the Poor	The application of fertilizers have shown an increasing tendency. As the fertility of the soil has declined, all farmers have stepped up the application of fertilizers in order to increase the yield.
4. Uncertainty about the Availability of Fertilizer	There is no uncertainty about the availability now because fertilizer shops are everywhere. Anybody can procure it anytime as much as needed if he/she has enough money.
5. Quality of Fertilizers	The adulteration of fertilizers has sprung up as a problem under the privatized marketing system. The problem of adulteration is true for all sorts of fertilizers. There had been no such problem before. Quality fertilizers are also on the market, but one has to be careful while buying fertilizers. There are both standard and substandard goods on the market.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(E1):Position of Poor Female Farmers
Village: Dehergati (M), Barisal

Issues	Group Responses
C. Profitability of Agricultural Produces	Returns have increased now, although costs have also increased in prallel. The yield of HYV *boro* has risen but the prices of agri-inputs have also gone up. But the cost increase has been higher than the increase in yield.
D. Credit 1. Demand for Credit	The demand for credit has gone up. Female farmers needed credit for rearing fowls, ducks, cultivating vegetables etc.
2. Accessibility of Institutional Credit	Bank loan entails a lot of hassles. Poor female farmers usually borrow from NGOs through client groups.

Note: *⇒ Based on a focus group discussion.

STAKEHOLDER PERSPECTIVES

6.18 (F): Position of a Wide Cross-section of Farmers*
Village: Dehergati (East), Barisal [lowest irrigation coverage]

Issues	
Key Questions: A. Why has the village so limited irrigation coverage	
A. Agro-climatic and Geophysical Factors 1. Canal has been Silted Up	Once there flowed in water through the canal. The canal has been silted up. The area had immense opportunities of irrigation that time. But the demand for irrigation was less. The villagers had less experience about block cultivation [seed-irrigation-fertilizer technology]. This is why there was no block-cultivation before. The population in the area have multiplied and people are cognizant about the modern method of cultivation nowadays. The river has water but water cannot flow in canals because the canal bed has been raised too much up to the ground level through siltation and sedimentation process. . But there is no water in the canal. The natural tidal flow of water in the canal has been blocked due to the silting up of the canal.
2. Unpredictable Agro-climatic Condition	There are large tract of cultivable land in the area remaining fallow during the dry season. Previously, farmers used to cultivate various crops such as jute, *aus*, sesame, linseed, pulses (*moong*), etc. on those fallow lands. But they no more cultivate those crops because of increased risk factors resulting from worsening unpredictability of rain fall and flooding with regard to timing and intensity. Farmers who cultivate by mobilizing capital through borrowing cannot afford to invest amid high degree of agro-climatic uncertainty in the area. Currently, the area is witnessing less rain fall due to which farmers are not cultivating *aus*. Excessive rain fall in some years also damages various crops such as pulses. Now jute is not grown here because, it involves high production cost and lower jute price. Secondly, the fallow lands constitute high lands and it is very difficult to convey water to those areas.
3. Unutilization of Groundwater	There has not been any effort before to harness the groundwater resources. As in north-western Bangladesh, DTW can be drilled to tap groundwater for irrigation purposes in the area. However, it is not possible for an individual to undertake such a huge investment involved in it.
B. Affordability and Availability 4. High Irrigation Charge	Farmers are cultivating *boro* to a limited extent in the area. The *boro* crop is based on the limited inflow of canal water accessible in the area. Irrigation pumps deployed for irrigating land have been procured in two ways — some from rental market managed by agriculture office (DAE) and others are privately owned. Motivated by business drive, some villagers have been engaged in selling irrigation water at the village. Currently they are charging at the rate of Tk. 50 per hour.
5. High Tillage Charge	Tractors are being used to till the land in parallel with animal-driven ploughs. Currently, tractorized tillage cost Tk. 7 per decimal (for double tilling). The relative shares of mechanized tillage and traditional one currently stand at 50 : 50
6. Tenurial Pattern	Leasing of land is unpopular here. Sharecropping is a dominant mode of tenancy in the area.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18 (F):Position of a Wide Cross-section of Farmers
Village: Dehergati (East), Barisal [lowest irrigation coverage]

Issues	Group Responses
7. Less Availability and Higher Prices of Agri-Inputs	Agri-inputs are usually procured from the district town. They are not available locally but they sell at slightly higher prices.
C. Institutional Factors 8. Limited Access to Credit	There had been limited access to credit before. Although the accessibility of credit has increased, it is difficult for the villagers to borrow [from bank]. Poor villagers who are landless and cannot offer security are denied credit. There is no provision of credit for the poor.
Corruption	People have to offer bribe ranging from 10 percent to 20 percent of loan to bank officials/concerned persons for borrowing from bank. However, they borrow from NGOs.
9. Lackadical Institutional Role in Canal Development	In 1978-79, the canal was re-excavated under the Barisal Irrigation Project (BIP). There had been a canal re-digging program under a wheat-aided program of the Swanirvar Andolan [self-reliance movement] during the previous government. No other canal digging program has since been undertaken in the area. Union Council has not taken any measure for canal development.
10.Limited Role of Support Institutions	The role of various institutions such as BADC, DAE, etc. has been on paper only. Their activities at the field level is very minimum.
11.Corruption of the Concerned Agencies/Organizations	Canal re-excavation programs could not be successful because of poor quality of its implementation. The implementing agencies just tinkered and embezzled resources allotted for path work in the past. Therefore, the canal development did not take place.
D. Recommendations	1. Undertake canal re-excavation program. 2. Drill DTW. 3. Provide credit at soft terms.

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(G1):Position of Agricultural Labourers*
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
Key Questions: What changes the agricultural workers have witnessed in the case of employment opportunities, mode of labour contract, wage rate, price of rice and intensity of work over last 10-12 years?	
1. Contract with Whom	Contract with individual worker versus worker groups: Agricultural workers are engaged by employing farmers usually in two ways. Workers may enter into wage contract with their employers either individually or in group. The old practice of making contract with an individual labour is declining in the area. Nowadays, agricultural workers are increasingly being employed by employing farmers on group basis. Agricultural workers first form a group of varying numbers say 5, 7, 10, 12. The practice of making contract with a group of agri-labourers is emerging in the area for the following reasons. Workers prefer group-based contract because it fetches them higher wage rate per day. Besides, they can take larger volume of work which assures them employment for a fairly longer time. Employers also prefer this type of contract because they feel unworried if they can contract out the work to a group of workers in the face of labour shortage in the peak periods in the area. Moreover, it is more likely that the work would be completed fairly earlier compared to the other way round.
2. Contract about How and What	Work-based versus day-based contract: Traditionally, agricultural workers are engaged as day labourers on a fixed wage rate basis per day. But this practice is gradually being replaced by an emerging mode of labour contract which is based on a specific work against a lum sum of wages, no matter whether the job is done earlier or later. Employers have to pay a fairly higher rate for this type of contract primarily because they do not need to worry about the shortage of workers amid labour shortage condition in peak periods. Another important benefit accruing to the employers is that the whole work under this contract gets completed much earlier than under the other way round. In the case of day-based contract, there is every likelihood to take a bit longer time to finish the job on the part of the workers. However, as far as the quality of work is concerned, work-based labour contract is worse than day-based contract. The faster rate of task completion is found to be the main attraction of the work-based contract in the area. Workers also prefer it because of the possibility of getting continuous employment, higher wage rate and higher freedom for working on their own responsibility. They seek to finish the job earlier by intensifying their work for some respite.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(G1):Position of Agricultural Labourers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
3. Intensity of Work	The emerging modes of work-based and group-based labour contract are accompanied by a higher degree of work intensity facing the agricultural labourers. They have to deliver the goods in exchange for a certain wage package which, in turn, exerts group pressure on them to intensify their work in terms of work per unit of time for completing the work as faster as they can. The higher intensity of work, however, fetches them higher wage during the peak periods. They, on the other hand, face lower intensity of work in the case of day-based labour contract which offers them much lower wage during the same peak time.
4. Price Trend of Coarse Rice	The price behaviour of coarse rice is highly correlated with the two major paddy crops in the area, namely HYV *boro* and HYV *aman*. Price slumps during the harvesting and immediately post-harvesting periods of those crops. The price of coarse rice stood at Tk. 10 and Tk. 11/12 per kg, the lowest levels during the harvesting and post-harvesting days of those crops respectively last year. The price thereafter registered gradual upturn to post at Tk. 12 and Tk. 14 per kg immediately before the harvesting periods of those crops respectively. The price peaks and troughs for *boro* crop are a bit lower compared to those for *aman* because of larger volume of production of the former than that of the latter during the recent years. The price of coarse rice also behaves in the same pattern now as it used to do before 10-12 years with price peak of Tk. 10/11 per kg in pre-*aman* harvest and thereafter falling to hover around Tk. 5/6 per kg with some upturn until *boro* harvest followed by another trough in *boro* harvest. Price again starts to rising to the highest peak just before *aman* harvest and this changes used to be repeated in cyclical order.
5. Length of Employment	Total length of employment has increased over time albeit with varying number of days in different months and seasons (Data Box ..). Wage employment is mostly concentrated around the harvesting periods of *boro* and *aman* . The longest spell of unemployment is faced during the pre-harvest months (one month and a half) of *aman* and there has been no change in this period over time.
6. Nominal Wage	Wage rate has increased over time from a range of Tk. 10-20 per day to Tk. 30/50 per day before to a range of Tk. 20/30 per day to Tk. 50/60 per day at present (Data Box 6.10.1 and Table 6.10.6). Wage rate hits the peaks in the harvesting periods of *boro* and *aman* and it touches the bottoms in the pre-harvest periods of *boro* and *aman* and this pattern remains almost unchanged over the period. Wage rate also differs depending on the nature of the labour contract. The wage rate for group-based labour contract currently stands at Tk. 69 during *boro* harvesting period compared to Tk. 50/day for individual contract on daily basis, a difference of 38 percent between them.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(G1):Position of Agricultural Labourers
Village: Sailgun (SW), Joypurhat

Issues	Group Responses
7. Real Wage	Although nominal wage has risen markedly over time, the real wage has remained almost unchanged. For example, during *boro* harvesting period, agricultural workers earn a sum of wage that can purchase around 5 kgs of rice daily (wage rate: Tk. 50-69/day, rice price: Tk. 10/kg) at present compared to the same quantity of rice 10-12 years before (wage rate: Tk. 30-35/day; rice price: Tk. 5-6/kg). Although real wage in terms of rice price has remained unchanged, prices of other necessaries has climbed up over the same period causing much distress to them. Additionally, agricultural workers have been at disadvantage in another way — their work intensity has gone up but their real wage has not.

Note: * ⇒ Based on a focus group discussion

STAKEHOLDER PERSPECTIVES

6.18(G2):Position of Agricultural Labourers*
Village: Dehergati (M), Barisal

Issues	Group Responses
Key Questions: What changes the agricultural workers have witnessed in the case of employment opportunities, mode of labour contract, wage rate, price of rice and intensity of work over last 10-12 years?	
A. Employment-Related 1. Employment Opportunities Round the Year	✧ Employment opportunities are immense during HYV *boro* and *aman* periods. During *Aus* season, employment opportunities are less. By and large, workers find employment round the year.
2. Child Labour and Female Workers	✧ Female workers sell wage labour mainly at other's farms. Children work during the peak seasons. Children get involved in transplanting work, plantation of betel-leaves etc.
3. Seasonal Employment	✧ Many of them migrate to the town for seeking employment. Some migrate to other villages as well.
4. Self-employment	✧ They expect to be engaged in self-employment. They need support from the government and other organizations for credit facilities and other cooperation.
5. Wage Rate	✧ Wage rate has increased over time but their purchasing capacity in terms of rice has not. The present wage rate stands at Tk. 50 to 60 and one meal (optional) a day which was around Tk. 30-40 before (during peak times). ✧ Wage rate has increased owing to higher labour demand during *boro* period.
6. Mechanization of Agriculture	✧ Agricultural workers are being affected by the mechanized method of cultivation. When tillage used to be performed by animal draft power a worker would earn Tk. 100 a day. But now that opportunity is missing. ✧ The demand for wage labour has dropped due to the use of tractor in the area. Thus the demand for labour has gone down.
B. Poverty-Related 1. Coping Mechanisms During Slack Seasons	✧ Agricultural workers cope the seasonal unemployment in various ways. They have to remain starved; out-migrate to town areas or other areas.
2. Causes of Borrowing	Worker usually borrow for buying food and for undertaking some income-generating activities.
3. Sources of Credit	They borrow mainly from NGOs, namely Grameen Bank, ASA, PROSHIKA, BRAC etc. They also take loan from individuals (such as those who have salaried job) at a certain interest rate.
4. Access to Bank Credit and Corruption	Bank loan has not been accessible to labourers. Borrowing from bank (BKB) involves various expenses. One has to offer bribe to bank officials for getting bank loan. Besides, it involves a lot of hassles and time. Workers do not have enough time to waste at bank premises. Getting to the bank means a worker has to lose employment that day. Workers cannot afford that time. Above all, workers have no land required to be offered to the bank as security. That is why they are denied bank loan. Bank loan is for those who have land and not for those who have not.

(Contd.)

STAKEHOLDER PERSPECTIVES (Contd.)

6.18(G2):Position of Agricultural Labourers
Village: Dehergati (M), Barisal

Issues	Group Responses
5. Repayment of Credit	Sometimes money is not spent for the purpose which it is borrowed for owing to various crises factors. They have to borrow again from other sources to repay the previous loan.
6. Benefit from Poverty Alleviation Programs of the Government	They benefit from the VGD program, but the number of the beneficiaries is negligible.

Note: * ⇒ Based on a focus group discussion.

STAKEHOLDER PERSPECTIVES

6.18(H): Position of Female Agricultural Labourers*
Village: Dehergati (M), Barisal

Issues	Group Responses
Key Questions: What changes the agricultural workers have witnessed in the case of employment opportunities, mode of labour contract, wage rate, price of rice and intensity of work over last 10-12 years?	
A. Employment-related 1. Employment Opportunities Round the Year	✧ Employment is not available round the year. ✧ There are two peak months for wage employment in the area — May/June (*boro* harvest) and December/January (*aman* harvest). Besides, employment is available in the months of paddy transplantation. There is no employment in other times.
2. Child Labour	Children have been on the labour market. In addition to this, they assist female workers in various ways such as in gathering activities, drying rice straw, parboiling paddy, transplanting paddy plants etc.
3. Seasonal Out-migration for Employment	They do not usually migrate out for employment.
4. Self-employment	Borrowing from various NGOs, they generate self-employment to a limited scale such as poultry and duckery.
5. Wage Rate	✧ Wage level has increased owing to employment opportunities created over time in the area. However, the present wage can hardly buy the same volume of rice as it could do before. ✧ The increase in employment opportunities is attributed to 'Block cultivation' [HYV *boro*] which, in tern, has had positive impact on their wage rate.
6. Mechanization of Agriculture	Agriculture has not yet been mechanized completely. Threshing, winnowing of paddy are still performed manually.
B. Poverty-related 1. Copping Mechanisms during Slack Seasons	Workers resort to various mechanisms to cope with unemployment during the slack seasons such as dissaving, gratuitous help of the villagers, credit from NGOs etc.
2. Causes of borrowing	They borrow mainly for buying food and undertaking activities for self-employment.
3. Sources of Credit	They borrow from various NGOs working in the area such as Grameen Bank, BRAC.
4. Repayment of Credit	Female workers face difficulties in repaying credit due to poverty. Usually they repay through saving from wage employment, and duckery and poultry.
5. Benefit from Poverty Alleviation Programs of the Government	They benefit from VGD program.

Note: * ⇒ Based on a focus group discussion

7. Summary, Conclusions And Recommendations

A set of recommendations based on the study findings have been provided sector wise in the following sections:

7.1 Trade and Industry

7.1.1 Findings

The findings in response to each of the hypothesis can be summarized as in the following (see Table 7.1.1).

Table 7.1.1: Summary of Field Findings & the Voice of the People

Hypotheses	Field Findings	Voice of the People
• Trade liberalization has been fast in Bangladesh	♦ All of the participants of FGDs & interviews except some of the policy makers are in conformity with the hypothesis that Bangladesh has liberalized its trade regime quite fast (e.g., The maximum tariff rate was reduced from 350% in 1990-91 to 37.5% in 1999-00).	▪ 'It is necessary to prepare the economy and the society before making any policy change. By preparation I mean to make necessary changes in social condition, working culture, technological preparedness, skilled workforce, access to capital market, administrative and judicial reform etc. Bangladesh has liberalized its trade regime without such preparation.' – *An Entrepreneur.*
• Domestic markets are now flooded with foreign goods		
• Local manufacturing industries have been hurt by trade liberalization	♦ Most of the participants opined that local manufacturing industries, particularly the small and cottage industries (e.g., small engineering enterprises, rural industries, bakery & biscuit factories etc.) have been hurt by the flooding of foreign goods into the local markets.	▪ *'Due to liberalization without preparing industrial base in the country, many finished products are now coming into the local markets which our entrepreneurs can produce. As a result many small industries (e.g., khadi of Comilla) are being wiped out. Our producers could produce good quality biscuits, however, biscuits are being imported and consequently, many of the local biscuit industries are being forced to close down.'* – An Entrepreneur.

(Table Contd.)

Table 7.1.1 (Contd.)

Hypotheses	Field Findings	Voice of the People
• Export of few items has increased	♦ Export of ready made garments has increased substantially, however, garments manufacturing industries are largely depended on imported raw materials. ♦ Very little has been done to create favourable environment (business support services, business environment, law and order, efficient bureaucracy etc.) for investment and consequently export oriented industries has not grown much.	▪ *'As a small country, we should have been able to expand our export-oriented industries. But the government has not been able to provide necessary support for investment. Ministry of Industry is not doing anything substantial for industrial development in the country. Government should have taken initiative to popularize our indigenous products (e.g., organic food product like khoi-muri-chira-gur etc.) in the international market which didn't happen. As a result we are falling behind in export.'* – An Entrepreneur.
• Level of employment has been adversely affected by trade liberalization	▪ As the local manufacturing industries, particularly the small and cottage industries have been adversely affected by trade liberalization, level of industrial employment and self employment opportunities have also been adversely affected (e.g., AB Biscuit Factory is now closed for last eight years where there were 100 labourers of which 80 were female).	▪ *We are now unemployed. We have tried hard but nobody is willing to provide us with employment at this age. Even when they come to know that we were workers of a closed industry, then they think that we are not good workers. We also do not find any self-employment opportunity, which we can carry on'.* – A Worker of AB Biscuit Factory of Tongi.
• Consumers satisfaction has increased	♦ Consumers now have plenty of choices (various household goods) in competitive prices. ♦ However, consumers have expressed concern over the quality of many imported items (e.g., food items).	▪ *'We can now have many foreign goods cheaply. But government should take care of our own industries as well'.* – A Rural Consumer
• Poverty situation has not improved	♦ The workers, who have lost their jobs due to closing down of industrial units, hardly get any other alternative employment and consequently their economic conditions get worse (e.g., workers of General Food and AB Biscuit Factory at Tongi: both the factories are now closed and most of their workers are now living below poverty line). ♦ Many handloom owners of Shekher Char of Narshindi have been forced to close down their industries and turned into labourer.	▪ *'I was a labouer of AB Biscuit Industries of Tongi. The factory is now closed for last eight years. I am unemployed. I am not getting any other job and I do not find any self employment opportunity to carry on. Now I can not support educational expenses of my children. My elder daughter is a student of class VII. Her admission fee is Tk. 500 but I am unable to pay the fee. I could not send my only son to school. He is 11. He is now sent to a workshop to do something for the family. I am now in a sea.'* – A Female worker of AB Biscuit Factory.

(Table Contd.)

Table 7.1.1 (Contd.)

Hypotheses	Field Findings	Voice of the People
• The situation of women has not improved	♦ When an industrial unit retrench its worker, women become the first victims (e.g., Zenat Textile of Tongi). ♦ Female workers who have either been retrenched or lost job find themselves in a difficult situation to find an alternative income earning opportunities as compared with their male counter part.	▪ *'My husband tortured me physically after I had lost my job. He is unemployed. I have one child. I am now living in my brother's house. I have invested the money that I received but the return is insufficient to maintain my family.'* – A Female worker of a Textile of Tongi.
• Quality of environment has deteriorated	♦ To compete with the imported goods, local industries are now trying to minimize their unit cost and by doing so, they are not taking into consideration the concern of the environment ♦ The country (cities) are now flooded with the imported vehicles that pollutes the environment (e.g., two stroke engines)	*'To compete with the imported goods, entrepreneurs are less careful about the environment of the work place. There is no proper system of discharging industrial effluents in many industries. Workers have no voice in this regard as they are concerned to keep their employment sustained*.' – A Labour Leader
• Level of corruption has not reduced	♦ Many items are now imported in the name of the items which has zero import duty (e.g., computer goods) ♦ Many items are now smuggled in to the local markets in a large scale, which were banned earlier. Removal of restrictions has facilitated illegal import of those items as they can be imported legally as well.	▪ *'Corruption has not reduced. Many items are now coming into the country under the package of compute since computer items have zero tariff*' – An Entrepreneur
Process of privatization was not properly implemented	♦ Rules and regulations were not followed properly in the process of privatization.	▪ *'The process of privatization has been started mechanically in our country. Privatization has been done without solving the problems that have been created in the mills during nationalized regime. Cutting head should not be the solution of headache, rather, proper medicine should be given. Moreover, government has privatized the mill in a very cheap rate.'* – A Labour Leader

(Table Contd.)

Table 7.1.1 (Contd.)

Hypotheses	Field Findings	Voice of the People
• Privatized mills have not been able to increase efficiency after being privatized	♦ No initiative has been taken to increase efficiency in the privatized mills. ♦ Many of the privatized Jute Mills are now closed (e.g., Taj, Sonali, Ajax etc.). ♦ The mills, which are still in operation, are running well below their full capacity. ♦ Government support is inadequate.	▪ *'We do not find good intention among the mill owners to run the mills efficiently, rather, they are more interested about taking away the resources (both cash and kind) from the mills.'* – A Jute Mill Worker of Khulna.
• Privatization has made adverse impact on employment	♦ Many workers have lost their job due to retrenchment in the privatized mills. ♦ Closing down of the Mills (e.g., Sonali, Ajax and Afil Jute Mills of Khulna) have created the most damaging effects on the employment situation of the workers	▪ *I am a labourer of Sonali Jute Mill. The mill is now closed. I do not find any other work. I do rickshaw pulling sometimes, which I am not used to. I am now living a very difficult live with my family and children.* – A Labourer of Sonali Jute Mill.
• Poverty situation has deteriorated	♦ Poverty situation has worsened with regard to the lives of the workers of privatized jute mills.	▪ *'I was a mechanic of Ajax Jute Mill. I was living a reasonably good live while the mill was in operation. After the closing down of the mill, my wife gets angry with me. She went to Dhaka to work in a garment industry. She does not keep contact with me as of now. I am here with three children. I now try to do whatever gets available. I pull rickshaw sometimes, I work as day labourers sometimes, and I pull cart sometimes. I am not able to send my children to school any more. ...'*– A Mechanic of Ajax Jute Mill

7.1.2 Concluding Remarks

The study team has come up with the following conclusions with respect to trade liberalization and privatization in the country:

- Trade liberalization has not been successful in achieving its objectives of increasing competitiveness and reallocation of resources. It has however been successful in increasing consumer welfare resulting from lower import prices.
- Associated major costs of liberalization are: (i) substantial loss in market share of local manufacturing enterprises and (ii) increase in unemployment.
- Various measures of trade liberalization have been taken place in Bangladesh in a relatively short span of time. The stakeholders, who have either been benefited or affected, were not prepared to cope with the changes. Appropriate institutions were not built up and the support services were also very poor.
- Frequent changes of policies are another reason for the failure of trade liberalization in Bangladesh.
- Devaluation helps only a small section of business community. A large majority is affected.
- *The domestic markets are now flooded with foreign goods. Many of the local manufacturing industries, particularly, the small industries are severely affected due to uncontrolled liberalization.*
- Lack of business support services, infrastructure, law and order, corruption, political instability etc. are the main constraints of doing business in Bangladesh.
- For the betterment of the economy, liberalization should be controlled and other support services should be made properly available.
- Privatization has not brought any good for running the mills and the lives of the thousands of its workers, rather, it has made the workers more vulnerable.
- There are a large-scale discrepancies between the state owned and private jute mills with respect to the salaries and wages, payment schedule, etc. The employees and workers of the state owned jute mills are in a much better position as compared to their counterparts working in the privatized jute mills.

7.1.3 Recommendations

Trade Liberalization

- Without regulation from the higher authority, no policy actually works properly. We need control from the government on our business as well. Government should indicate the items and fix the amount that is allowed to import. Government should also maintain a transparent record in this regard.
- We should have control on our imports as well. We should have precise estimates of the items and the quantity that are actually needed to import from outside of the country. Import licensing should also be regulated and permission for imports of different items should also be allocated among the respective importers in an appropriate manner. Respective associations can be communicated in this respect.
- Government should adopt the same policy for both the public and the private imports of same items. At present, private imports are instructed to go through the PSI whereas the public imports are not. As a result, private importers are being discriminated against in

comparison with the public imports of the same items. Government should also maintain the same import value for both the imports.

- Government should not change the tariff rates quite frequently, rather, it should do this at best once and in a specific time (e.g., before the budget) of a year.
- Frequent devaluation harms the business and, therefore, it should not be done frequently.
- The quality of commodities that are being produced in our country should be improved by injecting higher technology so that they can compete with foreign commodities.
- Incentives should be provided at least at a limited scale and for a limited period for some strategic items.
- There should have substantial difference of tariff rates between the raw materials and the finished products.

Privatization

- Weekly wages in the privatized mill ranges between Tk. 250 and 350 as against of Tk. 700 to 800 in the state owned jute mills. The minimum wages in the state owned jute mills has been raised to Tk. 1400 to 1500 recently. The minimum wage should be made applicable for all mills.
- State owned jute mills also enjoy more benefits in terms of getting timely loan from the banks and necessary support services from various government agencies as compared with their private counterpart. All mills should get similar facilities.
- Government should provide necessary support services for smooth running of the mill, both private and public.
- Banks should provide loans in due time, provided the mills can repay them in time.
- Government should have close monitoring on the management of the mills.
- Owners should be held responsible if he/she does not run the mill and pay the workers properly.
- Necessary action should be taken against all (owners, employees, workers and/or CBA leaders), who will be involved in wrong doings in the mills.
- Government should ensure that the payment of the retrenched workers are made in due time.
- Government should also take measures to rehabilitate the retrenched workers.

7.2 Finance

7.2.1Observations on Interest Rates Liberalization

The points of argument of different stakeholders and their subjective evaluation of the success of interest rates liberalization may be summed up formally under the following broad heads. Stakeholders confided information they could not vent while in job in banks and ventured comments. Others requested anonymity. Based on the information and relevant data the points raised by them are explained below.

Ground Plan for FSR was not Based on Adequate Homework

1. Financial sector reform initiatives were designed without deep appreciation of the problems and based on inadequate assessment of the inter-linkages among different components of policy recommendations. For example, interest rate liberalization was undertaken without taking into consideration the state of institutional preparedness or examining whether banking system's capability would permit absorption and implementation of the open market policies so promptly. Loan Risk Analysis was introduced in the public banks without ensuring requisite skill to put them into practice.

Lack of Free Market Institutions Needed for the Success of FSR

2. Before the introduction of the FSR 86 percent of bank branches in Bangladesh were in the public sector handling 65 percent of deposits and 74 percent of credit of the banking system. The public banks were burdened with huge non-performing assets locked mostly in ailing and inefficient state enterprises. The public banks are essentially under the elaborate control and guidance of the Ministry of Finance from policy formulation to day-to-day banking operations. Human skill was seriously deficient and there was no scope and incentives for innovative leadership to grow in the banks. Government played three cardinal roles in the state owned banks as owner, as borrower and as regulator. This cycle is not conducive to innovation. On top there was unhealthy and ubiquitous intervention that encouraged corruption, lack of accountability and management indiscipline in the public banks. Under these circumstances the wave of competition expected to be unleashed through liberalization could make little dent on the overall banking environment of the country. The enactment of the Bank Company Act, 1991 (BCA) and the amendments made subsequently to some sections of the BCA could only marginally touch inefficiency, corruption and sloth in the nationalized commercial banks. Worse than this, the very Act discriminated between the NCBs and the private banks in respect of the implementation of some of BCA provisions making regulation of the NCBs by the central bank utterly dependent on the government decisions. Although direct controls were formally withdrawn they remained placed in disguise.

Central bank's Lack of Autonomy Made the Matters Worse

3. Bangladesh Bank is basically a subordinate institution of the Ministry of Finance. It has neither effective authority nor needed competence to regulate the banking system in line with modern bank regulation art. Most policy and in some cases administrative issues are one way or other referred to the Ministry of Finance (MoF) and strict regulatory measures remain the prerogative of MoF. As a result, the desired role of the central bank is yet to be evolved.

Overall Adverse Environment is Smiling Up

4. The overall environment for the financial sector that deteriorated seriously because of cartel of some bank officials and political lobbyists on mutually benefiting terms seems to be improving gradually due to enforcement rules more strictly than before. Lack of accountability, violation of office discipline had encouraged in the past glaring corruption, irregularity and waste. As a result, classified loans had increased, and in the opaque legal and judiciary environment taking hard actions against the defaulters became difficult. No inbuilt process for automatic corrective actions has been developed in the NCBs. The asset portfolio was gradually going from bad to worse. But recently some marginal improvement is faintly coming up.

Weak real sector is one of the causes of financial sector's poor performance

5. Real sector's performance impacts on the banking system. The industries sector has been affected by the sudden biff of competition. It has been forcefully argued that Bangladesh was oversmart in opening up to the international competition without adequate safeguards made. There are lots of anomalies in the tariff structure vis-a-vis much less relaxation of tariff by the competitors of Bangladesh. This situation has further deteriorated because of pervasive governance failure. This has had serious pernicious impact on fresh investment decisions on the one hand and on the competitive edge of the running industries. As a result, demand for investment fund at a price competitive with safer investment in government bonds is low, and as such banks prefer placing their funds in safer havens.

Competition is hampered by government borrowing

6. For a couple of years the government has been forced to borrow liberally from the members of the public by selling saving instruments. Till 20 February 2000 outstanding public debt against government bonds stood at Tk. 151.4 billion or equivalent to 8.7 percent of 1998/99 nominal GDP. Public borrowing through bond sale puts the banks at an uneven position in selling their deposit service to the public and that is why interest rates remain high. Substantial excess liquidity has accumulated in the banks for want of eligible borrowers but the banks do not lower lending rates substantially because of the opportunity for safer investment in treasury bills. The burden of huge non-performing assets also acts against the lowering of the rate of interest.

7.2.2 Recommendations for 2-3 Year Horizon

The following recommendations seem in order on the basis of findings at grass roots and secondary sources of data.

A. National Level

- Arrange free discussions among the regulators, bankers and other stakeholders to build a national consensus for policy changes. The debates in the proposed discussions should spin around broad national objectives as set out in the major National Policy documents to provide a ground of consensus for financial sector reforms. The discussions should be a continuous process to take stock of what has happened and what more to do in future.

B. Bangladesh Bank

- Grant full autonomy to the central bank.
- Research capability of the Bangladesh Bank should be sufficiently improved to monitor, evaluate and innovate appropriate banking policies taking into consideration positive role assigned to it in helping the government achieve national socio-economic objectives. Their research agenda should include topics like poverty alleviation, regional growth and sectoral balance etc. in addition to the issues of traditional supervisory responsibilities.
- Studies on financial performance of the state-owned enterprises and of the government itself in so far they relate to financial sector policies and performance should be commissioned to work out details of ground-plan for reforms. The policy impact of macroeconomic, institutional and legal reforms on agriculture, trade and industry should be made conspicuous in order to make financial sector policies more pragmatic and effective.
- Let government take over the liabilities of the state owned enterprises to the NCBs.
- Establish an Asset Management Company in the private sector to sell out stuck-up assets of the commercial banks.
- Take substantive measures immediately for improving skill of the central bank and the NCBs under concrete programs for training and research in operational and policy areas.
- Involve NGOs and rural money lenders within appropriate institutional framework to be supervised by the central bank for financial services in the rural markets, or in other words induct them as banks' loan agents into the retail segment of banking business.

C. Nationalized Commercial Banks

As regards the NCBs , there seem to be two alternative options:

- Either to privatize the nationalized commercial banks gradually over time over a medium term policy horizon, or
- To grant financial, policy and operational autonomy as soon as possible under a strong and effective regulatory framework that would apply uniformly to all banks.
- To institute vigorous human resource development and utilization policies.

7.3 Agriculture

7.3.1 The Attribution of the Outcomes to the SAP

The crux of the problem is to answer the question unbroken — 'Are the outcomes attributable to the Structure Adjustment Policies'? An attempt has been made to answer the

question on the basis of a set of the hypotheses/propositions developed for this investigation. As many as 58 propositions were made encompassing 13 broad areas/ topics focused on short-term and long-term outcomes. The areas/topics which came under the domain of the direct programme interventions have been classified as 'short-term' or 'immediate' outcomes and they are: mechanized irrigation; chemical fertilizer; pesticides; rural finance from the public sector lending institutions, and public domestic procurement. The topics placed under the 'long-term outcomes' include: poverty; markets; inequality; food security; gender equity; environment; corruption, and social capital. The SAP as such had not however been focused on these areas.

All the hypotheses have been tested according to the 'decision rules' or criteria for testing the hypotheses (see para number 3.3.3.4 in Section 3). The decisions on the 58 hypotheses are presented in Box 7.3.1 against each of the hypotheses. The summary of the decisions on those propositions is portrayed in Table 7.3.1

The table reveals the proportionate attribution of the hypotheses to the SAP. It is found that, on the whole, about three fourths (71%) of all the propositions stated in positive senses (in favour of SAP) have been rejected on the basis of the evidences used according to the 'decision rules' framed for this purpose. This indicates that as far as those hypotheses are concerned, the SAP, by and large, failed to achieve the desired objectives and goals over the last 10-12 years. About one fourth (28%) of the propositions, however, came out 'accepted' suggesting only partial achievement of the SAP over the same time. The longitudinal breakdown of the decisions further highlights that although they had been, more or less, beyond the spectrum of the programme interventions, the non-programme areas were also found to have suffered proportionately more adverse impacts (75%) in the long run than the programme areas themselves (68%).

7.3.2 Observations on the Causality between the Outcomes and the SAP

The Structural Adjustment Policies were found to have done both services and disservices to the Bangladesh agriculture. However, the disservices outweighed the services done to it. The conclusions on the hypotheses confirm that the impacts of the SAP have been as adverse on the other non-programme areas as on the programme ones. The SAP seem to have been designed with a very short-term and narrow development imperatives in view overlooking its numerous interlinkages and dynamic setting. ***Secondly,*** the SAP seem to have been based on mechanistic generalization that it would work equally across the country. But it did not. For example, the disbanding of the irrigation programmes of BADC appears to have a positive impact on the expansion of irrigation coverage through immense build up of irrigation capacity in the north-west region of the country, but it did not work in other agroecological regions such as in south-central region. The disbanding of the rental programme of BADC did more harm

than it did good to the irrigation system in that region. Selling of LLPs, under the private sector did not pick up that much as expected. The overall irrigation coverage either expanded very little or remained at a lower level compared to other regions. The rental programme needs to be vigorously pursued in that region in order to expand irrigation coverage to meet the local unmet demand. The increasing use of LLPs under the rental programmes currently pursued by different public sector institutions (eg DAE) provides ample evidences that this programme is in high demand in the area. ***Thirdly,*** after the privatization of fertilizer distribution, local markets experienced a sharp rise in fraudulent business practices in a massive scale. Adulterated and fake fertilizers are selling on the market and farmers are sustaining loss through deception by buying under-weighed fertilizer bag. To deal with the problem, the programme did not offer any remedial measures such as quality control, and monitoring and supervisory mechanisms in association with the SAP package. In the absence of such measures the farmers had to suffer a lot in the case of quality, supply, and price of fertilizer. ***Fourthly,*** the HYV technology has already had many adverse impact on various subsectors/areas, such as fertility of the soil; contamination of groundwater; pollution of water in water bodies; disease and mortality of fishes; tendency to monoculture; loss of biodiversity; drawdown of water table, etc and it does not seem to be solely attributable to the SAP measures. The role of the Green Revolution technology in the degradation process should also be singled out. The degradation process already in operation due to the GR, worsened further over time due to the programme interventions under the SAP. ***Fifthly,*** there were some problems which stemmed from the more deep-rooted structural issues confronting the rural economy such as landlessness, land concentration, tenancy market, etc, and they had nothing to do with the SAP. Those problems already existing in the economy worsened over time which ought not to be attributed to the SAP as such. Nevertheless, as the SAP failed to take due cognizance of those structural issues at the designing stage, the responsibility of those who had been primarily concerned with designing the policies of the SAP cannot be ruled out.

7.3.3 Stakeholders' Recommendations and Development Imperatives

The stakeholders consulted for this study put forward some recommendations straight-forwardly during the consultations whether they were sought or not from them. However, some other recommendations directly follow from their diagnosis of the problems related to various issues raised for their reflections. The following recommendations are built on their reflections recorded in the course of the consultations with them (Box 7.3.2).

The matrix of recommendations projects some notable features which merit discussion. ***First***, the much-needed role of the government in various facets of agricultural development has come out very prominently from the stakeholders' perspectives. It appears that the

government has been the last resort to the most of the actors of the agriculture sector in general and the farmers in particular. When the farmers fall victim to the fraudulent practices of the traders dealing in irrigation equipment, fertilizer, pesticides, diesel and lubricant, and spares, they find no saviour but the government and therefore look for the government intervention. They believe that the government should expand the range of their activities for the development of the sector. ***Secondly***, in the context of the rampant adulteration of agricultural inputs and marketing of substandard equipment and spares, farmers recommended to entrust BADC with the distribution of fertilizer and operation of power pumps under rental system. This recommendation does not appear to be in conformity with their widely- held recommendation to sustain private distribution system under the close government monitoring and oversight. The stakeholders were found in favour of making both the fertilizer dealers and the local administration currently charged with monitoring and oversight of fertilizer distribution answerable. They laid emphasis on a balanced/mixed type of marketing system where the private sector will be acting as a primary role under the broader guidance of the government. This approach recommended by the stakeholders seems more pragmatic in a country where an effective institutional framework is grossly lacking. In such a situation the government may reconsider to use the service of BADC in the above respects alongside the private sector. ***Thirdly,*** some non-conventional measures have also been recommended such as land reform to ensure both the efficiency of resource use and social justice. Land-poor households are not only losing their land due to a variety of crisis factors and poverty, their access to cultivable land through tenancy market has also become more constrained in the intensively irrigated area over time. Sharetenancy despite its well-know weaknesses, the emerging fixed-tenancy, transacted on pre-paid cash rent basis, appears to have been displacing sharecroppers from the access to cultivable land in the village where the intensification of irrigation has reached its zenith (in the IIV). Land reform has come to the fore also in the context of increasing polarity between the land-poor and land-rich farmers. ***Fourthly***, crop diversification has been put forward by the farmers to be vigorously carried through, although it has already been on the table of the government and development partners. ***Fifthly,*** a variety of measures have also been suggested to reverse the rapid degradation of the environment such as soil, water and biodivesity. Soil health was found to be on the top of farmers' concern and they recommended to increase the application of organic manure and reduce the application of chemical fertilizers and pesticides. This recommendation is expected to upgrade the soil health by counteracting the declining soil fertilizer and increasing inefficiency of fertilizer use (yield increase is camouflaged by incrementally higher rate of application in the years). ***Sixthly***, another strong recommendation has been in place for the development of irrigation infrastructure particularly in the areas lacking sub-surface groundwater (where STW cannot operate) but rich in surface water around/at the sources (as in the MIV). ***Seventhly***, it is a long

overdue to look at the too-excessive abstraction of groundwater for irrigation on the part of the government and to formulate a policy framework for the management of the groundwater exploitation. The farmers held the view that the groundwater should be used in a planned manner and therefore they needed appropriate norms/guidelines from the government in this regard. ***Eighthly,*** *Kutcha* (earth) furrows were found one of the main impediments to an efficient irrigation system in both the study areas causing wastage of water in the *rabi* season. Besides, supply of irrigation water cannot always be provided to the farmers in the *aman* season only due to the absence of furrows. All the temporary furrows constructed during the preceding *rabi* season are totally deconstructed during the *aman* season because *aman* crop is mainly a rain-fed crop. But when need arises for some supplementary irrigation in the *aman* season, farmers cannot get it despite available irrigation capacity in the villages. As a result, the yield of *aman* crop is affected. Therefore, measures to be taken to build permanent distribution system for this purpose. ***Ninthly,*** the present lending procedures of the PSI banks should be streamlined to make the bank credit easily accessible to the poor farmers and workers. It would have positive impact on the increasing polarity between the poor and non-poor, and poverty in the rural areas. ***Tenthly,*** the benefit of the existing public domestic procurement progamme does not reach the farmers at large. The restructuring of the entire programme is desirable in order to make the programme farmer-oriented, rather than trader-oriented. The purchasing procedure should be simplified and corruption at the procurement centre needs to be curbed for this purpose.

7.3.4 Is There any Sustainable Way Out?

i. An evaluation should be comprehensive to estimate total costs and benefits

There is a growing body of evidences that a large number of countries practicing chemical agriculture have are faced with deceleration in yield and consequent slow growth in production and dynamism in their agriculture. The gains from the technological innovation are likely to be on the margin — either have been exhausted or unlikely to be realized further — due to socioeconomic and institutional constraints in those counties. For instance, stagnating and declining yields in intensively irrigated rice even in the experimental station fields in the Philippines, Pakistan and other Asian countries indicate that whatever agronomic gains have been realized is short-term at the expense of the long-term and therefore unsustainable. The Green Revolution technology necessitates incremental increase in the application of external inputs which have rendered HYV farmers not only perennially dependent on it but also made them exposed to increased health risk. Further, it continuously depletes non-renewable natural resources and disturbs ecological balance. The performance of any production system needs to be evaluated not only from short-term but also from long-term perspectives which is usually

not done while assessing the role of the GR. The World Bank evaluation is a case in point. Their evaluation lacks sustainability elements. In one assessment of the GR in Bangladesh, the World Bank summed up as: "In the two decades since independence, rice output has increased by more than 70 percent, with much of the growth resulting from increases in the area under high-yielding varieties. This spread of HYVs has been made possible by: (i) increased irrigation (mostly for the *boro* rice crop); (ii) more intensive use of fertilizers and pesticides; (iii) better flood protection (for the monsoon season crops in some flashed areas)" (World Bank 1991: 39). This kind of assessment takes into account only tangible and marketable parts of the production while many others are not considered any way. It does not consider the negative consequences, associated with the production system as well. The conventional measurement of output is also alleged to be "biased by restricting it to the marketable part of crops" (Shiva 1991: 72). An evaluation of the GR should be based on both marketable and non-marketable parts of the output as well as both short-term and long-term attendant consequences.

ii. The need for a shift to a new development paradigm

The scientists, development practitioners and all those concerned with the Bangladesh agriculture are found overwhelmingly preoccupied with achieving a single goal of raising food production (mainly rice) by mining the vitality of the agriculture. Growing more food by causing environmental degradation through pollution, depletion and encroachment of the environmental systems has been an unsustainable modus operandi thrust on the Bangladesh agriculture by the GR technology. The GR is more concerned about the short-term rather than long-term benefits. Giving priority to the short-term over the long-term gains as done by the GR is not only a myopic but also self-defeating development strategy. The inherent limitation of the GR particularly in respect of sustainably maintaining yield rate has already come into global focus (Pagiola 1995 and Baffes and Gautam 1995). The concerned section of the international communities has already been disillusioned about the 'false sense of security' (Box 7.3.3) and appealed to the people of the developing world to come out from this false hope conveyed by the GR. They called upon the all concerned to work for the 'double green revolution aimed at both sustainability and a rise in production'.

The issue of the 'double green revolution' does not seem to have been added to the agendas of the development discourse, let alone the agendas of action, among the scientists and development practitioners in Bangladesh as yet. It appears that they are lagging far behind the frontier of knowledge and challenges currently being addressed at the global level. The formulation of appropriate policies for a sustainable agriculture presupposes not only the disillusionment with the GR, rather re-orientation of the scientists and development

practitioners towards the need for a shift to a new development paradigm leading to a more sustainable, environment friendly, re-generating and socially just agriculture.

iii. Organic agriculture as a beacon of light

There is no denying the fact that one of critical challenges facing the Bangladesh agriculture is to close the food gap on a sustainable basis in order to feed the millions. In the face of the unsustainable production technology such as the GR, the key question as posed by Wohlmeyer is: "Are there other systems of sustainable agriculture at our disposal that can achieve the high area productivity of mainstream (high-input/high-output) agriculture but that have the potential to feed the growing mega-cities of the future"? (Wohlmeyer 1998: 290). The answer is yes. But how? In the words Wholmeyer, " … *an essentical characteristic of sustainable future economic system must be to minimize the energy and material inputs per service (production) unit, in all sectors. In the realm of food production, organic agriculture is the most appropriate concept. By careful husbanding of soils and landscapes, by relying on site-oriented biodiversity in order to be able to use a maximum of natural synergisms, and by intensive nutrient recycling it minimizes external inputs. Thus, it achieves a maximum net harvest of solar energy in forms usable to humans. In this way it preserves and even improves the soil and achieves the highest possible yields in a way that can be practised for a virtually unlimited time-horizon"* (emphasis added) (ibid: 290). Wohlmeyer's argument and principal concepts are based on several experiments, practices and historical examples. The mainstream proponents tend to disregard this emerging agricultural process and are unwilling to take it seriously. Although organic agriculture has resulted from a "bottom-up" movement, it still has little scientific support, because R & D funding by government and industry is directed to support mainstream activities.

The decleration in rice yield and land productivity in Bangladesh, as also observed in other Asian countries with the same technological setting in agriculture, could not be reversed even with the implementation of the SAP during the last two decades. This necessitates rethinking and re-examining the existing technological paradigm under which the Bangladesh agriculture has been placed. The false hope of food security conveyed by the Green Revolution has led the concerned people to look for an alternative paradigm for the Bangladesh agriculture. The paradigm shift to the 'double green revolution' is aimed at both sustainability and a rise in production. Ways of raising yields should be sought that also improve the conservation of the environment such as water, soil, wood resources, etc. Closing the food gap on a sustainable basis has been a formidable challenge for Bangladesh. Organic agriculture offers a production system which is capable of sustainably taking care of both economic and environmental considerations in Bangladesh. This additionally presupposes different mode of agricultural

research and extension services which should be expected to produce new biological varieties and technologies (eg biofertilizers, biopesticides) suitable for poor farmers with the participation of cultivators themselves who know best their conditions, traditions and possibilities. Therefore, the 60 year-long Bangladesh experience with the GR is enough to conclude: the fate of the Bangladeshi millions lies not in the narrow genetic-based chemical agriculture, but rather in organic agriculture which can achieve the duel objectives — 'sustainability and rise in production'.

Box 7.3.1: Decisions on Hypotheses		
Topics	Hypotheses	Decisions
A. <u>Short-term Outcomes</u>		
1. Mechanized Irrigation	1. The removal of import restriction has facilitated the increased build-up of manufacturing capacity of irrigation equipment and spares in home market	Rejected
	2. The removal of the standardization rule requiring to import certain types of irrigation equipment has furthered the availability and farmers' access to irrigation equipment	Rejected
	3. The removal of import restriction has furthered farmers' access to irrigation equipment	Rejected
	4. It has benefited the farmers with regard to the quality of the equipment and spares	Rejected
	5. It has led to increased farmers' welfare by reducing its prices	Inconclusive
	6. It has promoted competition among the equipment owners leading to the reduction in irrigation charge	Rejected
	7. The rescinding of the siting restriction has not led to the capacity underutilization of irrigation equipment	Rejected
	8. The rescinding of the siting restriction has had a positive impact on the irrigation coverage	Accepted
	9. Private ownership of irrigation equipment has improved the availability and accessibility of irrigation services	Rejected
	10. The private ownership of irrigation equipment has improved the quality of irrigation service	Accepted
	11. The deregulation of the parastatals dealing with irrigation has scaled down corruption, hassle, delay and institutional despotism	Accepted
	12. The marginalization of the parastatals has concomitantly developed the capacity of the private sector to provide the equipment owners with technical and non-technical support services	Accepted
	13. It has ensured adequate supply of diesel fuel.	Rejected
	14. It has ensured adequate power supply	Rejected
	15. The farmers have faced no problem about the quality of diesel fuel	Rejected
	16. It has focused investments in areas suitable for major irrigation development	Rejected
	17. It has strengthened agricultural research and extension services	Rejected
	18. Private ownership of irrigation equipment has had positive impact on poverty, income/assets inequality, gender-inequity, environmental degradation and social conflict.	Rejected
2. Chemical Fertilizer	19. It has improved the availability of a variety of fertilizer on the local market	Accepted
	20. It has scaled up the private trade which has taken care of fertilizer supply throughout the country	Accepted
	21. It has encouraged competition among fertilizer traders resulting in stable supply	Accepted
	22. The increased competition has led to the stable price of fertilizer	Rejected
	23. It must have ensured the supply of quality fertilizer for the farmers	Rejected

(Contd.)

Box 7.3.1: (Contd.)		
Topics	Hypotheses	Decisions
A. <u>Short-term Outcomes (Contd.)</u>		
2. Chemical Fertilizer	24. There has been a significant reduction in corruption, hassle and delay faced by the farmers for the procurement of fertilizer	Accepted
	25. Fertilizer price has been adjusted in line with the world market price	Rejected
	26. The elimination of the subsidy has had no adverse effect on the farmers' affordability and the use of fertilizer	Rejected
3. Pesticides	27. Pesticides have been available on the local market	Accepted
	28. Pesticides retail at a fairly stable price	Rejected
	29. Farmers can apply pesticides properly	Accepted
	30. The pesticides applied have been effective and there has been no problem with its quality	Rejected
4. Rural Finance from Public Sector Lending Institutions	31. It has simplified lending procedures and improved institutional shortcomings of the banking system	Rejected
	32. It has expanded access to formal credit institutions by the assetless	Rejected
	33. It has ensured the disbursement of adequate credit to creditworthy borrowers for the procurement of irrigation equipment	Rejected
	34. It has made credit available for fertilizer purchase	Rejected
	35. It has increased access to credit by the women	Rejected
	36. It has provided private traders with bank loan to build warehouse/storage facilities and hold grain stocks and other produces	Rejected
5. Public Domestic Procurement	37. It has ensured that the procurement prices have been announced prior to harvesting seasons and the messages reach them in right time	Accepted
	38. It has ensured that the farmers have received procurement prices	Rejected
B. <u>Long-term Outcomes</u>		
6. Participatory Poverty Assessment	39. The incidence of hardcore poverty has been reduced	Rejected
	40. The incidence of moderate poverty has been reduced	Accepted
	41. The inequality has not worsened further	Rejected
	42. It has targeted subsidies and government programmes to the lowest income group	Accepted
7. The Markets	43. The participation in labour market has not increased	Rejected
	44. The unemployment has declined	Accepted
	45. The out-migration has been reduced	Rejected
	46. Seasonal variation has declined around the higher wage level across the seasons of the year	Accepted
	47. The incidence of child labour has declined	Rejected
	48. Land under tenancy has increased	Rejected
	49. The price of the irrigated land has risen more than that of the unirrigated land	Accepted
	50. The role of the moneylenders has been marginalized	Rejected

(Contd.)

Box 7.3.1: (Contd.)		
Topics	Hypotheses	Decisions
A. <u>Long-term Outcomes (Contd.)</u>		
8. Inequality: Polarity Between Land-poor and Land-Rich Households	51. Inequality has been reduced	Rejected
9. Food Security	52. Food insecurity has improved 53. Demand for consumption loan has dropped	Rejected Rejected
10. Gender Equity	54. It has expanded programmes for income generating activities by women through training, increased access to credit, and technical assistance 55. The poor women have had lower workload	Rejected Rejected
11. Environment	56. It has improved the quality of the environment	Rejected
12. Corruption	57. Corruption has been curbed	Rejected
13. Social capital	58. Social capital has been formed	Rejected

Box 7.3.2 : Matrix of Recommendations

1. Mechanized Irrigation	1. Take measure to import high-quality machines and spares 2. Take measures to utilize groundwater for irrigation (eg drill DTW) in the area where sub-surface groundwater is not available 3. Ban import of substandard equipment and take necessary measures to check its import. 4. Provide credit for the purchase of irrigation equipment particularly where surface water is available* 5. Make the spares accessible to the farmers 6. Make necessary arrangement so that farmers can rent irrigation equipment at reasonable service charge (provide adequate pumps at the *Upazila* for operating on rental basis) 7. Excavate/re-excavate canals for ensuring the availability of water for irrigation 8 Develop infrastructure (such as canal digging, leveling land, etc) for irrigation development in the areas where surface water-based irrigation potential is high* 9. Enact necessary laws to make the sellers of substandard equipment liable in case of any loss/damage to the buyers and ensure its enforcement properly* 10. Invoke necessary legal provisions for taking action against the equipment sellers for selling substandard equipment through any fraudulent measures* 11. Take measure to manufacture irrigation equipment locally 12. Provide power pump through BADC 13. Lower power tariff 14 Ensure continuous power supply 15. Lower diesel price 16. Ensure timely availability of diesel 17. Curb the adulteration of fuel and lubricants 18. Remove the institutional constraints on the use of electricity for irrigation (eg, mandatory pre-payment of Tk. 25,000; high limit for minimum tariff for electric-powered machines, etc) 19. Train the mechanics and provide necessary support for them 20. Lower irrigation charge 21. Determine the command area for DTW and STW and stop the drilling of multiple tubewells in a certain field 22. Formulate rules/norms for the distribution of irrigation water to avoid social conflict 23. Build concrete furrows to stop wastage of irrigation water and for the conveyance of irrigation water (supplementary irrigation) for *aman* crop 24. Impart training to the farmers in irrigation

Box 7.3.2 : Matrix of Recommendations (Condtd.)

2. Chemical Fertilizer	1. Increase the number of fertilizer dealers 2. Engage smaller fertilizer dealers at the village/block/union levels in the rural areas 3. Open up sale centres at *Upazila*/Union levels 4. Take measures to combat fraudulent practices such as adulterating fertilizer, selling under-weighed fertilizer bag etc. 5. Take quality-control measures and provide tool-kits for the agricultural extension workers for this purpose 6. Make it mandatory for the dealers/traders to weigh fertilizer bags when selling fertilizer 7. Form a high-powered committee to identify adulterated fertilizer 8. Check smuggling of SSP/TSP into the country 9. Invoke necessary legal provisions to combat fraudulent activities such as adulterating fertilizer and enforce its enforcement properly 10. Charge BADC with the responsibility of smooth distribution of fertilizer 11. Set up fertilizer factory in the area 12. Scrape 'command areas' set as geographical units for the distribution of fertilizer 13. The government must control the price of fertilizer 14. Provide subsidy 15. Keep the farmers aware about the official price of fertilizer 16. Undertake price reform in the case of Urea and consider fixing the price around the international price of fertilizer 17. Simplify the present monitoring and oversight system followed by the government department and local administration 18. Make both the dealers and local administration answerable 19. Strengthen extension services such as imparting training to the farmers in proper application of fertilizers 20. Provide agricultural extension service 21. Provide both the farmers and traders with credit facilities 22. Ensure the operation of the existing open market 23. Ensure the government supervision
3. Pesticides	1. Curb adulteration of pesticides 2. Reduce the price and provide subsidy 3. Improve the effectiveness of pesticides 4. Train the farmers in the application and selection of the needed items of pesticides 5. Take measure for the marketing of the limited varieties of pesticides to reduce the harassment of the farmers 6. Ban marketing of all types of harmful pesticides 7. Take measures to reduce the application of pesticides for the reduction of its harmful and damaging impact on the soil, bio-diversity and water 8. Sustain the existing open market

Box 7.3.2 : Matrix of Recommendations (Contd.)

4. Rural Finance from the Public Sector Lending Institutions	1. Provide loan for buying agricultural implements and other inputs 2. Ensure the easy access to bank loan for the rural assetless 3. Simplify the present complex lending procedures* 4. Eliminate the present mandatory provision of collateral security for lending* 5. Combat widespread corrupt practices of the bank officials* 6. Increase the availability and accessibility of bank loan 7. Restructure PSI lending institutions to enable it to take proactive role in both the agricultural development and poverty alleviation*
5. Public Domestic Procurement	1. Curb corrupt practices of the programme officials at the procurement centre 2. Take measures to procure foodgrains first from the farmers directly 3. Set up purchase centre at the local markets 4. Restructure the procurement programme making it pro-farmer rather than pro-trader (eg simplify the procurement programme)* 5. Ensure timely dissemination of information
6. Participatory Poverty Assessment	1. Undertake various programmes (eg, IGAs, safety-nets, etc) for striking directly at the roots of hardcore poverty particularly in the villages where HYV cultivation has expanded vastly because of worsening poverty trend there* 2. Take measures more vigorously particularly to reduce the widening polarity between the poor and non-poor households* 3. Provide consumption loan for the poor* 4. Create employment opportunities in farm and industry 5. Provide government support for agricultural development 6. Simplify credit delivery system 7. Bring more land under irrigation coverage 8. Reduce the prices of agricultural inputs
7. Labour Market	1. Formulate a mechanization policy for the agriculture sector* 2. Provide support for agri-labourers to enable them to undertake off-farm activities* 3. Take measures for the diversification of agriculture* 4. Undertake attractive education programme for the children*
8. Land Market	1. Provide credit for the poor and marginal farmers to enable them to rent land under fixed-rent tenancy* 2. Take measure to increase the tilling right of the tenant farmers and stop unpredictable eviction of the farmers fro m land by land owners* 3. Carry out land reform for increasing the accessibility of cultivable land for the land-poor families*
9. Indigenous Credit Market	1. Provide the small and marginal farmers and workers with both production and consumption loan on easy terms*
10. Inequality: Polarity between the Land	1. Undertake a pro-poor land-mortgage programme to halt the land transfer from land-poor to land-rich households* 2. Introduce irrigation tax to discourage excessive abstraction of groundwater for irrigation* 3. Carryout land reform to counter land concentration process in the rural areas*

Box 7.3.2 : Matrix of Recommendations (Contd.)

11.Food Security	1. Undertake various target programmes (eg, FFE, FFW, VGD, etc in large scale) for the socioeconomic development of the women 2. Impart training to the poor women in agricultural extension and skill building 3. Provide the poor with consumption loan 4. Distribute food [free of cost] 5. Distribute agricultural inputs 6. Provide all-out government support for cultivation 7. Cultivate other HYV crop other than rice 8. Irrigate upland for cultivating vegetables
12.The Environment	1. Apply more organic manure. Use organic manure instead of chemical fertilizer 2. Reduce the use of chemical fertilizer 3. Apply fertilizers of 18 ingredients in stages 4. Excavate/re-excavate canals, rivers to facilitate massive siltation of cultivated land in the rainy season 5. Undertake soil test and take measures accordingly 6. Apply proportionate doses of zinc and gypsum 7. Do not cultivate repeatedly the same piece of land [for giving the land rest and bringing in change in the crop rotation] 8. Plant more saplings 9. Dilimit command area of irrigation pump 10. Reduce the use of pesticides and apply it carefully and curb its adulteration 11. Stop the dumping of industrial waste in the rivers 12. Release fingerlings in rivers, beels at government initiative 13. Go for compulsory rearing of 3-4 domestic animals by every household 14. Provide more support for the promotion of livestock (eg provide veterarians with tools/techniques to make them well-equipped) 15. Go for crop diversification
13.Corruption	1. Ensure the enforcement of the judgement 2. Reorganize the working procedure of the government [bureaucracy] 3. Ensure the accountability/answerability of the government officials 4. The government must take appropriate measures to curb it.
14.Social Capital	1. Organize the villagers* 2. Take measures to resolve rural violence and conflict* (eg related to the command area of STW/DTWs)

Noe: * $\Rightarrow$ those are not recommended directly by the stakeholders but sprang from the findings and the context

Sources: Data Boxes 7.3.1, 7.3.2, 7.3.3, 7.3.4 and others

Box 7.3.3: Excerpts from the CARING FOR THE FUTURE, Report of the Independent Commission on Population and Quality of Life

'Green revolution' conveys a false sense of security

The maldistribution of food aggravates existing inequalities between North and South; it makes developing countries dependent on food imports or other aid — with all the attendant negative consequences on local production and self-sufficiency.

The 'green revolution', based on increased productivity using high-yield cereals, may have run its course — but not without having conveyed a false sense of security. Many countries are failing to raise food production as their populations grow: between 1980 and 1990 food production per person fell in no less than seventy-two of 113 developing nations. In thirty-seven developing countries calorie consumption diminished during the same period. (Commission 1996: 99).

We need to move towards a 'double green revolution'

Sustainability concerning food is vital. We need to move towards a more sustainable use of inputs to agriculture, towards more sustainable management practices. Subsidies encouraging over-use of water, fertilizer, and fossil fuels should be stopped. Organic wastes, currently being burned for flushed into water-courses (especially near towns and cities), should be restored to the soil.

Soil- and water-conservation are therefore indispensable to sustainable agriculture. Increasing crop production and conserving soil, water, and tree cover have been considered largely as separate, or conflicting, tasks. They should now be fused into a 'double green' revolution, aimed at both sustainability and a rise in production. Ways of raising yields should be sought that also improve the conservation of water, soil, and wood resources. Conservation methods, conversely speaking, need to be developed to improve food, feed, and fuel production. (Emphasis added) (ibid: 102-103).

Therefore, a paradigm shift for agricultural research

Agricultural research has been central to increased food production; it is sure to be more important in the future, as crops and methods will have to adapt to changing climate. But the *effort should not be concentrated in high-potential areas or on methods that only the more affluent farmers can exploit. Research should be expected to produce new biological varieties and technologies (e.g. biofertilizers, biopesticides) suitable for poor and women farmers, and for marginal districts. The work should be done with the participation of those who know best their conditions, traditions, and possibilities: the cultivators themselves.*

The operation of national agricultural research centres — and of extension services in order to diffuse the results among farmers — should command high priority, especially in low-income countries with deficits in food supply. (Emphasis added) (ibid: 101-102).