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*AN EVALUATION OF THE CREDIT ASPECTS OF THE INTENSIVE TRANSPLANTED AMAN PROGRAMME IN SELECTED AREAS OF MYMENSINGH DISTRICT**

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ABSTRACT

The credit aspects of the Intensive Transplanted Aman Programme (ITAP) has been investigated in this study. Distribution of ITAP loan was size neutral. Per acre credit need estimated by ITAP was inadequate compared to actuai per acre cost of production. ITAP loan utilization and repayment were found to be unsatisfactory. Loan distribution mechanism has not been free from vested influence. ITAP loan has been appropriated by a good proportion of farmers who did not raise any aman. Substantial non-interest costs were required in getting ITAP loan.

I. INTRODUC TION

Foadgrains constitute the main agricultural product in Bangladesh. Rice accounts for about 92 percent of the reported cereal production and 84 percent of the cereal consumption (BBS 19$Sa). One of the main objectives of the foodgrain production policy during the last two decades has been to achieve self-sufficiency in foodgrain production within the quickest possible time (GOP 1965; GOB 1973; GOB 1980). Government introduced the seed-fertilizer-water technology in the late sixties for Born rice production in the winter season to augment the process of self-sufficiency in foodgrain production. Bores production has grown at a significant 9.7 percent average annual rate between 1961 and 1982 with the rapid changes occurring in the 1960s (Wennergren *etal.* 1984). Inspite of this, self-sufficiency in foodgrains has not yet been achieved rather

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foodgrains import consistently increased from 4 percent of domestic production in the 1950s to 15 percent in the 1970s (Jabbar 1985). Bangladesh has not produced enough foodgrains in the last 20 years even to provide her population with an acceptable manimum level (425 gm per caput) consumption.

The growth in production of Boro rice has been critical in meeting the rising foodgrain needs of Bangladesh from as far back as the late 1960s, but it is the trend in the dominant aman crop which should be of concern since it is by far the most important rice crop accounting for 59.20 percent of all rice harvest and 57.44 percent of all rice acreage (BBS 1986b). Its long time growth since 1961, as well as its recent performance, are disappointing (Wennergren *et al.* 1984) inspite of launching a full-fledged programme (Intensive Transplanted Aman Programme) in 1977 as well as developing irrigation for increasing aman production. It is, therefore, quite essential to look into why aman production is not increasing, specially when there has been a programme exclusively meant for this.

The main objective of ITAP is to increase per acre productivity as well as total production of aman paddy by replacing the local varieties (GOB 1982). Provisions for timely supply of seed, fertilizer, insecticides, irrigation and credit are made so that farmers can afford to raise HYVs. It also aims at imparting training to the field workers of the Agricultural Extension department of the Government about the modern practices and means of production so that they can help the growers in turn. They have been accordingly assigned with the duties and responsibilities so as to ensure proper utilization of ITAP loan and necessary training and advice in connection with the production practice of Transplanted Aman paddy.

There is a set credit norm for financing Transplanted Aman production under the ITAP. All the Nationalised Commercial Banks and the Bangladesh Krishi Bank partipate in this Transplanted Aman financing programme. Per acre cost of production was fixed at Tk. 1700 for HYV and Tk. 800 for local variety. Loans for a minimum of half a bigha (.65 acre) and a maximum of 2.00 acres were allowed. The minimum recommendation for half a bigha was Tk. 283 for HYV and Tk. 133 for local variety in 1983 while the maximum loan limit for 2.00 acres was Tk. 3400 for HYV and Tk. 1600 for local variety (Bangladesh Bank 1983). Credit for fertilizer was disbursed in kind while the rest were in cash. This paper is concerned with an evaluation of the credit aspects of the ITAP in selected areas of Mymensingh district.

II. SOURCE OF DATA

The study was conducted in Kotwali, Nandail, Fulbaria, Phulpur and Gouripur Upazilas of Mymensingh district. A total of 376 samples comprising 277 ITAP loanee farmers and 99 Non-ITAP farmers were randomly selected from the purposively prepared

lists of population. A pre-tested interview schedule was used for collecting data. The data refer to 1983 and were collected during July-October 1984. Survey method was followed in collecting information.

III. RESULTS AND DISCUSSION

Socio economic Characteristics

With a view to identifying the beneficiaries of ITAP, it is necessary to compare the socioeconomic variables of both the ITAP and Non-ITAP farmers. In this respect classification by size of holding shows that the average size of owned land was 3.26 acres for the ITAP loanees and 4.16 acres for the Non-ITAP farmers (Table 1). Average cultivated holding was 3.12 acres for the ITAP loanees and 3.39 acres for the Non-ITAP farmers indicating that large Non-ITAP farmers rented out part of their land. The distribution of land did not appear to be normal in either of the groups of farmers. Twelve percent of the ITAP loanees representing the lowest farm size group had ownership of only 2 percent of total land while the largest 8 percent of farmers owned 27 percent of the total land area. The same relationship holds for the Non-ITAP farmers also.

Average size of family of both the ITAP and the Non-ITAP farmers was 5. Average earning per person was also found to be equal being 2. It was found that 93 percent oft he ITAP loanees had farming as the main occupation. Other occupations were related to business and service representing 3 and 8 percent. No distinct variation was observed between ITAP loanees and Non-ITAP farmers in respect of occupation. Farming was found to be the dominant single major occupation. Proportion of illiterate farms were 39.85 percent for the ITAP loanees and 42.48 percent for the Non-ITAP farmers. It is, therefore, quite evident that in terms of size of family, size of earning persons, pattern of occupation and educational attainment there exists virtually no difference between the ITAP loanees and the Non-ITAP farmers.

The average value of assets of ITAP loanees was found to be Tk. 7601 comprising Tk. 4664 worth of domestic animal, Tk. 543 worth of agricultural implements and Tk. 2395 worth of household durables. The corresponding figures for the Non-ITAP farmers were Tk. 8305, Tk. 4216, Tk. 667, Tk. 771 and Tk. 2651 respectively. Farmers of both ITAP and Non-ITAP groups had, on an average, a pair of draft animal.

The average annual income of the ITAP loanees and the Non-ITAP farmers was respectively Tk. 15483 and Tk. 18311 from agriculture and Tk. 5761 and Tk. 8232 respectively from non-agricultural sources during the year of investigation. Agriculture contributed 73 and 69 percent respectively to the income of ITAP loanees and the Non-ITAP farmers. However, the proportion of total agricultural income received from aman paddy remained the same (51 percent) for both the groups.

TABLE 1. DISTRIBUTION OF ITAP AND NON-ITAP FARMERS ACCORDING TO SIZE OF FARM

Size of farms (acre)	Percent of total farm	Percent of total owned land	Av. size of holdings (acres)	Average size of cultivated holdings
		ITAP		
Less than 1.00	12	2	0.48	0.99
1.00 to 2.00	28	14	1.53	1.84
2.01 to 3.50	29	2.3	2.58	2.87
3.51 to 5.00	16	21	4.34	3.95
5.01 to 7.00	7	13	5.88	5.17
Above 7.00	8	27	11.75	8.43
All sizes	100	100	3.26	3.12
		Non-ITAP		
Less than 1.00	10	1	0.50	1.03
1.00 to 2.00	25	10	1.65	1.78
2.01 to 3.50	27	19	2.97	3.03
3.51 to 5.00	19	21	4.57	3.78
5.01 to 7.00	7	11	6.33	4.78
Above 7.00	12	38	13.17	8.06
All sizes	100	100	4.16	3.39

Aman paddy constituted the highest proportion representing 85 and 91 percent of the total acreage of the ITAP loanees and Non-ITAP farmers. But ITAP loanees devoted relatively more acreage to HYVs including Pajam. Thirty two percent of the total aman acreage of the ITAP loanees was covered by HYVs. The corresponding figure for the Non-ITAP farmers was only 24 percent.

Cost of Production of Transplanted Aman

Three types of aman paddy namely High Yielding Variety (HYV), Pajam and Local variety were analysed. The different inputs used in the production of aman were human labour, animal power, fertilizer, seed and insecticides. Very insignificant amount of manure was used by the farmers. Besides, very few (less than 5 percent) applied irrigation and therefore it was not taken into account while estimating the cost of production. Land use charges and interest on operation cost were also not considered.

Per acre labour use including family labour, was found to be 110 man days for HYV, 95 man-days for Pajam and 74 man-days for Local variety in case of the ITAP loanees. These were 111, 102 aand 72 man-days for HYV, Pajam and Local variety respectively (Table 2). ITAP loanees used a higher proportion of family labour. Application of fertilizer, seeds and animal power varied between the varieties but did not vary significantly between ITAP and Non-ITAP farmers growing a particular variety (Table 3)

TABLE 2. PER ACRE USE OF HUMAN LABOUR IN AMAN BY ITAP AND NON-ITAP FARMERS

(Man-days)

Types of Aman	ITAP			Non-ITAP		
	Family labour	Hired labour	Total	Family labour	Hired labour	Total
HYV	67 (61)	43 (39)	110 (100)	61 (55)	50 (45)	111 (100)
Pajam	58 (61)	37 (39)	95 (100)	58 (57)	44 (43)	102 (100)
Local	53 (71)	21 (29)	74 (100)	46 (64)	26 (36)	72 (100)

Figures in parentheses represent percent of total labour use.

TABLE 3. PER ACRE USE OF ANIMAL POWER, SEED AND FERTILIZER BY ITAP AND NON-ITAP FARMERS

Types of Aman	ITAP			Non-ITAP		
	Animal power (pairdays)	Seed (seers)	Fertilizer (seers)	Animal power (pairdays)	Seed (seers)	Fertilizers (seers)
HYV	20	14	69	20	14	67
Paiam	18	17	55	19	14	45
Local	18	19	34	17	16	33

Adequacy indices as constructed and shown in Table 4 suggests that human labour use was higher to the extent of 17 to 45 percent than the standard required man-days. Animal power,on the other hand, was found to be underused, the only exception was Local aman grown by ITAP loanees. The extent of underuse of fertilizer ranged from 45 percent to 65 percent. Thus the pattern and extent of input use was not found to be really different between the ITAP and the Non-ITAP growers.

Taking all inputs together, per acre cost of production of HYV, Pajam and Local aman was estimated at Tk. 3057, Tk. 2528 and Tk. 2014 for the ITAP growers, and Tk 3032, Tk. 2615 and Tk. 1961 for the Non-ITAP growers (Table 4). Per acre yields obtained by the ITAP growers were 24.80 maunds for HYV, 24.00 maunds for Pajam and 14.18 maunds for Local aman. The same for the Non-ITAP growers were 28.30 maunds for HYV, 19.27 maunds for Pajam and 16.10 maunds for Local aman. Yield indices show that actual yield were, on an average, more than 50 perecent lower than potential yields (Table 5). Net return per acre for the ITAP loanees was calculated to be Tk. 2000 for HYV, Tk. 2608 for Pajam and Tk. 950 for Local aman (Table 6). In case of Non-ITAP growers, per acre net return was found to be Tk. 3986 from HYV, Tk. 2457 from Pajam and Tk. 2112 from Local aman. Net returns from HYV and Local aman were higher for the Non-ITAP growers since the yields of their corresponding aman crops were higher.

TABLE 4. PER ACRE COST OF PRODUCTION OF AMAN BY ITAP AND NON-ITAP FARMERS

(Taka)

Inputs	ITAP			Non-ITAP		
	HYV	Pajam	Local	HYV	Pajam	Local
Human Labour	2209	1909	1475	2219	2041	1448
Animal Power	303	277	273	302	287	265
Fertilizer	257	202	127	245	165	125
Manure	7	3	—	—	—	—
Seed	108	119	134	102	107	123
Insecticides	173	18	5	164	15	—
Total cost	3057	2528	2014	3032	2615	1961
	(1717)	(1328)	(954)	(1812)	(1475)	(1741)

- Not applicable

Figures in parentheses indicate cost excluding family supplied labour.

Requirement, Receipt and Utilization of ITAP Loan

Per acre cost of production as estimated by the Agricultural Extension department of the Government was Tk. 1700 for HYV aman and Tk. 800 for Local aman (Bangladesh Bank 1985). Pajam was probably considered as a Local variety. The minimum recommended credit for half a bigha (0.165 acre) was Tk. 283 for HYV and Tk. 133 for Local variety while maximum recommendation for 2 acres was Tk. 3400 for HYV and Tk. 1600 for Local aman (Table 7). None is allowed to receive loans for more than 2.00 acres.

The different components of costs considered in the estimation of production cost under the ITAP were fertilizer (Urea, TSP, and MP), seed, irrigation, pesticides and

TABLE 5. ADEQUACY INDICES COMPARED TO RECOMMENDED INPUTS, POTENTIAL YIELD AND PER ACRE PRODUCTION COST OF AMAN

(Percent)

Characteristics	HYV		Pajam		Lcocal	
	ITAP	Non-ITAP	ITAP	Non-ITAP	ITAP	Non-ITAP
Human Labour	145	145	125	132	119	117
Animal Power	65	65	60	62	102	99
Fertilizer	55	56	46	37	36	35
Yield	41	47	48	39	47	54

Tae adequacy indices were calculated as follows :

$$\text{Adequacy Index (inputs)} = \frac{\text{Qty. of Inputs actually used}}{\text{Qty. of Inputs recommended}} \times 100$$

$$\text{Adequacy index (yield)} = \frac{\text{Yield actually obtained}}{\text{Potential yield}} \times 100$$

Note. The recommended man-days of human labour and pair-days of animal power are based on studies related to determination of standard human labour and animal power requirement (Jabbar and Faruque 1978 ; Faruque 1979) while that of fertilizer is based on ITAP credit norm 1983 (Bangladesh Bank 1983). Potential yields of HYV, Local and Pajam are based on estimates given by Alim (1982).

labour (only hired labour as evident from the money allocation). It is quite clear that only the cash components were considered for the ITAP credit. Considering the cost components as estimated under ITAP norm, per acre cost in the present study became Tk. 1407 for HYV, Tk. 1038 for Pajam and Tk. 681 for Local aman Table 7 (sub-total A). So far as these cash costs are concerned, ITAP farmers received more credit per acre than the ITAP norm for HYV and Local aman. But it was lower for Pajam which should have been equivalent to HYV because of its acceptability by the farmers as a HYV as well as its area coverage and per acre yield as found in the present study. If these cash costs be the credit requirement, then ITAP possibly have provided the required amount of credit for aman cultivation.

TABLE 6. PER ACRE GROSS AND NET RETURN RECEIVED BY ITAP AND NON-ITAP FARMERS

(Taka)

Variety	ITAP			Non-ITAP		
	Gross Return	Total variable cost	Net Return	Gross Return	Total Variable cost	Net Return
HYV	5057	3057	2000	7018	3032	3986
Pajam	5136	2528	2608	4972	2515	2457
Local	2964	2014	950	4073	1961	2112

TABLE 7. PER ACRE PRODUCTION COST ACCORDING TO CREDIT NORM OF ITAP AND PRESENT STUDY

(Cost per acre in Taka)

Inputs	HYV		Pajam		Local	
	ITAP Norm	Present Study	ITAP Norm	Present Study	ITAP Norm	Presetnt Study
Fertilizer	413	257	—	202	326	127
Seed	45	108	—	119	45	134
Irrigation	500	—	—	—	—	—
Pesticides	100	173	—	18	50	5
Hired Labour	642	869	—	749	379	415
Sub Total A.	1700	1407	—	1088	800	681
Animal Power	—	303	—	277	—	273
Family Labour	—	1340	—	1160	—	1060
Manure	—	7	—	3	—	—
Sub Total B.	—	1647	—	1440	—	1333
Grand Total (A+B)	1700	3057	—	2528	800	2014

ITAP norm includes cost of irrigation worth Tk. 500 per acre for HYV whereas none of the ITAP loanees applied irrigation. Moreover, they used relatively lower quantity of fertilizer than recommended and estimated by the ITAP. It is, therefore, clear that amount of loan earmarked for irrigation was utilized somewhere else. On the other hand, the under use of fertilizer suggests that either the farmer purchased less of it or have used thinly to the additional aman acreage beyond the target acreage of ITAP. The over use of seed was probably due to the risk associated with germination of the same for which the cost exceeded the norm. ITAP loanees spent more than the recommended amount on pesticides in HYV. It is thus quite clear that the pattern of actual cash cost may vary from the recommended pattern.

Since cash cost have been the basis of ITAP credit norm, the inclusion of cost for draft power partially, if not fully, seems to be quite rasonable in view of the unfavourable animal power situation in Bangladesh where 37 percent own no animal and 10 percent own only one (Wennergren *et pl.* 1984, p. 115). In the present study also it was found that 9 percent own no animal and 17 percent own only one. Inspite of this unfavourable animal power situation farmers tried to use more or less standard amount of animal power. But farmers who do not own draft animal or own inadequate draft animal had to purchase the same. This might have required borrowing from other sources in addition to the fund received from ITAP. Thus inclusions of cost for draft power should be given due attention to the cash cost component of the ITAP norm.

Per acre production cost estimate including draft power became Tk. 1710 for HYV, Tk 1365 for Pajam and Tk. 954 for Local aman. The recommended amount of ITAP loan roughly conform to this amount for HYV but it was considerably lower for the Pajam and the Local variety. The cash cost as found in the present study would be still higher if recommended doses of fertilizers were applied.

Farm size classification sugeests that loanees of lower farm sized received relatively higher amount in relation to their aman acreage. In fact some of the ITAP loanees virtually did not raise any aman or raised lesser acreage than that shown in loan application. In this context it was found that 13 percent of the total ITAP loaneees receiving 11 percent of the total ITAP loan did not raise any aman at all. This is further clear from loan utilization where it has been observed that a large portion of loan money was utilized for purposes for which loan were not sought.

ITAP loan distribution per farm was observed to be better than any other credit programme though smaller farmers received slightly lower proportion of credit (for unequal distribution of loan see, Bashar *et al.* 1981 ; Alam 1982 ; Alam and Momen 1978). Degree of inequality was found to be minimum (Gini Ratio .05) in the distribution of ITAP credit. This suggests that ITAP loan distribution was almost size neutral. Of the total ITAP loanees, 11 percent also received loans from other sources in addition to the

loans of ITAP. On the other hand, 19 percent of the ITAP loanee receive loan from institutional sources other than ITAP during the aman season. The average size of loans (Tk. 3110) received by the ITAP loanees from other institutional sources was considerably higher than that received by the Non-ITAP farmers (Tk. 2388) as evident in Table 8. This suggests that ITAP loanees had relatively more acces to the credit institutions.

Most of the ITAP loan was utilized for meeting capital, non-farm and family expenditure which together accounted for 71.27 percent of the total amount of credit. Only about 29 percent was found to have been used in meeting the current variable expenditure in the form of seed, fertilizer, labour and insecticides for T. Aman production. Table 9 shows that respectively 0.30 percent, 14.95 percent, 1.59 percent and 11.49 percent of ITAP loan was utilized for seed, fertilizer, labour and insecticides. Capital expenditure alone constituted 44.49 percent while family consumption for 6.88 percent of the total credit used in aman production. Repayment of ITAP loan was highly unsatisfactory (only 15.14 percent).

Non-interest cost per hundred Taka of ITAP loan received was found to be Tk. 7.63. Thus the effective rate of interest paid by ITAP loanee was much higher than mere official rate of interest. It has been found that conveyance, as a component of non-interest cost, constituted the highest (41.47 percent). The second important was the payment made to intermediaries for loan negotiation which accounted for 28.32 percent of the total non-interest cost. Payment to the intermediaries was made for loan negotiation with the credit personnel on borrowers' behalf. The intermediary negotiates the loan from the beginning to the ultimate receipt of loan. Opportunity cost of the wages sacrificed accounted for 20.69 percent of the non-interest cost. Other non-interest cost were cost of entertaining people (5.19 percent), stamps (2.32 percent) and application form (.22 percent).

In response to questions related to the necessity of supporting services, farmers reported that they were in need of technical help during the production process which they did not receive from any of the concerned personnel of ITAP. Very frustratating results were received when the farmers were asked about the post-loan monitoring situation. Very few reported that extension agents went to them during the post-loan disbursement period. Whatever visits were paid it was not for providing technical advice to the farmers but merely to remind the loanees about the repayment of loan.

TABLE 8. DISTRIBUTION OF CREDIT RECEIVED FROM ITAP AND OTHER SOURCES

Size of farms (acres)	Loan received from ITAP		Loan received from Other sources			
			ITAP loanee		Non-ITAP farmers	
	Percent of farm	Percent of total credit	Percent of farm	Percentof credit	Percent of farm	Percent of credit
Less than 1.00	11.2	10.0 (1903)	16.7	15.4 (2880)	10.5	11.9 (2700)
1.00 —2.00	28.6	24.2 (1803)	30.0	23.3 (2419)	31.5	22.7 (1717)
2.01 —3.50	29.0	32.0 (2353)	30.0	37.2 (3854)	21.1	19.0 (2150)
3.51 —5.00	16.3	18.7 (2442)	13.2	13.1 (3180)	21.1	21.1 (2394)
5.01 —7.00	7.2	8.7 (2561)	3.3	3.6 (3374)	10.5	17.6 (4000)
Above 7.00	7.7	6.4 (1780)	6.7	7.4 (3450)	5.3	7.7 (3500)
All sizes	100.0	100.0 (2131)	100.0	10.0 (3110)	100.0	100.0 (2388)

Figures in parenthesis represent average amount Taka.

TABLE 9. UTILIZATION OF ITAP LOAN BY DIFFERENT PURPOSES

Purposes		Percent of total ITAP loan
Recurring Agril. Expenditure		28·73
Seed	..	0.30
Fertilizer	..	14.95
Insecticides	..	1.59
Hired Labour	..	11.89
Capital Expenditure	..	44.48
Family Expenditure	..	19.91
Non-farm Expenditure	..	6.88
All purposes	..	100.00

IV. CONCLUSIONS

Almost all the categories of farmers received proportionate share of the total ITAP credit. Per acre estimate of credit requirement as per ITAP norm approximately conform to the cash cost of HYV but it was considerably lower for Pajam and Local aman. This has induced many farmers either have not to raise aman at all or to raise lesser acreage than what was shown at the time of receiving credit. A good proportion of loan went to those persons who did not raise aman at all. Large scale deviation in utilization is an indication of inadequacy of loan.

Aman acreage of the Non-ITAP farmers were relatively higher which suggests that the programme virtually could not influence ITAP farmers in commanding more aman acreage. It could not contribute to additional farm income of the ITAP loanees since both ITAP and Non-ITAP group received the same proportion of income from Aman. It could not influence even the productivity. Per acre yield of Non-ITAP farmers was higher. Dominance of local varieties exists in spite of a number of years continuation of the programme.

Loan delivery mechanism has been found to be unsatisfactory. Involvement of middlemen between the loanee and the programme made the non-interest cost larger. Besides, this contributed significantly in diverting loan to people who had no connection with aman production as well as agriculture. Repayment was quite unsatisfactory and it was largely constrained by widespred deviation in loan use. There was virtually no follow up of ITAP loan. None received extension services and training in connection with crop production practices. Duties and responsibilities assigned to the concerned extension

personnel were not properly performed. It is thus quite unlikely that anythit g significant can be anticipated from such a programme given the types and intensity of extension services and the level of monitoring and follow up observed in the study.

REFERENCES

Alam, M.F. (1981) : *Institutional Credit for Agriculture in Bangladesh.* Unpublished Master of Agricultural Development Economics Thesis, submitted to the Australian Natioanal University.

Alam, M. F. and M. A. Bashar (1986) : *Impact of Intensive Transplanted Aman Programme on Farm Income in Selected Areas of Mymensingh District.* Unpublished Research Report, Dept. of Agricultural Finance, Bangladesh Agricultural University, Mymensingh.

Alam, M.F. and M.A. Momen (1978) : *Financing Agriculture in Bangladesh : An Economic Analysis of the Credit Institutions.* Unpublished Reseaarch Report. Department of Agricultural Finance, Bangladesh Agricultural University, Mymensingh.

Alim, A. (1982) : *Bangladesh Rice.* Dhaka : Urme and Abu Bakar, 18, Garden Road.

Bangladesh Bank (1983) : *ACD circular No.* 4 83, Dhaka : Agril Credit Dept.

Bangladesh Bureau of Statistics (1985a) : *Statistical Pocket Book of Bangladesh* 1984-85, Dhaka : Ministry of Planning.

Bangladesh Bureau of Statistics (1985b) : *Year Book of Agricultural Statistics.* Dhaka : Ministry of Planning.

Bashar, M.A., K.Q. Elahi and M.F. Alam (1981) : *An Investigation into the Taka 200 Crore Special Agricultural Credit Programme in Some Selected Area of Myemsnisingh District.* Research Report No. 5, Bureau of Socioeconomic Research and Training, B.A.U., Mymensingh.

Faruque, A.K.M. (1979) : *Determination of Standard Labour Requirement for Different Crops by Technologies in Bangladesh,* Unpublished Term Paper submitted to the Dept. of Agril. Econ., B.A.U., Mymensingh.

Government of Pakistan (1965) : *The Third Five Year Plan* 1965-70, Karachi : Ministry of Finance.

Government of the People's Republic of Bangladesh 1973) : *The First Five Year Plan,* 1973-78, Dhaka : Ministry of Planning.

————(1980) : *The Second Five Year Plan,* 1980-85. Dhaka : Ministry of Planning.

Jabbar, M.A. (1985) : "Food Production in Bangladesh : Policy, Strategy and Consequences". *Bangladesh Journal of Agricultural Economics,* 8, 1 (June).

Jabbar, M.A. and A.K.M. Farque (1978) : "Labour Requirements for Production of Major Crops in Bangladesh". *Bangladesh Journal of Agricultural Economics,* 1,1. (June).

Wennergren, E.B. *et al.* (1984) : *Agricultural Development in Bangladesh.* Colorado : Westview Press Inc, U.S.A.